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Tourism and climate change: evaluating the extent of policy integration

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ABSTRACT
Climate change poses complex challenges and addressing these requires increasing integration across policy domains. This research developed a framework to assess policy integration between the tourism and climate change domains by examining coverage, scope, materiality and alignment. A database of 101 policy documents was compiled, representing 61 countries over 17 years. Only 37 documents covered the tourism-climate nexus substantially, suggesting climate change has not yet become a priority for tourism policy makers. Considering that tourism makes considerable contributions to and is substantially impacted by climate change, the observed gaps in tourism policy need to be addressed. The paper concludes with some minimum expectations for policy integration, including examples of good practice, and suggests that more effort is required to achieve climate change policy integration in tourism.

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Climate change; policy; integration; government; adaptation; mitigation

Introduction

Climate change poses multiple and complex challenges to policy and decision makers. Some impacts exacerbate existing risks, whereas others present new challenges that require different solutions, or transformative societal changes (Intergovernmental Panel on Climate Change [IPCC, 2018). The increased impact of extreme weather events is an example of an established but worsening risk, whereas the decarbonisation of whole economies represents a new and significant socio-economic transition risk. Due to the complexity of climate change and the adaptation and mitigation actions it demands, policymaking is becoming increasingly cross-sectoral and multi-level, with both horizontal and vertical integration emerging as cornerstones of policy development and governance structures (Mickwitz et al., 2009). Climate Policy Integration (CPI) refers to the "integration of multiple policy objectives, governance arrangements and policy processes related to climate change mitigation, adaptation and other policy domains" (Di Gregorio et al., 2017, p. 36).

Tourism is an increasingly important economic sector globally, with annual growth rates of over 5% (United Nations World Tourism Organisation [UNWTO], 2018). Not surprisingly, tourism's emissions are growing as well, representing about 8% of anthropogenic greenhouse gas

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emissions in 2013 (Lenzen et al., 2018). As a result, tourism is beginning to give more attention to sustainability (UNWTO , 2019) and climate change (Scott & Gössling, 2018) in its policy objectives. Accelerating climate change (IPCC, 2018) makes it increasingly difficult for destinations to ignore the impacts and respond passively, despite a potentially high adaptive capacity in tourism (Scott & Becken, 2010). The literature highlights the vulnerability of many destinations (Scott et al., 2019) and the need for anticipatory adaptation planning (Becken, 2017). Klöck and Nunn (2019) examined a broad range of adaptation categories in tourism, and whilst most measures focus on structural or social initiatives, development of institutional responses has been recognised as a form of adaptation (Becken & Hay, 2012). The mainstreaming of climate change into national tourism policies and frameworks, as evidenced in the Seychelles or Samoa, exemplifies a proactive adaptation measure in the policy space (Klöck & Nunn, 2019).

Considering climate change in tourism policy represents a considerable shift, given that traditionally, the objective pursued by Tourism Ministries and Bureaus is to grow tourism, increase revenue and maximize economic benefits (Becken & Hay, 2012; Joppe, 2018). Deeply anchored in the neoliberal paradigm (Becken, 2017), tourism agencies at national and international levels prioritise growth and have thus far failed to develop policies that effectively address climate change, possibly because such policies are likely to require deeper changes in the dominant paradigm (Becken, 2019). Early shifts towards addressing aspects of climate change are evident in a recent analysis of national tourism policies in relation to sustainability more generally (UNWTO, 2019).

Climate change policy increasingly needs to bring together different sectors, stakeholders and scales (Mickwitz et al., 2009) and be more coordinated (Schmidt & Fleig, 2018). However, the question presents itself as to how key sectors of the economy, such as tourism, are becoming active contributors in this process? Whilst tourism policymakers are, no doubt, increasingly aware of climate change and the risks and opportunities it might pose (Gössling & Scott, 2018), there has been very limited analysis on whether this manifests in actual policymaking. Similarly, whether the tourism sector and its related activities are integrated in climate change policies are largely unknown (Santos-Lacueva & González, 2018; Tam, 2019).

This research assesses integration between the two policy domains of tourism and climate change, recognising that climate change is an issue that transcends traditional boundaries of policymaking and demands approaches that go beyond conventional institutional responsibilities (Meijers & Stead, 2004). The research deliberately takes a normative stance in favour of CPI (Russel et al., 2018), and aims to improve our understanding of how tourism and climate policy currently integrate, where major gaps lie and what could be done to advance integration. The research has three objectives:

1. Develop a framework that helps assess the extent of policy integration between the climate change and tourism domains.
2. Determine the coverage, scope and materiality of policies that address the tourism and climate change nexus and explore indications of policy integration.
3. Demonstrate good practice in policy integration, in particular inclusion of climate change in tourism policy documents.

Background

Climate policy integration

The cross-sectoral nature of climate change requires high levels of coordination and integration between policies in different domains (Schmidt & Fleig, 2018). National climate policies that fail to 'bring with them' the various sectors of the economy are less likely to achieve their objectives (Becken & Hay, 2012), and more likely to be hampered by inherent policy conflicts and disputes

Table 1. Concepts used to describe and analyse policy integration.

Policy Concept	Description	Extent of Integration
Coordination	Coordination refers to a process whereby "decisions made in one program or organisation consider those made in others and attempt to avoid conflict" (Peters, 2018, p. 2), including within a single policy and across multiple policies. It may manifest in adjusting sectoral policy so to minimise conflict with other policies.	Integration is a process that coordinates and brings together different policies into a unified whole (Briassoulis, 2005). It requires an alignment of objectives, ongoing dialogue, exchange and conflict management (Santos-Lacueva & González, 2018).
Cooperation	Cooperation focuses on the process of ensuring communication and exchange of information between organisations that represent different policy domains. The aim is to develop more efficient sectoral policies, although cooperation can hamper progress because of inherent difficulties arising from different policy aims, cultures and structures (Keohane & Victor, 2016).	
Consistency	Policy consistency can be defined as "ensuring that individual policies are not internally contradictory and avoiding policies that conflict with reaching a given policy objective" (OECD, 2001, p. 104).	
Coherence	Coherence refers to policies that support or reinforce policy actions across several organisations, departments or domains, and aims to avoid conflict through the adjustment of structures and decision-making processes to effectively integrate. This requires analysis of policy synergies and trade-offs to develop coherent policies, representing a higher level of integration than consistency (OECD, 2018; Santos-Lacueva& González, 2018).	

over mandates and accountabilities across multiple government departments. The emerging literature on CPI builds on the broader area of Environmental Policy Integration (EPI). Integrated policymaking is required where a policy problem presents itself at a scale that goes beyond what is typically covered in sectoral objectives (OECD, 2001).

The literature presents a range of concepts that reflect different degrees of policy integration, or steps toward integration. These include coordination, cooperation, consistency, and coherence. Despite some difference in definition and interpretation, Santos-Lacueva and González (2018, p. 3) emphasize that the various concepts represent different processes and points on a spectrum of "do not duplicate" to the more aspirational end of achieving a "unified whole". Table 1 provides an overview of these concepts on a spectrum that indicates the extent of policy integration, noting that conceptual ambiguities remain.

The level of CPI differs for mitigation and adaptation. For climate mitigation, Mickwitz et al. (2009) noted that national policies often constitute roadmaps for carbon reduction. National mitigation policies are driven by international agreements, which provide frameworks and key objectives for national emission reductions (e.g. Paris Agreement, UNFCCC, 2015). The national policy translates these into strategies and actions, where the implications for individual sectors, one would expect, should be considered. However, often policies remain generic, for example by establishing emission reduction pathways or high-level strategies, such as investment into renewable energy.

In contrast, national adaptation strategies often take a different approach. Their goal is not to constitute a single national adaptation policy, but rather facilitate the 'mainstreaming' of adaptation measures into sectoral policies and plans. This is in recognition of the contextual nature of climate impacts and adaptation needs that differ by region, industry, and risk profile. Mickwitz et al. (2009) note this approach to adaptation bears a risk to focus on visible impacts, omitting lesser known (sectoral 'blind spots'), slower onset or pervasive issues of national importance (e.g. sea level rise). Thus, similar to mitigation policy, adaptation policy would benefit from an overarching (global and national) adaptation policy framework that ensures consistency and facilitates integration with sectoral policies (Runhaar et al., 2018).

National climate policy making has been enhanced because of countries' submissions of National Determined Contributions (NDCs or INDCs) and National Adaptation Plans (NAPs). NDCs summarise mitigation and adaptation efforts by each country that has ratified the Paris Agreement, and are presented to the UNFCCC every five years. Whilst mitigation reporting is mandatory, most countries also include a section on adaptation. Furthermore, NAPs were established under the 2010 Cancun Adaptation Framework to assist countries in building resilience to climate change impacts, and to integrate adaptation into relevant policies and strategies (Hammill & Price-Kelly, 2017). NAPs refer to domestic planning processes. Both NDC and NAP frameworks have generated a comprehensive minimum global standard for climate policy and planning. As a critique, however, Schmidt and Flieg (2018) suggest that these higher-level (and 'softer') documents tend to be adopted by governments, because they "… do not interfere with sector-related policy-making and/or the existing institutional structure" (p. 178). Accordingly, high-level documents, such as NDCs, can facilitate sectoral and cross-sectoral policy integration, but could also inhibit deeper and more meaningful policy integration.

The level of CPI is influenced by institutional factors, including the exchange of information, dynamics and power relations, processes for dealing with conflict, and leadership (Russel et al., 2018). These determine whether a ministry or department feels that climate action and integration is a legitimate domain for activity and resource allocation, alongside factors of organisational culture and individual behaviours, including staff member's interest, flexibility and resources (including cognitive ability) to address climate change. Policy networks and relationships between government departments play a key role in effectively addressing the tourism-climate change nexus, both in terms of obtaining relevant information and expertise (Becken & Clapcott, 2011). Micro and meso-level factors are embedded within wider macro-drivers reflected in societal goals and values, institutional arrangements, economic philosophy, and historic context (Russel et al., 2018).

There are known barriers to policy integration, such as lack of staff resources and capacity, different visions and lack of clearly identified and agreed joint objectives, organisational competition, and conflicts with traditional and established policy frames (Russel et al., 2018). Despite good efforts, inconsistencies between policies persist and trade-offs between climate policy and sector policies or plans are often ignored (Mickwitz et al., 2009). This can be partly explained by different spatial and temporal scales associated with the costs and benefits of climate change and associated policy. Policy integration is more likely to be supported if there are substantial co-benefits (Mayrhofer & Gupta, 2016). When successful, CPI manifests in two main forms. One is the specific consideration of different sectors (and the roles they might play in an economy and society) within climate policies. The second relates to climate action becoming increasingly relevant as a policy goal in some sectors, for example energy and transport, but also infrastructure development, science and innovation (Mickwitz et al., 2009), and maybe tourism. The extent to which these two forms of CPI occur in relation to tourism policy is the focus of this research.

Evaluating CPI is challenging. Policies are integrated if they reflect a high level of comprehensiveness (i.e. a broader scope of policy outcomes), aggregation (evaluating options from a higher level), and consistency (penetration into all policy levels and agencies). Mickwitz et al. (2009) suggested a range of activities that augment CPI, including a deliberate use of the annual budget as

an instrument to implement climate policy, reporting mechanisms and clear accountabilities, reframing old conflicts, and systems for monitoring and evaluation. Schmidt and Flieg (2018) focused on CPI outputs, and suggested that evidence of an increasing number of national-level climate policies across eight pre-defined categories (e.g., adaptation, carbon pricing, energy demand, and transportation) would indicate advanced integration, and this was established for higher income countries and those with more pronounced environmental vulnerability. This research uses a similar approach, to identify the extent and nature of integration apparent in both tourism and climate change policy documents.

Tourism policy

The literature indicates that tourism policy has largely focused on one particular dimension, namely the economic perspective (Hall, 1994; 2008; Velasco, 2016). Velasco (2016) contends that there are five main objectives of government tourism policy. The first centres on growth and competitiveness and includes issues such as promotion, balance of trade, visa policies, business development and investment. Whilst development may assist in building climate resilience, tourism growth is currently associated with growing emissions (Becken, 2019). The complexity of global mobility, networks, equity, visa access and climate change has been explored in the various contributions by John Urry (Sheller, 2017), highlighting not only shifting sociologies of travel, but also the difficulties in developing national and global policies that achieve agreed (positive) outcomes for all. The second relates to the geography of tourism, whereby governments seek to disperse tourism benefits strategically and ensure sustainable use of resources and community participation. Again, this policy goal is not without potential for policy conflict, especially when regional development might erode carbon reduction or environmental protection needs (Becken, 2019). The third focuses on the visitor and seeks to deliver safe and enjoyable tourist experiences, for example by developing quality standards and risk management programs. The increasing consumer demand – at least for certain market segments – for sustainable and safe products is well documented (Cvelbar et al., 2017), and should support integration of climate change priorities into tourism policy. The fourth tourism policy objective deals with coordination, for example the stimulation of public-private partnerships or particular governance structures. The fifth objective relates to data, tourism statistics, and other research and development. Existing studies that measure the carbon footprint (e.g. Lenzen et al., 2018) or vulnerability of tourism (Scott et al., 2019) highlight the close link between robust tourism data and addressing climate change.

Clearly, climate change policy integration could occur across these five dimensions, but this is rarely done. Primarily this could be due to the economic focus of tourism decision makers, and the perceived trade-off between sustainability and profitability (Moeller et al., 2011). Other reasons might relate to the often-discussed fragmented nature of tourism, consisting of many small businesses and cutting across the public and private sectors, and the lack of a 'common voice' (Becken & Clapcott, 2011). Other authors have explained the lack of climate policy in tourism by limited awareness and capacity to address climate change (Tam, 2019; Wong et al., 2013), lack of adequate and relevant data, and complications related to scope and mandates (e.g. international aviation emissions, Becken & Shuker, 2019).

An OECD & UNEP (2011) report indicated limited inclusion of climate change in tourism policy in OECD countries. It revealed a focus on economic instruments and legislation, often accompanied by awareness campaigns in relation to emissions reductions. Furthermore, the report found that most countries had not developed specific policies to respond and adapt to a changing climate.

Findings from studies in Fiji (Jiang et al., 2012) and Vanuatu (Klint et al., 2012) highlight a similar lack of explicit tourism and climate change adaptation policies, although the Fijian government indicated plans to integrate climate change into future sectoral policies. Samoa's policy

environment was found to be conducive to developing policy for tourism climate change adaptation, although a gap emerged between the Samoan government's commitment to address climate change and the tourism industry's interest in being engaged (Wong et al., 2013).

A lack of integration between climate change and tourism policies was also found in a recent assessment of Nordic countries (Landauer et al., 2018). The national climate change strategies of the four Scandinavian countries did not consider specific tourism needs, nor did tourism strategies cover climate change in any particular depth. The authors recommended that better integration, as well as cooperation amongst Nordic countries and between the public and private sectors, would enhance destination competitiveness and resilience.

Focusing on policy coherence as a concept, Santos-Lacueva and González (2018) resolved that because climate change has not traditionally been considered in Spanish tourism policy, it has yet to evolve in a way that allows both policy domains to establish common objectives and values. Achieving greater coherence with climate policy would help achieve important tourism goals, including sustainability, improved brand value, better diversification, and safety management. The lack of consideration of climate change in tourism policies has also been identified as an important risk for tourism in Sri Lanka (Tam, 2019).

Analysis by Moyle et al. (2018) confirmed that for the context of Australia, wider political and policy environments influence whether tourism organisations engage in climate change or not. To encourage greater consideration of climate change in tourism policy, organisations such as the UNWTO have produced reports on the global challenges that climate change presents to tourism and the need to develop response measures (e.g. Scott et al., 2008; UNWTO , 2019). Notwithstanding such higher-level attempts to share information and recommendations, integrating tourism and climate policy continues to be challenging for tourism policymakers, especially when there are conflicts with established goals (and vested interests) such as tourist arrivals and economic growth. As discussed in earlier work, key barriers to decarbonising tourism relate to the policymakers' focus on perceived pathways of success, existing performance measures, and the strong influence of private sector elites or existing power holders on policy making (Becken, 2019; Scott & Gössling, 2018).

Importantly, tourism cuts across all aspects of society and the economy, and multiple jurisdictions. Tourism and climate change policy therefore need both horizontal and vertical integration. Whilst this research draws on aspects of vertical integration (e.g. NDCs and NAPs as elements of global frameworks), it also draws on horizontal integration of government public policy, between the climate change and tourism domains. This paper contributes to understanding and improving CPI in the tourism domain through an assessment of policies where integration is evident, to understand the current position with regards to integration, determining good practice approaches, and identifying opportunities and recommendations to improve future tourism policy development.

Method

Research scope

To assess climate policy integration, this research drew on a range of relevant publicly available public sector policy documents that covered the nexus between tourism and climate change. It became apparent there were a range of document types that were self-described as a policy, framework, strategy, action strategy or plan, or a combination of these. Whilst it is acknowledged that there might be differences between the documents, it emerged that the title does not often clearly reveal the purpose of a policy, for example a strategy could have been written like an action plan, or vice versa. For this reason, a comparative analysis is not presented and all documents are combined as 'policies' hereafter. Whilst typically produced by national-level agencies, some documents were developed at international, regional, or state-level, and these were included in the

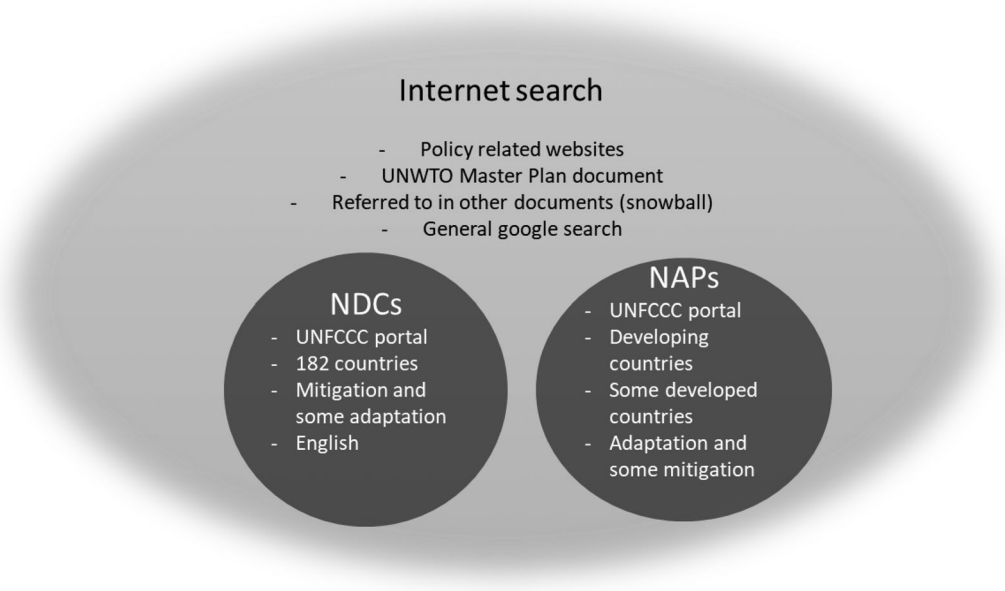

Figure 1. Overview of data collection steps and sampling frames.

database for completeness and examined to help understand differences in the scale and types of tourism-climate change policy integration. A list of all documents is available from the authors.

Earlier research used a word search and count in policy documents to extract or assess relevant outputs (Moyle et al., 2018; Santos-Lacueva & González, 2018). This approach identifies documents that mention the words 'tourism' (in climate policy) or 'climate change' (in tourism policy) but does not provide an indication of the extent of integration. Our research sought to develop a guide for identifying 'minimal' consideration that went beyond word counts. For tourism documents, minimal consideration refers to climate change being mentioned more than once and in a meaningful way evidenced for example in climate change being listed as a priority, and/or an objective, action or indicator. The 'minimal' threshold in climate change documents was achieved if tourism was mentioned in a material way, and/or referred to in the objectives, actions or indicators. A table on NDCs that used the word 'tourism' but failed to meet the 'minimal' threshold is presented in Appendix A.

In terms of timeframe, all relevant and publicly available policy documents within the scope of the analysis were added to the database. The earliest we found was from 2005. Some documents specified both the publication year and timeframe for which the policy was developed, which assisted in determining whether they were current. Policies that met the scope of this research but appeared outdated were included only if there was no obvious replacement for them.

Data collection

Identifying relevant documents that shed light on CPI in tourism consisted of several steps, and these involved increasing levels of uncertainty regarding comprehensiveness. Figure 1 illustrates the sampling frame, that was applied to identify policy documents. Considerable effort was made to identify as many policies as possible, but because the real number of policies is unknown (especially if different languages were included) the database may not be representative. Given the focus of this work is to understand policy integration within the tourism-climate nexus, the sample still provides important research findings.

Firstly, NDCs were systematically searched by entering the term 'tourism' on the UNFCCC (2019a) website, where all 182 NDCs that have been submitted by March 2019 are saved in English language. In total, 68 mentioned tourism at least once, and 22 NDCs met the minimal threshold to be included in the analysis. The UNFCCC (2019b) also provides access to NAP documents of developing countries, and NAPs of developed countries were included if they appeared in further online search. Plans that mention tourism but did not provide any further detail on how to address vulnerability, were excluded.

In addition to NDCs and NAPs, a wider Internet search for relevant policies was undertaken. For climate change policies that referred to tourism, two websites were particularly helpful in identifying documents, namely www.preventionweb.net and Climate Adapt. The latter is a platform for information sharing on climate change, maintained by the European Commission and the European Environment Agency. Identifying tourism policies and strategies that referred to climate change was aided by a UNWTO (2015) Tourism Master Plan inventory that compiled information on national tourism strategies. All current plans identified in the UNWTO were assessed against the inclusion criteria.

Further searches were undertaken, using keywords such as 'tourism strategy', 'tourism policy', 'tourism plan', and 'master plan', in conjunction with the term 'climate change'. In addition, several NAPs referred to tourism-specific strategies. If these were not already part of the sample and met the criteria, they were added to the analysis. The search was terminated once it no longer revealed any new documents. The above approach primarily returned documents in the English language. However, the search brought up a small number of documents in German, Spanish, and French (languages that the authors have competency in), for example when these policies had an English heading or were referred to in other documents (e.g. in UNWTO, 2015). Where these documents contributed to addressing the research objectives, they were included in the database.

Criteria and coding framework

Initially, documents were coded according to the primary focus of the policy document. There were three categories of documents: 1) dedicated tourism and climate change policies (T&CC); 2) tourism policies that included climate change (T + cc), and 3) climate change policies that included tourism (CC + t). In addition, geographic and temporal identifiers were recorded, as well as the status of the policy as being current or outdated. The content of the documents was assessed in the second phase of the analysis. To this end, an analytical framework was developed, inspired by earlier work by Mickwitz et al. (2009), Niedertscheider et al. (2018) and Santos-Lacueva and González (2018). Four key criteria guided the content analysis (Figure 2).

Coverage: As a first indicator of the extent of coverage of the tourism-climate change nexus, a word count analysis has been undertaken. For climate policies, the word 'tourism' (and the Spanish, German, French equivalents), and for tourism policies, the term 'climate change' has been counted. NVivo software was used, and this also provided a total word count of the document, allowing us to derive the share in percent that the keyword of interest contributed.

Climate policy scope: This criterion refers to the specific focus of the policy as being on climate mitigation, adaptation, or both. In the case of climate change policies, it was noted that tourism was often only mentioned in relation to either mitigation or adaptation, even if the document as a whole addressed both types of climate response.

Materiality: The materiality was assessed by verifying if tourism and climate change were specifically addressed in the document's objective(s), action points, and/or measures. An objective generally reflected a longer-term goal, whereas an action entailed a more tangible and implementable activity. A measure was an indicator set up to monitor change, although sometimes measures were phrased more like actions or precursors to a quantifiable indicator. To evaluate

Criteria for assessing the level of tourism – climate change policy integration

COVERAGE The extent of coverage is an indicator of quantity (how often mentioned), weighted by quality (how substantial).	**Minimal**: when 'tourism' or 'climate change' made up less or equal 0.04% of word count.
	Moderate: when 'tourism' or 'climate change' made up between 0.05% and 0.09% of word count.
	Solid: when 'tourism' or 'climate change' made up between 0.1% and 0.5% of word count.
	Extensive: when 'tourism' or 'climate change' made up more than 0.6% of word count.
CLIMATE CHANGE SCOPE The climate change focus of the policy, framework, strategy or plan.	**Climate change mitigation:** reducing greenhouse gas emissions to limit the magnitude or rate of global warming.
	Climate adaptation: minimising and managing the risks from climate impacts and strengthening resilience.
	Climate mitigation and adaptation: reducing greenhouse gas emissions and adapting.
MATERIALITY The extent the nexus is specifically addressed in the document's objective(s), action(s) and measure(s).	**Zero**: Nexus is not mentioned across the objectives, variables, and measures.
	Minimal: Nexus is mentioned once across the objectives, variables, and measures.
	Medium: Nexus is mentioned twice across the objectives, variables, and measures.
	Extensive: Nexus is mentioned three times across the objectives, variables, and measures.
ALIGNMENT Reference to other policies, frameworks, strategies and plans relevant to the nexus	**General:** Any other policies were mentioned.
	Nexus-specific: The document recognised the nexus by specifically referring to relevant policies.

Figure 2. Framework for assessing tourism – climate change policy integration in documents.

materiality, terms related to climate change such as 'climate impact/threats', 'adaptation', 'mitigation', 'resilience', 'vulnerability', 'emission', 'low-carbon' were searched for in the objectives, actions and measures. This task was not always straightforward, as in some cases there was a lack of clarity or overlap between what might be interpreted as an objective, action or measure. Some actions or measures were retrieved from tables in a document, and others formed part of a detailed action plan with timelines and responsibilities. Eventually, four variables were created, namely three binary ones to reflect whether a document included the tourism-climate change nexus in the objective, action, or measures, respectively (1= yes, 0= no), and a summary indicator that added up the number of mentions (ranging from 0 to 3, see description in Figure 2).

Alignment for integration: Finally, it was recorded whether documents cross-referenced with other policies, plans and/or identified integrated actions or reporting. If these included climate change or tourism policies, this was noted as an indicator of alignment, and potential for coordination or integration (see Table 1).

Limitations

The main limitation of this research is the unknown 'sample size' of relevant policy documents globally that cover tourism and climate change (see Figure 1). The international scope was intentionally large to identify a sufficient number of documents; however, the search could only identify documents that are in the public domain. This search was made easier for climate change motivated policies due to the existence of the UNFCCC platforms, but it was more challenging to identify tourism policies with climate change content. Policies that are publicly available are specifically designed to communicate key messages to the public, investors, decision makers and other stakeholders, including international organisations. Governments develop a large number of internal policy documents, and whilst these could be relevant to this research, they are often unavailable to the public. Moreover, the search was orientated primarily towards policies published in English, with some exceptions. This means that geographic gaps are likely, although this bias is somewhat addressed by the inclusion of NDC documents which are all published in English

language. The language limitation is therefore more likely to affect tourism-motivated policies. Thus, the 101 policy documents compiled for this study may not be fully representative of global policy making in this area, but nevertheless they represent a comprehensive database of documents for studying the tourism-climate change nexus. Since the focus of the analysis is on the nature and evidence of integration, the bias maybe less problematic, unless there is reason to believe that non-public and non-English documents fundamentally differ in their approach to CPI.

Finally, whilst the analytical framework was developed to maximise transparency and objectivity, a level of subjectivity remained. The idiosyncrasy of the diverse policy documents meant that it was sometimes challenging to classify content unambiguously with regards to the four evaluation criteria. In those cases, team discussions helped to consistently classify and code a document.

Results

A total of 101 documents were identified and this section provides a summary of document types, geographic coverage and timing. Subsequently, the framework in Figure 2 was applied to assess policy integration between the climate change and tourism policy domains, and to identify good practice and resulting recommendations for improvement.

Tourism-climate nexus policy outputs

Most policy documents (73%) identified in the search were climate policies that included content on tourism (CC + t). Eighteen percent of policies originated from the tourism domain and included aspects of climate change (T + cc), and 9% were developed specifically to address tourism and climate change (T&CC for Australia, Bulgaria, India, St Lucia, Samoa, South Africa and Tunisia). Across all 101 documents, 61 countries were represented, led by Africa (31%),Europe (22%), the Pacific (15%) and the Caribbean (14%). Several countries produced documents that originated both from a tourism and a climate change motivation. These were Belize, Fiji, Guyana, Maldives, Mexico, Palau, St Lucia, South Africa, Tunisia and Vanuatu (Figure 2). No country is represented with policy documents across all three groups, i.e. CC + t, T&CC and T + cc. The strong representation of island states and developing countries may influence the findings. In addition to national level policies, there were seven documents each of an international or sub-national scale (not shown in Figure 3).

Between 2005 and 2014, there was a steady increase in the number of published policy documents that consider the tourism and climate change nexus (Figure 3). A sharp increase is observed in 2015, coinciding with the Paris Agreement, where there was a peak of 16 climate change policies that incorporated tourism (well above the average of 5.7 per year),and a decline thereafter. Policies motivated from a tourism perspective (T + cc or T&CC) are scarce, with an average of 0.7 and 1.3 per year respectively. The dominance of CC + t policies is maybe not surprising given that NDCs are mandatory for countries that have ratified the Paris Agreement representation of NAP and NDC policies in our sample (Figure 4).

Sixty-eight of the 101 documents were current, and nine were outdated. The status was unclear for 24 documents, for example because they had just expired but no replacement appeared to exist. In terms of dedicated T&CC policies, there were only two current examples, namely the Bulgarian "Advisory Services on a National Climate Change Adaptation Strategy and Action Plan: Assessment of the Tourism Sector", and the Queensland "Building a Resilient Tourism Industry: Queensland Tourism Climate Change Response Plan".

Coverage and scope of the tourism-climate change nexus

About a third (N = 37) of policies covered the tourism-climate nexus to either an extensive or solid level, with another 33 showing moderate-level coverage (Table 2). All nine of the dedicated

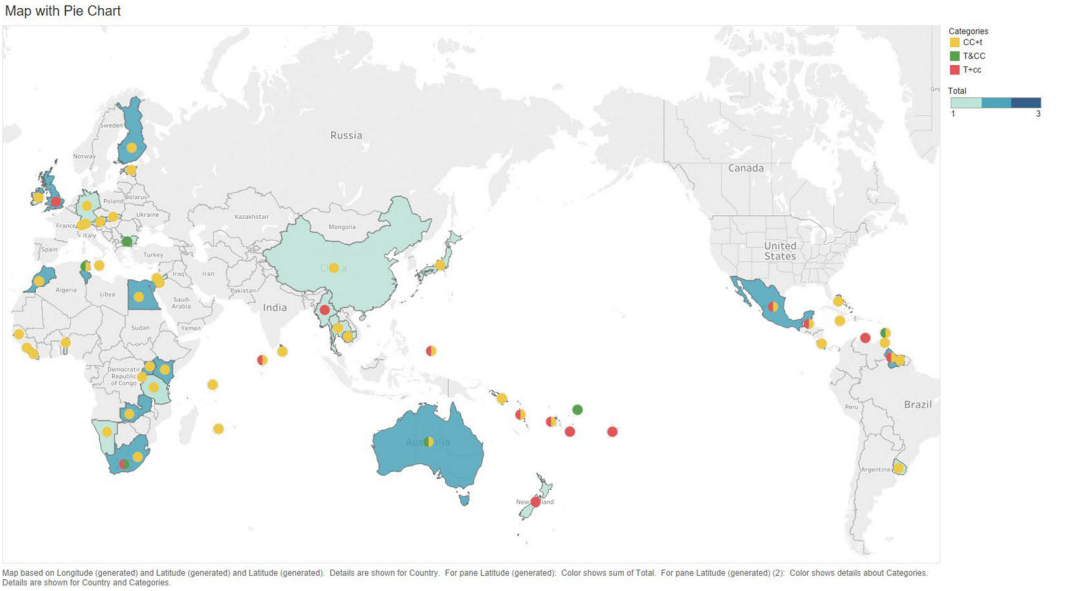

Figure 3. Countries represented in the database. Note: the colour of a country indicates the number of policy documents, whereas the pie chart identifies policy document categories.

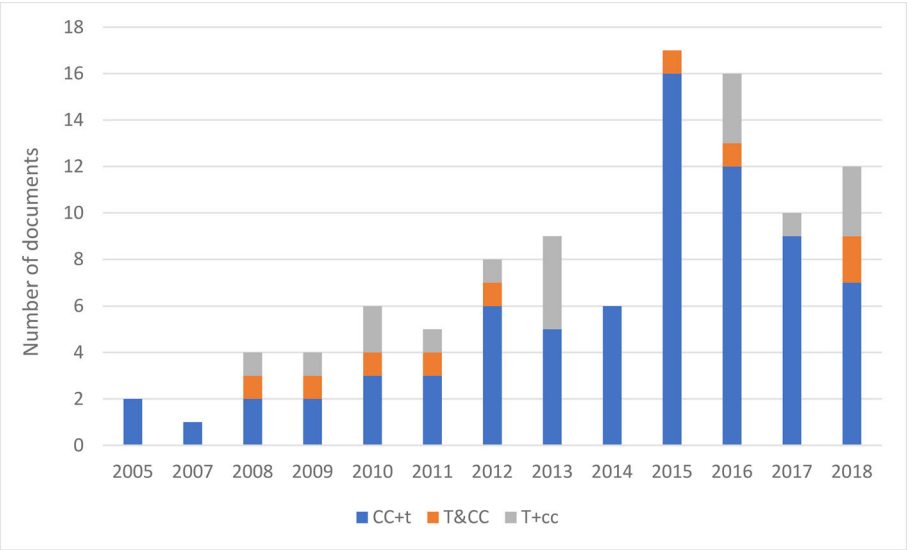

Figure 4. Publication year of policies addressing tourism and climate change between 2005 and 2018 (Note: one document had been identified in early 2019, not shown in this Figure).

T&CC documents were extensive, both in terms of how often they mentioned 'tourism' and 'climate change'. The share of climate policies that mentioned tourism in a solid or extensive way (31%), was slightly higher than that of tourism policies mentioning climate change (28%). Those with 'minimal' coverage in the CC + t group were often NDCs. This may not be surprising given the nature of NDCs presenting higher-level and multi-sectoral summaries of national initiatives.

Table 2. Scope and coverage of the climate change-tourism nexus in policy documents.

			Minimal	Moderate	Solid	Extensive	Total
CC + t	Scope	Adaptation	8	14	12	1	35
		Both	4	5	4	0	13
		Both (tourism only adaptation)	9	7	6	0	22
		Both (tourism only mitigation)	2	0	0	0	2
		Mitigation	1	1	0	0	2
	Total		*24*	*27*	*22*	*1*	*74*
T&CC	Scope	Adaptation	0	0	0	2	2
		Both	0	0	0	7	7
	Total		*0*	*0*	*0*	*9*	*9*
T + cc	Scope	Adaptation	3	0	0	0	3
		Both	0	5	5	0	10
		Mitigation	4	1	0	0	5
	Total		*7*	*6*	*5*	*0*	*18*
Total			**31**	**33**	**27**	**10**	**101**

Table 2 also shows that 40% of the documents focused solely on climate adaptation, and another 54% considered adaptation and mitigation. Only 7% of policies were solely addressing mitigation, and most of these covered the nexus minimally. T&CC policies were typically comprehensive in covering adaptation as well as mitigation (78%). Over half (56%) of the T + cc policies addressed adaptation and mitigation, with 28% having a mitigation-only focus and the remaining 17% focusing solely on adaptation. Of the 37 CC + t policy documents that, as a whole, addressed adaptation plus mitigation, the majority (59%) considered tourism only in an adaptation context. This indicates more attention to tourism being a vulnerable sector that requires assistance to adapt, rather than addressing sources of emissions. Only two policies that integrated adaptation and mitigation took the approach of addressing tourism solely from a mitigation perspective. China's INDC (China Government, 2016) is one example, with the scope for tourism being one of energy efficiency and reducing emissions in the service industries more broadly.

Materiality

Materiality was evaluated based on the extent to which the tourism-climate change nexus was present in the objectives, actions, and measures. The summary score for each document gives insight into the materiality of CPI and tourism. Only 12% of all documents scored zero by not including the nexus in any of the three sections. In contrast, 27% were classed as extensive as they included the nexus in all three sections. The remaining 37% and 24% of policies had medium and minimal, respectively, materiality scores. There were notable differences across the CC + t, T&CC, and T + cc groups, with the dedicated T&CC policies showing the greatest likelihood of having included the nexus in either objectives, actions or measures (Figure 5).

The analysis showed that 63 documents contained content that specified at least one objective related to the tourism-climate nexus. The objectives varied, with the most common themes relating to reducing greenhouse gas emissions, increasing awareness, developing adaptation measures, and putting in place monitoring systems. In some cases, the tourism-related objective was narrowly framed (e.g. "Enhance the resilience of the tourism value chain." Ministry of Environment & Natural Resources & Government of Kenya, 2016, p.36), in other cases the objective was multi-dimensional, for example: "Tourist infrastructure, attractions and suppliers are protected from negative climatic impacts to ensure a strong, reliable service to visitors. Benefits from low carbon branding and carbon taxes are exploited" (Ministry of Labour & Technological Development & Environment Suriname, 2015, p. 66). Several policies referred to resilience to the impacts of extreme climate events, with the Zambia's Ministry of Tourism, Environment and

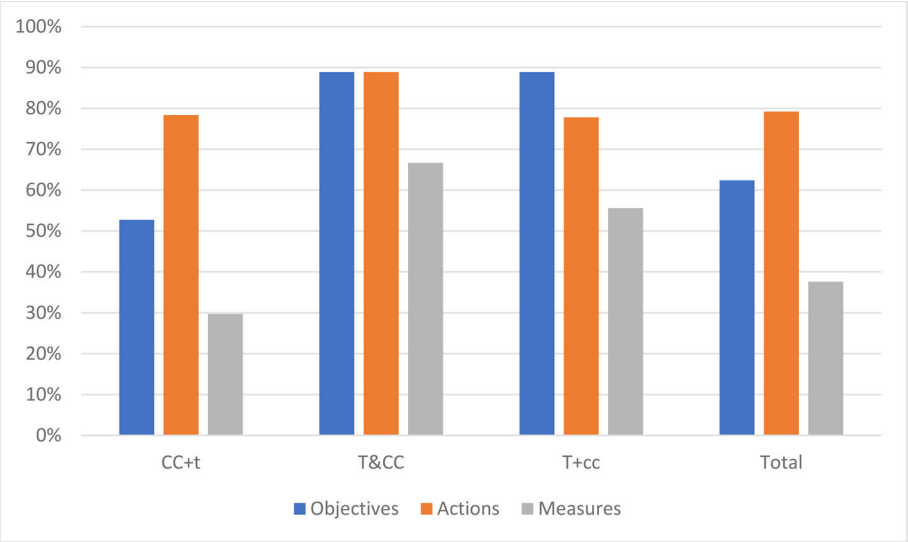

Figure 5. Proportion of policy documents that considered the nexus in either the objectives, actions or measures.

Natural Resources' (2010) policy also recognising that destinations needed to develop resilience towards indirect effects (see Table 3).

Eighty documents articulated actions, and most of these (85%) had also considered the nexus in the policy objectives. Some policies suggested actions that covered both adaptation and mitigation. For example, the Fijian tourism strategy recommends to both "Enforce building codes that promotes climate resilient infrastructure" and "Promote renewable energy utilisation in the tourism industry" (Ministry of Industry, Trade and Tourism, 2018, p. 14). Monitoring success of climate actions is important, yet 62% of the documents did not specify relevant measures or they remained vague. Some guidance on monitoring was provided in the European Tourism Indicator System toolkit, for example around carbon offsetting (European Commission, 2016). Table 3 presents good practice examples of policies that demonstrate a linked pathway between objectives, actions and measures. The Sri Lanka NDC, for example, delivers a detailed sector adaptation plan for tourism and recreation, with a small excerpt shown in the Table below (Ministry of Mahaweli Development & Environment, 2016, p. 23). The examples from Saint Lucia (Caribbean Community Climate Change Centre, 2015) and Palau (Bureau of Tourism et al., 2016) illustrate that some measures are framed like sub-actions and clearly measurable indicators have yet to be developed, although Palau does propose a very specific indicator related to emergency planning.

Policy alignment

All but nine out of the 101 documents (91%) cross-referenced to other policies, but only 34% referred specifically to policies relevant to the tourism-climate change nexus. This indicates relatively low awareness of policies in the 'other domain'. Belize, for example, is represented with three different documents that recognise the nexus: *"National Sustainable Tourism Master Plan of Belize (2011-2030)"*, *"A National Climate Change Policy, Strategy and Action Plan to Address Climate Change in Belize (2014)"*, and the *"Belize NDC* (2016)". The Tourism Master Plan does not refer to the climate policy, but the more recent climate change policy refers to the Tourism Master Plan. The most recent document, the NDC, does not mention the Tourism Master Plan, despite listing a large number of policies from other sectors. This example indicates that alignment is limited, even in a country that appears to be proactive in both the tourism and climate change domains.

Table 3. Examples of well linked policy objectives, actions and indicators from selected policies.

Name	Objective	Action	Measure
CC + t National Climate Change Response Strategy Zambia	Developing the domestic tourism market to cushion the tourism industry against the spill-over effects of possible mitigation measures in the international aviation industry.	1. Developing the domestic tourism market. 2. Improving rangeland carrying capacity: construction of watering points in wildlife areas in readiness for droughts.	1. Output: 800,000 domestic tourists per year by 2015. 2. Output: 10 boreholes per park sunk in all the 19 prone parks such as the Sioma Ngwezi, Kafue National Park, and Lower Zambezi.
CC + t National Adaptation Plan for Climate Change Impacts in Sri Lanka (Sector Action Plan – Tourism and Recreation)	Adjustment of tourism and recreation industry to altered conditions of the destination.	Conduct research studies on climate change impacts on tourism and recreation.	• Number of research studies conducted and published on climate change impacts on tourism and recreation. • Amount of money allocated/spent on climate change impacts on tourism and recreation.
	Increase the preparedness of tourism and recreation operations to extreme weather conditions	• Identify tourism facilities in vulnerable areas and make arrangements to improve the resilience • Prepare guidelines on managing emergencies in tour operations • Train tour operators on emergency management strategies • Design tourism infrastructure to meet the safety needs of operations. • Build system's capacity for smooth switching to alternate plans • Establish emergency communication channels for tourists and operators	• Guidelines on managing emergencies in tour operations are developed • Number of tour operators trained on emergency management strategies • Number of tourism infrastructures designed to meet the safety needs of operations • Amount of money allocated on developing system's capacity for smooth switching to alternate plans • Amount of money allocated on establishing emergency communication channels for tourists and operators
T&CC Saint Lucia: Impact assessment and national adaptation strategy and action plan to address climate change in the tourism sector	To enhance national and regional institutional capacity in areas such as climate monitoring, data retrieval and the application of space-based tools for disaster risk reduction	To improve the recommended guidelines to tourism operators to more effectively address climate change	• Use more energy efficient cooling systems as well as proper maintenance • Incorporate "green" design into buildings – e.g. natural cooling systems, green roofs, and designs that maximize natural lighting • Review requirements of Building Code to ensure that "green" designs are included in building codes, monitor and enforce requirements for "green" designs

(*continued*)

Table 3. Continued.

Name	Objective	Action	Measure
T + cc Palau Responsible Tourism Policy Framework	Sustainable carrying capacity ranges are established, determining acceptable levels of environmental, cultural, and community impacts	Visitor carrying capacity can be estimated using any of a number of techniques, […] to analyse existing studies and survey results that document Palau's biophysical and social dimensions to identify the nature and extent of potential impacts from current and new tourism development, visitation and climate change	Thresholds are identified beyond which increased growth of tourism may no longer be sustainable
		Efforts to mitigate issues related to climate change such as rising sea levels and extreme weather events are incorporated into tourism development planning and management	Degree to which key tourist sites/zones are covered by contingency or emergency planning (existence of plan, % area included)

Figure 6 shows the extent of policy alignment that was observed for the three different groups of policy documents. The dedicated tourism-climate change policies showed greatest recognition of other relevant climate or tourism policies, whereby climate policies (CC + t) were slightly more likely to recognise relevant tourism policies, than the other way around. Only four out of 18 (22%) tourism policies mentioned any climate specific policy. The most comprehensive effort to seek alignment was evident in the Mauritius climate change policy (Minister of Environment & Sustainable Development, 2012), which presented ten tourism-related policies and the degree to which they included climate change or not.

Discussion

This study analysed the extent of integration between climate change policy and tourism policy. This is in response to growing recognition that climate policy is likely to be more effective if sectoral plans are developed (Schmidt & Fleig, 2018), and that tourism competitiveness and economic development are likely increased if climate opportunities and risks are considered within the core policy goals of destinations (Scott et al., 2019). Building on earlier work by Mickwitz et al. (2009) and Santos-Lacueva and González (2018), this research contributes an advanced framework and baseline to examine the extent of tourism-climate change policy integration. It also identifies a minimum set of expectations for effective CPI in tourism policy going forth. The framework considered aspects of coverage, scope, materiality and policy alignment. The criteria set out in the framework for assessing the level of policy integration might also be suitable for analysing other issues pertinent to policy integration in tourism, for example health, accessibility, safety and transport-related challenges.

The study identified 101 policy documents that considered the tourism-climate change nexus over the last 17 years, representing 61 countries. Only 68 documents are considered current, and 37 were found to have covered the nexus substantially (extensive/solid). Most of the documents were climate driven policies (CC + t), and there were only nine dedicated T&CC policies of which only two are current. The high representation of island nations is notable, but perhaps not surprising, given their simultaneous dependence on tourism and their high vulnerability to climate risks (Scott et al., 2019). However, it is noteworthy that these island states are neither significant contributors to carbon emissions, nor are they likely to have the resources to adapt to mounting

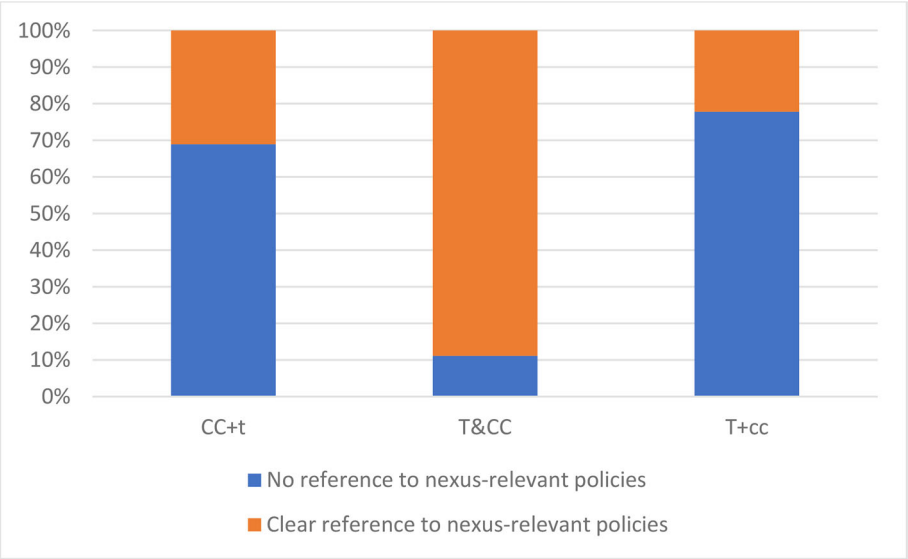

Figure 6. Evidence of alignment through explicit reference of nexus-related policies.

climate impacts. At the same time, the largest countries and contributors (both in terms of emissions and tourism) are absent from this analysis and do not appear to have publicly engaged in the tourism climate nexus as evidenced in policy documents. Considering that tourism is one of the largest and fastest growing industries globally (UNWTO, 2018) and that climate change is recognised as one of the greatest sustainable tourism challenges in this century (Scott et al., 2008), limited evidence of CPI in tourism policy is astonishing.

Whilst the analysis revealed that some vertical global policy frameworks (i.e. NDC and NAP) have facilitated horizontal integration between the climate and tourism policy domains, the materiality analysis reveals several important gaps. At this point, tourism is mainly perceived as a vulnerable sector that requires adaptation, but policies that address the tourism's carbon intensity are less common, despite the sector's carbon footprint (Lenzen et al., 2018). Gaps were also evident in relation to policy objectives targeted at tourism, and indicators that measure progress. The limited number of tangible measures in particular in policies originating from the climate domain could be explained by a lack of knowledge about tourism and/or the limited engagement between climate and tourism departments (Tam, 2019). At the same time, there appeared to be very limited CPI in tourism-motivated policy documents. Possibly this reflects the lack of a vertical policy framework that provides sectoral guidance on CPI for tourism (e.g. Scott et al., 2008). Such a global framework could be developed by the UNWTO, building amongst others on their recent analysis of sustainability in national tourism plans (UNWTO, 2019), and giving direction on integration (e.g. aligning growth and emissions as top key indicators). At this point, however, it appears the risk that climate change poses to tourism has not been well understood or incorporated into tourism policy (nationally and globally), perhaps because addressing climate change is seen to be in conflict with economic growth and marketing (Becken, 2017; Hall, 2008).

This research makes an important contribution in revealing major gaps in tourism policy regarding climate change and providing a baseline for policy integration in the tourism-climate nexus. Using the coding framework, Table 4 summarises the most critical findings relevant for tourism policy against the criteria and sets out some good practice examples. Future analysis of what agency led the development of the policy, and whether overseas funding supported this (as well as external consulting expertise) would be useful for understanding drivers, enablers and level of capacity.

Table 4. Critical findings and good practice examples for CPI in the tourism domain.

Criteria	Expectation	Critical Findings	Good Practice Examples
Coverage	Tourism policy should address and include climate change.	Out of 101 documents, only 27 were tourism driven – 9 were specifically designed to cover the nexus. Five T + cc policies had solid coverage	England's Sustainable Tourism in England: *A framework for action Meeting the key challenges*)
Climate change scope	Tourism policy documents should address both climate adaptation and climate mitigation.	Adaptation was considered in 94% of documents, however mitigation was considered in 61% documents 78% of T&CC and 56% of T + cc policies covered both adaptation and mitigation	Queensland's *Tourism Climate Change Response Plan* (2017) The *Caribbean Sustainable Tourism Policy Framework (2008)*
Materiality	Clear climate-tourism objectives should be determined	T&CC policies demonstrated the greatest likelihood of having included the nexus in objectives, actions and measures	Zambia's *National climate change response strategy* (see Table 3)
	Specific climate-tourism actions should be determined	80% of all documents have actions determined that cover the nexus, but these vary in scope and quality	*Final National Climate Change Policy, Strategy and Action Plan for Suriname*
	Clear and measurable climate-tourism indicators should be determined	62% of the documents do not specify indicators, and where they do, they tend to lack sufficient detail	*The European Tourism Indicator System - ETIS toolkit for sustainable destination management*)
Policy alignment	Tourism policies should refer and align to existing climate change policies	91% cross-referenced to other policies, but only 34% referred specifically to policies relevant to the tourism-climate change nexus	Mauritius' *National Climate Change Adaptation Policy Framework*

The socio-political contexts in different countries and regions varies and will influence the likelihood of tourism-climate policy integration (see for example Santos-Lacueva & González, 2018). Different drivers might include relative economic importance of tourism, occurrence of climatic disasters, political systems, or the salient role of individual policy leaders/champions (Scott & Gössling, 2018). Further, some countries have legislated national climate policy that has been in existence for some time, such as the UK (Climate Change Act, 2008), and this vertical policy direction is likely to influence how extensive CPI may be in tourism policies. Even where CPI in tourism policy is documented, it is worthwhile noting that this does not mean it is necessarily effective or enacted (an area for further research), and there could still be fragmented and conflicting policy outcomes.

Closer coordination and cooperation between climate and tourism departments could help address the silo-type tourism policy approach (Keohane & Victor, 2016). This research indicated that policies can demonstrate awareness and alignment of other policy outputs, but coordination is patchy (e.g. Belize). As suggested by Bianchi and Peters (2016), organisations could begin with passive coordination to then move to positive and strategic coordination where a higher and systemic goal is pursued jointly. Working together towards decarbonising tourism could become such a common goal (Becken, 2019; Scott & Gössling, 2018). For governments to achieve better CPI it appears that tourism departments need to be better informed and incentivised to assist the development of sectoral CPI (Russel et al., 2018). This is necessary to ensure ongoing sustainability and viability of the sector, but also to facilitate effective contribution of tourism to national climate goals.

Including tourism as a sector in national climate change performance monitoring programs is important to evaluate success, including improvements in the sector's carbon footprint. The limited evidence of systematic monitoring of the tourism-climate change nexus may be symptomatic of a wider failure to invest adequately into tourism management and statistics, except for measures that align with traditional areas of performance such as arrivals and expenditure (Becken, 2019). National carbon accounting of tourism, for example by combining Tourism Satellite Accounts with environmental accounts (Jones, 2013), presents one way of monitoring tourism's footprints and vulnerabilities.

Conclusion

Identifying the tourism-climate change nexus and subsequent level of integration in policy documents is an important first step, but it is not sufficient to ensure integration actually happens in practice, or that policy outputs or outcomes are achieved. Further studies of the process and practice of CPI in tourism are needed, and this would have to consider aspects of governance, organisational capacity, and individuals' levels of ability and motivation (Russel et al., 2018). The database and high-level analysis presented here provides an indicative baseline and tool that can be used for further research and progress on CPI in tourism.

This analysis highlighted a considerable diversity of policy documents that demonstrate integration of tourism and climate change policy to some extent. However, major gaps became evident (e.g. geographically and around mitigation) and the integration of these two domains is yet to follow established criteria. International, national and state tourism policy documents should play a leading role in facilitating and advocating for CPI, enhancing comprehensiveness in coverage, scope, materiality and alignment. In the future, all tourism policies should consider and integrate climate change to a minimum level as set out in this paper, and work towards developing and supporting dedicated tourism and climate change strategies. Tourism and climate policy makers and researchers will need to work closer together, to facilitate and assess policy integration and develop robust monitoring of policy outcomes and adherence, setting the foundations for a future research agenda.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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References

Becken, S., (2017). Evidence of a low-carbon tourism paradigm?. *Journal of Sustainable Tourism*, *25*(6), 832–850. doi: 10.1080/09669582.2016.1251446

Becken, S., (2019). Decarbonising tourism: Mission impossible? *Tourism Recreation Research*, *44*(4), 419–433. doi:10.1080/02508281.2019.1598042

Becken, S., & Clapcott, R., (2011). Developing public policy for climate change in the tourism sector. *Journal of Policy Research in Tourism, Leisure and Events*, *3*(1), 1–17. doi:10.1080/19407963.2011.539378

Becken, S., & Shuker, J., (2019). A framework to help destinations manage carbon risk from aviation emissions. *Tourism Management*, *71*, 294–304. doi:10.1016/j.tourman.2018.10.023

Becken, S., & Hay, J. (2012). *Climate change and tourism: From policy to practice*. Routledge.

Bianchi, C., & Peters, G. (2016). Measuring coordination and coherence: Assessing performance accross the public sector [paper presentation]. IJPA Symposium on: "the Paradigm Shift from Output to Outcome Measures in the Public Sector", Palermo, 25–27 May, 2016.

Briassoulis, H., (2005). Policy Integration for Complex Environmental Problems: The Example of Mediterranean Desertification. Aldershot: Ashgate.

Bureau of Tourism, Ministry of Natural Resources, Environment and Tourism, Republic of Palau (2016). Palau Responsible Tourism Policy Framework. Retrieved August 12, 2019, from https://www.pacificclimatechange.net/sites/default/files/documents/Final_Palau-Responsible-Tourism-Framework1.pdf

Caribbean Community Climate Change Centre (2015). Saint Lucia: Impact assessment and national adaptation strategy and action plan to address climate change in the tourism sector. Retrieved 12 August 2019, from https://www.climatechange.govt.lc/wp-content/uploads/2017/10/Impact-Assessment-National-Adaptation-Strategy-and-Action-Plan-in-Tourism-Sector.pdf

China Government (2016). Enhanced actions on climate change: China' s intended nationally determined contributions. Retrieved April 3, 2019. from https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/China%20First/China's%20First%20NDC%20Submission.pdf

Cvelbar, L. K., Grün, B., & Dolnicar, S., (2017). Which hotel guest segments reuse towels? Selling sustainable tourism services through target marketing. *Journal of Sustainable Tourism*, *25*(7), 921–934.

Di Gregorio, M., Nurrochmatc, D. R., Paavolaa, J., Sarib, I. M., Fatorellia, L., Pramovab, E., Locatelli, B., Brockhaus, M., & Kusumadewia, S. D., (2017). Climate policy integration in the land use sector: Mitigation, adaptation and sustainable development linkages. *Environmental Science & Policy*, *67*, 35–43. doi:10.1016/j.envsci.2016.11.004

European Commission (2016). The European Tourism Indicator System. ETIS toolkit for sustainable destination management. Ref. Ares(2017)1112645 - 02/03/2017. Retrieved June 16, 2019, from https://ec.europa.eu/growth/sectors/tourism/offer/sustainable/indicators_en

Gössling, S., & Scott, D., (2018). The decarbonisation impasse: global tourism leaders' views on climate change mitigation. *Journal of Sustainable Tourism*, *26*(12), 2071–2086. doi:10.1080/09669582.2018.1529770

Hall, C. M. (1994). *Tourism and politics: Policy, power and place*. Wiley.

Hall, C. M. (2008). *Tourism planning: Policies, processes and relationships.* (2nd ed.). Prentice-Hall.

Hammill, B. A., & Price-Kelly, H. (2017). Using NDCs, NAPs and the SDGs to advance climate-resilient development. In *NDC Expert perspectives*. NDC Partnership.

IPCC. (2018). *Global Warming of 1.5 °C*. Summary for policymakers. Retrieved November 14, 2018, from http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

Jenkins, W. I. (1978). *Policy analysis: a political and organisational perspective*. Martin Robertson.

Jiang, M., Wong, E., Klint, L. M., DeLacy, T., & Howes, D. D., (2012). Tourism adaptation to climate change - analysing the policy environment of Fiji. *International Journal of Tourism Policy*, *4*(3), 238–260. doi:10.1504/IJTP.2012.049722

Jones, C., (2013). Scenarios for greenhouse gas emissions reduction from tourism: an extended tourism satellite account approach in a regional setting. *Journal of Sustainable Tourism*, *21*(3), 458–472. doi:10.1080/09669582.2012.708039

Joppe, M., (2018). Tourism policy and governance: Quo vadis?. *Tourism Management Perspectives*, *25*, 201–204. doi: 10.1016/j.tmp.2017.11.011

Keohane, R. O., & Victor, D. G., (2016). Cooperation and discord in global climate policy. *Nature Climate Change*, *6*(6), 570–575. doi:10.1038/nclimate2937

Klint, L. M., Wong, E., Jiang, M., Delacy, T., Harrison, D., & Dominey-Howes, D., (2012). Climate change adaptation in the Pacific Island tourism sector: Analysing the policy environment in Vanuatu. *Current Issues in Tourism*, *15*(3), 247–274. doi:10.1080/13683500.2011.608841

Klöck, C., & Nunn, P. D., (2019). Adaptation to climate change in small island developing states: A systematic literature review of academic research. *Journal of Environment & Development*, *0*, 1–23. 10.1177/1070496519835895

Landauer, M., Goodsite, M. E., & Juhola, S., (2018). Nordic national climate adaptation and tourism strategies – (how) are they interlinked?. *Scandinavian Journal of Hospitality and Tourism*, *18*(sup1), S75–S86. doi:10.1080/15022250.2017.1340540

Lenzen, M., Sun, Y., Faturay, F., Ting, Y., Geschke, A., & Malik, A., (2018). The carbon footprint of global tourism. *Nature Climate Change*, *8*(6), 522–528. doi:10.1038/s41558-018-0141-x

Minister of Environment and Sustainable Development (2012). Mauritius' National Climate Change Adaptation Policy Framework.Available (20/01/20)https://www.greengrowthknowledge.org/national-documents/national-climate-change-adaptation-policy-framework-republic-mauritius

Mayrhofer, J. P., & Gupta, J., (2016). The science and politics of co-benefits in climate policy. *Environmental Science & Policy*, *57*(), 22–30. doi:10.1016/j.envsci.2015.11.005

Meijers, E., & Stead, D. (2004). Policy integration: what does it mean and how can it be achieved? A multi-disciplinary review [Paper presentation]. 2004 Berlin conference on the human dimensions of global environmental change: Greening of policies – interlinkages and policy integration.

Mickwitz, P., Aix, F., Beck, S., Carss, D., Ferrand, N., Görg, C., Jensen, A., Kivimaa, P., Kuhlicke, C., Kuindersma, W., Máñez, M., Melanen, M., Monni, S., Branth Pedersen, A., Reinert, H., & van Bommel, S. (2009). *Climate Policy Integration, Coherence and Governance. Technical Report*.

Ministry of Environment and Natural Resources, Government of Kenya (2016). Kenya National Adaptation Plan 2015-2030. Available (20/01/20) https://www4.unfccc.int/sites/NAPC/Documents%20NAP/Kenya_NAP_Final.pdf

Ministry of Industry, Trade and Tourism (2017). *Fijian Tourism 2021. Draft document for the 1st Consultation. Thursday 16 February 2017*.

Ministry of Labour, Technological Development and Environment Suriname (2015). Final National Climate Change Policy, Strategy and Action Plan for Suriname. Available (20/01/20) http://dms.caribbeanclimate.bz/M-Files/openfile.aspx?objtype=0&docid=6508

Ministry of Mahaweli Development and Environment (2016). Nationally Determined Contributions of Sri Lanka. Available (03/04/19) https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Sri%20Lanka%20First/NDCs%20of%20Sri%20Lanka.pdf

Ministry of Tourism, Environment & Natural Resources (2010). *National Climate Change Response Strategy Zambia*. Author

Moeller, T., Dolnicar, S., & Leisch, F., (2011). The sustainability–profitability trade-off in tourism: can it be overcome?. *Journal of Sustainable Tourism*, *19*(2), 155–169. doi:10.1080/09669582.2010.518762

Moyle, C. J., Moyle, B. D., Chai, A., Hales, R., Banhalmi-Zakar, Z., & Bec, A., (2018). Have Australia's tourism strategies incorporated climate change? *Journal of Sustainable Tourism*, *26*(5), 703–721. doi:10.1080/09669582.2017.1387121

Niedertscheider, M., Haas, W., & Görg, C., (2018). Austrian climate policies and GHG-emissions since 1990: What is the role of climate policy integration?. *Environmental Science & Policy*, *81*, 10–17. doi:10.1016/j.envsci.2017.12.007

OECD (2001). *The DAC guidelines. poverty reduction*. Author.

OECD and UNEP (2011). Climate Change and Tourism Policy in OECD Countries. 10.1787/9789264119598-en

OECD (2018). Policy Coherence for Sustainable Development 2018. Towards Sustainable and Resilient Societies. 10.1787/9789264301061-en

Peters, B. G., (2018). The challenge of policy coordination. *Policy Design and Practice*, *1*(1), 1–11. doi:10.1080/25741292.2018.1437946

Runhaar, H., Wilk, B., Persson, Å., Uittenbroek, C., & Wamsler, C., (2018). Mainstreaming climate adaptation: Taking stock about "what works" from empirical research worldwide. *Regional Environmental Change*, *18*(4), 1201–1210. doi:10.1007/s10113-017-1259-5

Russel, D. J., den Uyl, R. M., & de Vito, L., (2018). Understanding policy integration in the EU—Insights from a multilevel lenson climateadaptation and the EU's coastal and marine policy. *Environmental Science & Policy*, *82*, 44–51. doi:10.1016/j.envsci.2017.12.009

Santos-Lacueva, R., & González, M. V., (2018). Policy coherence between tourism and climate policies: The case of Spain and the Autonomous Community of Catalonia. *Journal of Sustainable Tourism*, *26*(10), 1708–1727. doi:10.1080/09669582.2018.1503672

Schmidt, N., & Fleig, A., (2018). Global patterns of national climate policies: Analyzing 171 country portfolios on climate policy integration. *Environmental Science & Policy*, *84*, 177–185. doi:10.1016/j.envsci.2018.03.003

Scott, D., & Becken, S., (2010). Adapting to climate change and climate policy: Progress, problems and potentials. *Journal of Sustainable Tourism*, *18*(3), 283–295. doi:10.1080/09669581003668540

Scott, D., Gössling, S. (2018). Tourism and climate change mitigation. Embracing the Paris Agreement: Pathways to decarbonisation. European Travel Commission. Retrieved from January 14, 2019. https://etc-corporate.org/uploads/2019/03/ETC-Climate-Change-Report_FINAL.pdf

Scott, D., Amelung, B., Becken, S., Ceron, J. P., Dubois, G., Gössling, S., Peeters, P., & Simpson, M. (2008). *Climate change and tourism: Responding to global challenges*. United Nations World Tourism Organisation and United Nations Environment Programme.

Scott, D., Hall, C. M., & Gössling, S., (2019). A Global Climate Change Vulnerability Index for the tourism sector. *Annals of Tourism Research*, *77*, 49–61. doi:10.1016/j.annals.2019.05.007

Sheller, M., (2017). From spatial turn to mobilities turn. *Current Sociology*, *65*(4), 623–639. doi:10.1177/0011392117697463

Tam, S. (2019). *Sounding the alarm: Is the Sri Lankan tourism sector prepared for climate change?* [A master of arts in geography and environmental management thesis], University of Waterloo]

UNFCCC (2015). Adoption of the Paris agreement. Conference of the parties. Draft decision -/CP.21. 21 session, Paris. Retrieved January 14, 2015. http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf

UNFCCC (2019a). NDC Registry. Retrieved April 3, 2019. https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx

UNFCCC (2019b). National adaptation plans. Retrieved April 3, 2019. https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx

UNWTO (2015). *Repository of National Tourism Master and Marketing Plans – update: May 2015*. UNWTO.

UNWTO (2018). *World tourism barometer, volume 12(3)*. UNWTO.

UNWTO (2019). *Baseline report on the integration of sustainable consumption and production patterns into tourism policies*. UNWTO.

Velasco, M. (2016). Tourism policy. In: Farazmand A. (Eds.), *Global Encyclopedia of public administration, public policy, and governance*. Springer.

Wong, E., Jiang, M., Klint, L., Dominey-Howes, D., & DeLacy, T., (2013). Evaluation of policy environment for climate change adaptation in tourism. *Tourism and Hospitality Research*, *13*(4), 201–225. doi:10.1177/1467358414524978

Appendix A. Different types of inclusion of tourism in NDC documents that did not meet the 'minimal' threshold to be added to the research database

Type of inclusion	Countries
Tourism mentioned in context section	Bahrein, Bolivia, Malawi, Nepal, Eritrea, UAE, Mauritius, Cook Islands
Tourism recognised as economic sector	Qatar, Monaco, Mongolia, Saudi Arabia, Montenegro, San Marino, Bahrain
Tourism recognised as vulnerable, but without further detail provided	Dominican Republic, Costa Rica, Commonwealth of Dominica, Nigeria, Peru, Zimbabwe, Argentina, Georgia, Samoa, Namibia, Armenia, Columbia, Suriname, Grenada, Vanuatu, Saint Vincent and the Grenadines, St. Kitts and Nevis
Reference to tourism in another document	Solomon Islands (NAPA, included in analysis), Chile (sector plan, but could not be found), Barbados (National Adaptation Strategy to Address Climate Change in the Tourism Sector in Barbados, but could not be found), Botswana (reference to development of NAP developed by Ministry of Environment Wildlife and Tourism, with support from the National Committee on Climate Change, could not be found), Jordan (National Climate Change Policy, included in analysis)
Tourism in a specific context, but without further detail provided	Moldova (related to water use), Kiribati (related to lack of specific tourism policies), Niue (co-benefits of mitigation for tourism), Palau (energy production), Zambia (co-benefit of climate actions), Antigua and Barbuda (as part of general adaptation and mitigation targets), Colombo (tourism identified as sector that will include climate change considerations in planning and implement adaptation measures), Tonga (Tourism policies mapped against resilient Tonga, and need for review identified), Swaziland (promote ecotourism as an action for biodiversity and ecosystems sector)