

**Including Tourism Enterprises to Finance Climate Change Adaptation:
Exploring the Potential in Small Island Developing States**

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ii. Abstract

Worldwide tourism is one of the largest global industries and is the main economic sector of many Small Island Development States (SIDS). Unfortunately the tourism industry in SIDS will be adversely affected by climate change impacts. The impact magnitude, geographical attributes, and economic dependencies on tourism markets make many SIDS particularly vulnerable thus making them likely to face significant adaptation costs. In the UNFCCC Cancun agreement SIDS were declared to receive prioritization in funding for adaptation from international climate finance. Part of this funding is supposed to come from the private sector. Adaptation interventions funded by Multinational Tourism Corporations (MNTCs) could theoretically be accredited to this private sector sourcing.

Based on these assumptions, this study aims to explore different participatory opportunities of the tourism industry to finance climate change adaptation in SIDS and seeks to estimate advantages and barriers of certain fiscal and political instruments. The study is based on an extensive literature review and nine expert interviews. The exploration reveals that there is an overall high potential to involve the tourism industry in adaptation finance. The adaptive capacity of industry stakeholders, operational scales, and customer demands are key determining factors shaping this potential. Water and energy efficiency programs prove to be promising for accommodation suppliers. Regional and local adaptation funds appear to be a suitable instrument to involve a whole range of stakeholders operating in a certain area. These funds, as well as risk transfer mechanisms, Public-Private Partnerships (PPPs), and an international adaptation finance scheme could be the most feasible instruments to accredit adaptation finance by MNTCs to the private sector sourcing of international climate finance. Despite the high potential of certain instruments, the price sensitivity of the industry needs to be taken into consideration and possible consequences of interventions should be carefully investigated.

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vi. Abbreviations

| | |
|--------|---|
| AF | Adaptation Fund |
| CCA | Climate Change Adaptation |
| CCRIF | Caribbean Catastrophe Risk Insurance Facility |
| CSR | Corporate Social Responsibility |
| DRM | Disaster Risk Management |
| GDP | Gross Domestic Product |
| IGO | Intergovernmental Organisation |
| IPCC | International Panel for Climate Change |
| MNTCs | Multinational Tourism Corporations |
| NAPAs | National Adaptation Programmes of Action |
| NGO | Non-Governmental Organisation |
| PR | Public Relations |
| SIDS | Small Island Developing States |
| SLR | Sea level rise |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNWTO | United Nations World Tourism Organisation |

1. Introduction

Global tourism is considered as one of the biggest industries in the world – its business volume equals or even surpasses that of oil exports, food products or automobiles (UNWTO, 2014a). With a total of 1.1 billion international arrivals in 2013 it generated 9% of the global Gross Domestic Product (GDP) and is a major source of income, especially for Small Island Development States (SIDS) (UNWTO, 2014a, 2014b; Connell, 2013; Scheyvens & Momsen, 2008; Wilkinson, 1987).

In the UNFCCC negotiations SIDS form a negotiation block as they share certain characteristics¹. The UNFCCC (2007a) defines SIDS as “51 small island developing states that, in spite of their geographical and cultural diversity, share similar economic and sustainable development challenges including low availability of resources, a small but rapidly growing population, remoteness, susceptibility to natural disasters, excessive dependence on international trade and vulnerability to global developments”. International trade in this context includes tourism, which is considered to be an export industry (Freyer, 2011). However, the attractiveness of these countries to tourists can be significantly affected by climate change (IPCC, 2014; UNWTO et al., 2008; Uyarra et al., 2005). SIDS are considered to be particularly vulnerable to climate change and are likely to be disproportionately more affected by impacts such as Sea Level Rise (SLR), an increased frequency and intensity of extreme weather events, and coastal flooding and erosion (IPCC, 2014; Pelling & Uitto, 2001). Adaptation to and recovery from these impacts will put a significant financial burden on governments. In the Cancun agreement – agreed upon at the 16th Conference of the Parties of the UNFCCC (COP 16) – SIDS were declared to receive prioritization in funding for adaptation, alongside with other most vulnerable developing countries (UNFCCC, 2010).

At COP 16 developed countries also pledged to mobilize financial support of \$30 billion of fast-start finance between 2010-2012, and \$100 billion per year, starting in 2020, to support climate change adaptation (CCA) and mitigation action in developing countries. These funds are supposed to come from private and public sources, whereas the distribution of such sources is still up for debate and the pledges are not legally binding (Nakhouda et al., 2013a).

¹ The diversity between the countries has to be recognised. 38 out of the 52 SIDS are ranked as being Least Developed Countries, but are in the same negotiation group as more developed countries. Particularly, Singapore as a highly developed and wealthy state differentiates itself from other SIDS. Furthermore, three of the SIDS Papua New Guinea, Guyana, and Suriname are not even islands (Everest-Phillips, 2014).

In particular the private sector involvement in mobilizing the \$100 billion remains unclear and creates challenges (Dzebo & Pauw, 2014).

In this context, the tourism industry is ‘a natural candidate’ to get involved in international climate finance. Not only because of the amount of money in the globalized sector and its reliance on the quality of destinations’ attractiveness, but also because many of the enterprises that invest in tourism in SIDS are headquartered in developed countries. In order to separate international companies from locally owned enterprises, all firms with these attributes will be titled as Multinational Tourism Corporations² (MNTCs) in this study, even if they solely operate in one country. Furthermore, global tourism is responsible for 5% of global emissions (UNWTO et al., 2008) and thus a cause of the climate change impacts they face. However, this study will focus on CCA finance, as investments in adaptation measures could in theory be accredited to the \$100 billion climate finance pledged. This should not mean that mitigation should be neglected by the tourism sector. In contrast, connections between mitigation and adaptation needs to be recognized and are often hard to separate (Pelling, 2011).

Due to the dependency on destinations attributes, it can be claimed that the sector has a vested interest to adapt to changes in order to be competitive towards rival destinations and to be economically beneficial (from an industry perspective), and create jobs, foster development, and generate tax revenues (from a national government’s perspective). Conversely, equity issues as distributional patterns of benefits generated in SIDS should be considered. The latter is particularly relevant in destinations with increasing adaptation costs and high leakage rates³ created by MNTCs. Theoretically, local benefits could get neutralized or turn negative for some destinations if the leakage rate is already high and the burden for adaptation costs are not shared.

In the context of these conflicting international and national interests there is a need to investigate how climate change can be faced by SIDS and which role the international tourism industry can play in financing and implementing adaptation interventions. The research will be based on a comprehensive literature research and expert interviews in order to explore

² A multinational corporation is defined by Scott and Marshall (2009) as “a form of capitalist enterprise in which the financial structure, managerial control, and integration of productive activity span national boundaries and are oriented to international (or global) markets”.

³ Leakage rates (effects) can be defined as “the amounts subtracted from tourist expenditure on taxes, repatriated profits, wages paid outside the region, and on imported goods and services” (Galdon et al., 2013). Leakage effects are particularly relevant and harmful in developing countries with tourism based economical structure (Mowforth & Munt, 2009).

feasible instruments for such participation and verify ideas developed in the analysis. Instruments in this study will be understood as any regulatory policy or financial option to initiate participation of the tourism sector in CCA.

1.1. Aims and objectives

The study intends to explore participatory opportunities of the tourism sector in climate adaptation finance in developing countries. To allow a more in-depth analysis, the investigation will focus on tourism in SIDS.

The overarching question is:

- What are the most adequate instruments to involve the tourism sector in financing climate change adaptation in SIDS?

Sub-questions are:

- What are the typical adaptation needs of tourism destinations in SIDS?
- Where incentives for MNTCs to participate in adaptation can be identified?
- What are the obstacles and barriers behind private sector participation in CCA?

Based on these questions the study aims to reveal new insights on the link between tourism and CCA, as well as private sector involvement in climate adaptation finance. In particular, enhancing the knowledge body in finance opportunities to face the impacts of climate change in SIDS. This can provide the UNFCCC negotiations, international development agencies, and tourism practitioners with a range of ideas of possible instruments to increase the total available adaptation finance.

A more specific aim is to engage with stakeholders of the tourism sector and decision makers in SIDS to suggest a variety of instruments and mechanisms that show how the industry can contribute to and finance local adaptation interventions. Through a structured web-based literature research⁴ no studies could be identified that investigate financial contributions of the tourism industry to CCA in a global climate finance context. This study intends to fill this knowledge gap and identify feasible instruments.

⁴ A structured literature research with a combination of the terms ,climate', ,tourism', ,adapt', and ,finance' was done, using the following search engines: Google Scholar, Scopus, Primo One Search, and Science Direct. Only one paper could be identified to focus on the topic of financial contribution of the tourism sector to climate change adaptation finance – Wong et al. (2012) – but with a focus solely on PPPs. A comparable literature research approach was used by Kaján and Saarinen (2013) as well as by Dawson and Scott (2010a).

1.2. Structure

The study includes six chapters. Chapter 1 laid out the aims and objectives of this study. Chapter 2 provides an overview of the current key literature to provide the theoretical background of tourism and adaptation, SIDS in the context of tourism and climate change, private sector involvement in adaptation finance, and uncertainty. Chapter 3 describes the applied methods used in the research project. The 4th chapter covers the analytical part of the study and triangulates the results of the specific literature review and qualitative interviews. The 5th chapter presents the main conclusions.

2. Review of literature and key conceptual ideas

Based on a literature review, this chapter provides the reader with background knowledge to understand the complexity of involving the tourism industry in adaptation finance in SIDS. The chapter first summarizes the relation between tourism and climate change. Subsequently, an overview of the tourism and climate change nexus in the context of SIDS will be given. The last two subchapters provide insights on the role of the private sector in adaptation finance, and uncertainty and economic risks.

2.1. Tourism and climate change

The link between tourism and weather or climate⁵, was first mentioned in the 1960s in academic literature (Scott et al., 2005). Becken (2013) systematically reviewed 459 academic publications about the nexus and discovered an increasing number of publications over the past decades, particularly since 2005. This increasing body of knowledge emphasised that the tourism sector needs to adapt to climate change. Adaptation of the tourism sector can be understood as “the appropriate response to the measures taken to reduce the industry’s vulnerability in relation to climate change” or to exploit beneficial opportunities (Becken & Hay, 2007; Kaján & Saarinen, 2013 based on; Patterson et al., 2006).

Table 1 shows a range of potential climate change impacts on tourism destinations. The table is based on findings by UNWTO et al. (2008) and Nicholls (2014, p.8), and separated into categories according to Simpson et al. (2008, pp.12–13) who allocated climate change impacts affecting tourism destinations into four broad categories: (i) Direct climatic impacts; (ii) Indirect environmental change impacts; (iii) Impacts of mitigation policies on tourist mobility; and (iv) Indirect societal change impacts. This categorisation provides a useful overview of the broad spectrum of possible influences of climate change on tourism that can lead to shifts in global demand pattern of tourists and a decline in visitor numbers in certain destinations (Gössling et al., 2012b).

⁵ Climate is defined as “the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years” (normally understood for a period of 30 years) (IPCC, 2007). Weather in contrast describes the changes of precipitation patterns and climatic changes over a short period of time, such as days.

Table 1: Major climate change impacts and implications for tourism destinations (adapted and derived from Becken & Hay, 2012; Nicholls, 2014; Simpson et al., 2008, pp.12–13; UNWTO et al., 2008, p.61)

| Category | CC Impact | Implications for tourism |
|---|--|---|
| (i) Direct climatic impacts | Warmer temperatures | Altered seasonality, heat stress for tourists, cooling costs, changes in plant-wildlife-insect populations and distribution, infectious disease ranges |
| | Sea level rise | Coastal erosion, loss of beach area, higher costs to protect and maintain waterfronts |
| | Sea surface temperatures rise | Increased coral bleaching and marine resource and aesthetics degradation in dive and snorkel destinations |
| | Increasing frequency and intensity of extreme storms | Risk for tourism facilities, increased insurance costs/loss of insurability, business interruption costs |
| | More frequent and larger forest fires | Loss of natural attractions; increase of flooding risk; damage to tourism infrastructure |
| | Increased frequency of heavy precipitation in some regions | Flooding damage to historic architectural and cultural assets, damage to tourism infrastructure, altered seasonality |
| (ii) Indirect environmental change impacts | Reduced precipitation and increased evaporation in some regions | Water shortages, competition over water between tourism and other sectors, desertification, increased wildfires threatening infrastructure and affecting demand |
| | Decreasing snow cover and shrinking glaciers | Lack of snow in winter sport destinations, increased snow-making costs, shorter winter sport seasons, aesthetics of landscape reduced |
| | Changes in terrestrial and marine biodiversity | Loss of natural attractions and species from destinations, higher risk of diseases in tropical-subtropical countries |
| | Soil changes (e.g. moisture levels, erosion and acidity) | Loss of archeological assets and other natural resources, with impacts on destination attractions |
| (iii) Impacts of mitigation policies on tourist mobility | Additional transportation costs for tourists and goods, due to mitigation policies | Higher prices for long-distance flights can change the demand side of tourism markets |
| (iv) Indirect societal change impacts | Reduced security and social unrest caused by climate impacts on food and water security, and on the state of public health | Reputational damage of the destination and changing visitor numbers |

The geographic distribution of these impacts correlates with and can be derived from the IPCC (2014) 5th Assessment Report findings. On a global perspective the impacts indicate that tourism sectors in poor developing nations, including SIDS, are more likely to face the major share of negative impacts (UNWTO et al., 2008). However, local projections are often uncertain or cost intensive to produce, which increases investment risks for tourism entrepreneurs.

Adaptation of the tourism sector is a complex process. For a holistic response to climate change the tourism sector needs to include a variety of actions and behavioural patterns from stakeholders ranging from a local to a global scale (Kaján & Saarinen, 2013). Climate change adaptation is, therefore, always taking place in a multi-scale governance approach (Termeer et al., 2011). Adaptation actions of single stakeholders are important and they often need one ‘agent of change’⁶, but only coordinated and co-operational approaches of stakeholders at all levels will lead to successful adaptation in the tourism sector. Crucial to understand are the multiple interactions within the tourism system and between tourism and other global or local systems, as interventions designed to reduce climate-related risks can cause unexpected effects in the total system. For example, increased taxation to finance adaptation in Caribbean states could lead to shifts in tourism flows to ‘cheaper’ destinations in Middle America. This flexibility in tourism flows, high adaptation costs, and uncertainty in climate impact predictions, are likely to lead to incremental adaptation rather than a transformational⁷ one. The concept of transformational adaptation was developed by the research community in recognition of limits of CCA (Pelling, 2011).

In this complexity recognizing the attributes of stakeholders involved is crucial, as they have diverse adaptive capacities and motivational drivers towards adaptation action. The following descriptions are based on Scott and Jones (2006): Tourists have the highest adaptive capacity, they can adapt to stressors, such as a changing weather, through spatial, activity or temporal-based substitution (Dawson & Scott, 2010b; UNWTO et al., 2008). Tour operators and tourism related enterprises have a lower adaptive capacity than tourists, whereas there are significant differences regarding the company size, its location, and specialisation. MNTCs have a high adaptive capacity as it is easy for them to simply change their operation to another destination (Becken & Hay, 2007). Local tour operator and tourism related businesses, such as hotels, resorts, attractions, or guides, who are mainly locally bound and specialised are more vulnerable. The destinations government is in the situation that they are spatially inflexible and dependent on the private sector as employers and drivers of regional development. However, countries can set impulses to develop new destinations or diversify products within already touristic-exploited regions (Becken & Hay, 2007). Rehabilitating damaged destinations is often cost intensive. In a SIDS context, it could create a situation in

⁶ Stakeholder that is the main driving force behind a measure.

⁷ Transformative adaptation are processes that fundamentally alter the biophysical, economic and social constituents of a particular system from one location, function or form to another (Park et al., 2012). Incremental adaptation, on the other hand, can be defined as the extension of actions and behaviours that already exist in order to avoid the disruption of a system (Kates et al., 2012; Berrang-Ford et al., 2011). In the context of tourism in SIDS, incremental adaptation would e.g. be adjusting sea walls to SLR over time to secure infrastructure, transformational adaptation would include the relocation of a touristic infrastructure.

which governments are being made liable for the industries vulnerability in order to sustain income and employment. It is important to consider stakeholders adaptive capacity when designing instruments to involve industry financially in order to avoid a decrease in visitor numbers and businesses in a certain destination.

2.2. SIDS in the context of international tourism and climate change

In many SIDS the tourism industry generates a major share of the GDP⁸. Tourism is perceived in many SIDS as a key development option, as other exporting sectors face significant constraints through high transportation costs, market entry barriers, and little political power in international trade negotiations (UNWTO, 2012; Brau et al., 2011; Bishop, 2010; Croes, 2006; Payne, 2006). This normally leads to a specialisation in upmarket tourism (Connell, 2013). Furthermore, cruise ships account for a major share of visitors in some SIDS, yet generate little income, e.g. less than 10% of tourism revenue in St. Lucia (Moberg, 2008). However, tourism markets are particularly vulnerable to external shocks, such as from the global economy or policy changes, perceptions of political unrest and violence, or climate change (Connell, 2013). The impacts of one-time-events on visitor numbers can be short-lived, but structural changes, such as from climate change, can significantly alter the functionality of a destination as a whole (Mahon et al., 2013; Narayan et al., 2010). Table 2 provides an overview of expected climate change impacts for three major SIDS regions, sorted according to Simpon's et al.'s (2008) impact categorization. The estimated impacts appear to be quite similar for all regions, including increased extreme weather events, water scarcity, biodiversity loss, and increased travel costs. In addition in the Caribbean there is the threat of possible political destabilization.

These impacts in combination with limited resources, isolated locations, socio-economic aspects, and density of “civil infrastructure and economic development in the coastal zone exacerbates their inherent vulnerability to damaging natural disasters” (Connell, 2013; Wright, 2013, p.1; Pelling & Uitto, 2001). This led to the recognition of the international community that SIDS are among the most vulnerable states to climate change and will get prioritized in receiving funding for adaptation (see UNFCCC, 2010, 2007a).

⁸ For example in Palau the service industry contributed to 76.8% (est.) of the GDP in 2012 (CIA, 2014); in the Maldives tourism contributed to 47.8% of the GDP in 2013 (WTTC, 2014); and in Anguilla it contributed to 72% of the GDP (Forster et al., 2012).

Table 2: Climate change implications on tourism in SIDS by region (adapted from Simpson et al., 2008, pp.12–13; and UNWTO et al., 2008, p.31)

| Category | Caribbean | Indian Ocean | Pacific Ocean |
|---|---|--|--|
| (i) Direct climatic impacts | Warmer summer, Increase in extreme events, SLR | Increase in extreme events, SLR | Increase in extreme events, SLR |
| (ii) Indirect environmental change impacts | Water scarcity, Marine biodiversity loss, Increase in disease outbreaks | Water scarcity, Land biodiversity loss, Marine biodiversity loss | Water scarcity, Land biodiversity loss, Marine biodiversity loss |
| (iii) Impacts of mitigation policies on tourist mobility | Travel cost increase from mitigation policy | Travel cost increase from mitigation policy | Travel cost increase from mitigation policy |
| (iv) Indirect societal change impacts | Political destabilization | | |

The overall attractiveness of SIDS for tourists is threatened, in particular when considering that the main driver for visitors to SIDS is beach and dive tourism (Mahon et al., 2013; Wright, 2013). The demand for this market segment and government policies support a pattern of coastal zone tourism development, which further increases the vulnerability towards extreme weather events (Juhasz et al., 2010; Allison, 1996).

It is important to note that all these literature drew generalizations of SIDS. SIDS overall “share similar economic and sustainable development challenges”, which initially led them to operate as one group in UNFCCC negotiations (UNFCCC, 2007a). However, only context specific analysis of destinations that consider regional differences leads to a clear identification of vulnerability factors (Connell, 2013).

2.3. Private sector involvement in climate adaptation finance

Since the pledge of the 100 billion USD by 2020 at the international climate negotiations, the question of how to involve the private sector in adaptation finance was increasingly focused on by international scholars and organisations (Nakhouda et al., 2013b; Pauw & Pegels, 2013; Atteridge, 2011). Although the UNFCCC has not yet conceptualized or defined how private investments could be accounted as adaptation finance (Pauw & Pegels, 2013), international private sources of climate finance could include insurance companies, banks, pension funds, and multinational companies (Christiansen et al., 2012). In this study the term ‘private sector’ is primarily understood as any privately owned enterprise. From a perspective of the international community, private sector engagement is increasingly required in times of public debt crises and growing needs for adaptation finance (Pauw & Pegels, 2013). The industry

itself operates with bigger amounts of money than most states do, 86% of global investments are by the private sector (UNFCCC, 2007b).

Climate Funds Update (CFU) calculated that \$ 2.17 billion has been pledged by developed countries to multilateral adaptation funds and \$ 2.8 billion has been approved for CCA projects since 2003 (Climate Funds Update, 2013a, 2013b). Caravani et al. (2013) stated that these adaptation funds, which are currently provided by developed states are far from being sufficient to cover the expected costs. Table 3 provides an overview of different estimates of the needs of adaptation finance for developing countries – ranging from \$ 9 to \$166 billion annually. The figures differ tremendously, as high levels of uncertainties are included in the calculations. It can be said that the adaptation costs will be a significant extra burden for already financially struggling states, such as many SIDS.

Table 3: Estimates of global funding needed for adaptation (based on Agrawal & Perrin, 2009)

| Study / Report | Funds needed for adaptation in billion USD |
|----------------|--|
| World Bank | 9 – 41 |
| Stern Report | 4 – 37 |
| Oxfam | At least 50 |
| UNDP | 68 – 109 (by 2015) |
| UNFCCC | 44 – 166 (annually) |
| Narain et al. | 70 – 100 (annually) |

But what are possible drivers to invest in adaptation of the private sector? Pauw and Scholz (2012) determined three possible drivers: (i) to protect their business from the negative impacts of a changing climate; (ii) to exploit beneficial opportunities with new products and services in emerging and changing markets; and (iii) to act in a manner of Corporate Social Responsibility (CSR). All of these would be good reasons for taking action, but it can be assumed that the main objective of private sector investment and activity is to generate reasonably quick and predictable returns, at acceptable risks (Christiansen et al., 2012; Atteridge, 2011). In that context, “it should not be taken for granted that the private sector will succeed in tackling adaptation challenges where in the past it has, on the whole, failed to alleviate poverty and livelihood threats in many of the poorest parts of the world” (Atteridge, 2011, p.3). Therefore, it will be important to communicate threats of inactivity and potential opportunities to the sector, as well as setting up certain frameworks to foster involvement.

However, a lot of investment in ‘adaptation’ is, presumably, not officially declared or tracked as such and rather taking place in a form of incremental changes and adjustments of

infrastructure and responses to changing demand patterns (Christiansen et al., 2012). The concept of adaptation seems to be more important to policy-makers and most entrepreneurs “probably do not mind whether an activity can be labelled adaptation or not” (Pauw & Pegels, 2013, p.260).

Apart from these different perceptions towards ‘adaptation’, there are other fundamental problems and challenges of involving the private sector in climate finance (Dzebo & Pauw, 2014; Ackerman & Stanton, 2013; Buchner et al., 2013): (i) there is no global standard in tracking, scaling-up, and replication of private climate investments; (ii) double counting is a problem; (iii) proving additionality of projects to a business-as-usual scenario; and (iv) a lack of globally agreed and clear definitions of ‘private’ and ‘climate finance’. Furthermore, many developing countries are concerned that private sector involvement will justify a reduction or limitation of public funding from developed states (Pauw & Dzebo, 2014).

To tackle these issues and be able to increase and account private sector investment to global adaptation finance it will be important to set up clear policy frameworks, raise awareness, and incentivise positive behaviour.

2.4. Uncertainty and economic risks

Uncertainty of climate change impacts and destination-specific factors, such as legal security or political stability, can be considered to be major barriers to investments of the private sector in adaptation measures. Connell (2013) argues that particularly small island states face high level of uncertainties as external and internal shocks, such as political, economic or environmental change, can trigger significantly faster and bigger impacts compared to larger countries as the size of islands limit the ability to diversify the risk among economic sectors or regions.

Uncertainties around the scale and impacts of climate change creates a major barrier for the private sector and local governments to react to it (Schelling, 2007). There are a whole range of uncertainties in regard to climate change (Ackerman & Stanton, 2013; Fischer, 2007): (i) since international greenhouse gas reduction targets are currently unclear and historical ones were not met it is uncertain how much future emissions will be released and how they will influence the magnitude of climate impacts; (ii) possible thresholds (or planetary boundaries)⁹ are unknown; (iii) the long-term impact projections are well developed, but regional specific

⁹ Thresholds of “subsystems of Earth react in a nonlinear, often abrupt, way ... If these thresholds are crossed, then important subsystems, such as a monsoon system, could shift into a new state, often with deleterious or potentially even disastrous consequences for humans” (Rockström et al., 2009).

projections for a short period of time are expensive to create and have a certain degree of uncertainty.

Another uncertainty affecting investment patterns of tourism enterprises are the international development of tourism flows. Hall (2005) states that the natural environment, climate, income and discretionary wealth, travel costs and personal safety are key factors in travel motivations and destination choice. All these factors are likely to get influenced by climate change. Moreover, there are uncertainties around aspects of change in specific destinations, such as resource availability, public policies, and political stability (Buchner et al., 2013). Furthermore, high levels of corruption leads to significant trust issues in many SIDS (Transparency International, 2014; Wong et al., 2012).

All these uncertainties can significantly raise the investment risk for tourism enterprises. Economic practices of calculating the certainty equivalent for investment decisions “is of limited help in cases where the future probability distribution is unknown” (Ackerman & Stanton, 2013). Furthermore, the private sector “will expect the same return on their investment [‘risk premium’] in adaptation that is available from other investments with a similar risk profile” (Christiansen et al., 2012, p.8). This motivation can significantly differ between risk reduction measures and exploring new markets. Recognizing the need for investments in adaptation in a context of uncertainty will be a crucial element to involve the private sector in climate finance. Buchner (2013) mentioned that governments can set up instruments such as risk transfer mechanisms or subsidy schemes for ‘right’ action, which can distribute the risks in ways that improve returns, cover risks, and ultimately reduce costs. This could be comparable in relation to uncertainties of climate change. Nonetheless, some uncertainties and risks will always remain. However, bearing in mind that nearly all financial investments work with uncertainties and the potentially way higher costs of inactivity facing climate change adequately can ensure long-time profitability.

3. Methodology

This chapter provides an overview of the applied methods. Subchapters give an outline about the research design, and the methods for the literature analysis, semi-structured interviews, and the data analysis will be described, followed by a brief section on ethics.

The research project is split into four phases: (1) Literature review that provides background information; (2) Target oriented literature research to identify and investigate possible instruments, and first exploratory interviews; (3) More interviews to elaborate and verify identified measures, and investigate perceptions; (4) Thorough evaluations of the interviews and literature to identify the feasibility of the instruments and their possible accountability to international adaptation finance.

3.1. Research design

The overall research design is a triangulation of primary and secondary data (applied in phase 2-4) and a general literature review (applied in phase 1).

3.2. Literature analysis

The literature analysis (in chapter 2) generates the knowledge foundation of the research topic. A targeted literature review will reveal insights into application, barriers, and feasibility about specific instruments (in chapter 4).

3.3. Semi-structured interviews

The semi-structured interviews will identify perceptions of key stakeholders towards involving the tourism industry in adaptation finance. Semi-structured interviews are often used in situations “where the information likely to be obtained from each subject vary considerably and in complex ways” (Veal, 2006, p.198). Varying expertise due to different backgrounds can be expected. Furthermore, semi-structured interviews are “typically used to gather ‘rich’, detailed qualitative data from a small number of respondents...” (Long, 2007, p.76). Table 4 provides an overview about all interviewees that were consulted. The abbreviations will be used as interview references in the analysis.

Table 4: Overview of conducted interviews

| Abbr. | Country ¹⁰ | Institution | Name | Date | Format |
|------------|---------------------------------|---|-----------------------------------|---------------|-----------|
| SL | St. Lucia | Ministry of Sustainable Development, Energy, Science and Technology | Crispin d'Auvergne | 10. June 2014 | In person |
| PNG | Papua New Guinea | Office of Climate Change and Development | Joe N Pokana | 10. June 2014 | In person |
| MA | Mauritius | Ministry of Environment & Sustainable Development | Jogeeswar Seewoobaduth | 11. June 2014 | In person |
| SI | Solomon Islands | Ministry of Environment, Climate Change, Disaster Management and Meteorology | Chanel Iroi | 14. June 2014 | In person |
| UN | Mauritius | UNDP | Jessica Troni | 27. June 2014 | Skype |
| UNW | South East Asia | UNWTO, Consulting Unit on Tourism and Biodiversity | Jian Lee | 18. July 2014 | In person |
| TO1 | Caribbean, Africa, Indian Ocean | Tourism Operator 1, MNTC within the range of the 5 biggest tour operators in Europe | Head of sustainability management | 02. July 2014 | Skype |
| TO2 | Caribbean, Africa, Indian Ocean | Tour Operator 2, MNTC within the range of the 5 biggest tour operators in Europe | Higher management | 09. July 2014 | Skype |
| WT | Globally | World Travel and Tourism Council | Olivia Ruggles-Brise | 11. July 2014 | Skype |

These interviewees and institutions were selected to gain a range of ideas and perspectives. They represent the tourism industry, donor organisations, and local governments from both developed and developing countries. However, the range of stakeholders was limited by availability. The minor representation of the accommodation sector (MNTCs) was caused by limited willingness to provide interviews. A part of the interviewees were identified and interviewed during the UNFCCC 40th meeting of the subsidiary bodies. Other interviewees were identified by the author and selected due to their expected relevance for the research topic. This selection process is known as theoretical sampling and defined as “selecting groups or categories to study on the ... basis of their relevance to your research questions” (Mason, 1996, pp.93–94). During the interviews open and follow-up questions were used to answer the research questions and gain insights to identify the instruments attributes. The conversation was audio-recorded and verbatim transcripts were prepared (Veal, 2006).

3.4. Data analysis and evaluation

The analysis of the interviews is an inductive analysis. The analysis is based on interview transcripts and focussed on the qualitative content analysis and/or coding, depending on the

¹⁰ The column 'country' indicates the place the interviewees are located or SIDS or regions they operate.

answers given in order to receive the richest data. Qualitative content analysis can be defined as the “non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships” (Babbie, 2010, p.394). The qualitative content analysis builds on a categorizing and evaluating the content of data systematically (Mayring, 2002). The findings were triangulated with a targeted literature research for each instrument in order to receive a comprehensive insight into the attributes of each instrument.

Different instruments to involve the tourism industry in climate adaptation finance are identified and characterised into “State driven”, “Tourism driven”, and “Mixed approaches”. In the discussion the instruments are explored and analysed based on the literature review undertaken and the interviews conducted. A final overview of the instruments advantages, barriers, feasibility, and attributability to international climate finance is presented to advise the conclusions and recommendations. In order to increase the credibility and depth of the findings all interviewees were offered to comment on the draft study. This approach scrutinises the match of the expressed information by the interviewee and the interpretation of the researcher (Padgett, 2008).

3.5. Ethics

This research study has been approved by the International Development Ethics Committee of the University of East Anglia, who follow the guidelines of the Social Research Association.

4. Results and discussion

The following chapter reveals insights into the different instruments to involve the tourism industry in climate adaptation finance. First, it provides an overview about how the instruments are categorized. Subsequently, all examined instruments are introduced and analysed in individual subchapters. Finally, a comparative overview will be given based on their advantages, barriers, feasibility, and attributability.

The findings are based on triangulation of a focused literature review and expert interviews. Examples given of how and where instruments are realized are based on relevant literature or suggested projects by the interviewees. These examples are not representative of the current state of interventions in SIDS and can either be considered as the common norm or ‘flagship projects’.

4.1. Categorization of identified instruments

The identified policy regulatory and finance instruments cover a range of not quantitative comparable measures that are partly mutually influential in involving the tourism industry in climate adaptation finance. However, the selection provides a good estimate of the range of possible interventions. In order to enable an easier navigation through the instruments, they are clustered into three broad categories (see Figure 1). First, instruments that are likely to get initiated by states (‘state driven’): (i) building regulations; (ii) adaptation funds; and (iii) adaptation taxes or levies. Second, instruments where the industry is the major initiator (‘tourism driven’): (i) water use management; and (ii) risk transfer mechanisms. Third, instruments with a shared driving force (‘mixed approaches’): (i) public-private partnerships; (ii) disaster risk management; and (iii) an adaptation finance scheme.

This clustering of instruments is by no means fixed or perfect, rather it is being used to indicate which instruments are more likely to get initiated by the government, by the industry, or need an extensive collaboration. International donor agencies operating in SIDS are likely to play a significant role on the state driven side, but to keep the categorization comprehensible they are included. All instruments should be implemented in coordination with all stakeholders involved in order to enable an effective nationwide response strategy towards climate change. Furthermore, it must be acknowledged that there are further instruments, such as raising awareness, that are not investigated in this study as it is probable that little traceable adaptation finance would be involved.

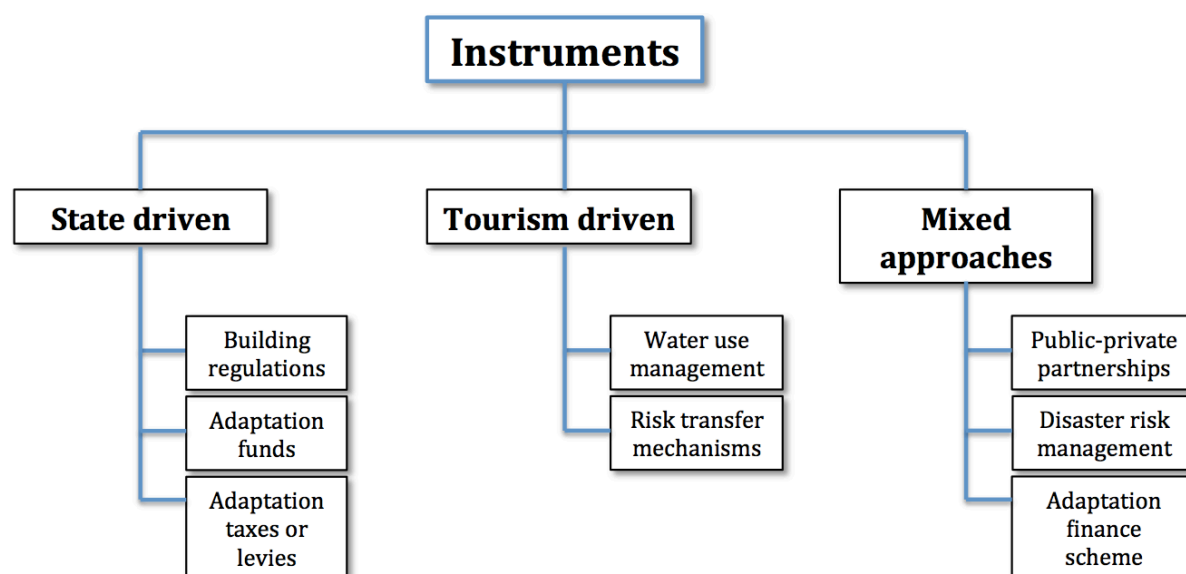


Figure 1: Framework to cluster the different investigated instruments to involve the tourism industry in climate adaptation finance

4.2. State driven instruments

Key literature and the interviews revealed that there is a need for state driven action in order to create an enabling framework in which the tourism industry can get involved in funding adaptation. Belle and Bramwell (2005) states that “policies related to climate change and tourism depend on value-driven decisions made in the context of uncertainty and complex socio-economic, cultural, and political relationships”. This context remains the most influential barrier for ambitious action by governments. Additionally, many SIDS “have other priorities ... like building infrastructure, building clean water supply, and sanitation” (UNW). Therefore, most importantly the government needs to raise awareness and mainstream adaptation into policies and development plans (Becken & Hay, 2012). However, the interviews revealed that state representatives are cautious to create extra burdens for the already competitive and price sensitive tourism industry through taxes and regulations (SL, PNG, MA, SI). The interviewee from the Solomon Islands (SI) states: “tourists may decide to travel less or are willing to go to other cheaper destinations”. This clearly shows the need to closely collaborate with the tourism industry in order to raise their understanding and enable them to adapt their products to changes – thus leading to incremental adaptation.

As mentioned before, reducing uncertainty through legal security, clear public policies, transparency, and incentive frameworks are influential factors to attract and sustain investment (Christiansen et al., 2012; Persson et al., 2009). The same factors account for the involvement of the tourism industry in financing. It will be important to create conditions that reduce risks, regulatory barriers, transaction costs, and/or increase possible rewards

(Christiansen et al., 2012). In other words adaptation measures have the highest chance to be implemented when mutual benefits are created (UNW, TO1, TO2). However, the type of tourism enterprise and level of regional dependency – through key markets or assets in a destination – are key factors shaping the willingness to participate in funding adaptation (TO1, TO2, WT, UNW).

4.2.1. Building standards and regulations

High quality building standards for touristic infrastructure on small islands can significantly decrease the negative outcomes of extreme weather events and slow-onset threats (Mahon et al., 2013). Conversely, the quality of water and resource management can suffer in the absence of regulations. On SIDS the majority of all accommodations are built on the seafront in order to fulfil customer desires. Thus, tourism developers often “take a calculated risk and locate valuable plant and property on the seafront when government coastal planning and enforcement of regulations are absent” (ibid.).

All countries represented by an interviewee, apart from Mauritius where such laws are currently being drafted, have specific building codes that consider climate change impacts, such as SLR (MA, PNG, SI, SL). However, the enforcement of these codes seems to be the main challenge in all the participating countries. In the Solomon Islands coordinated multi-level enforcement appears to be problematic, as SI states “we try to put some monitoring efforts in place to make sure the local authority enforces the codes. At the moment that is one of the weakest areas in the country”. Another challenge to such interventions is that most tourist infrastructure already has been built (SL). However, evidence suggests that in many cases hotels and resorts being rebuilt in disaster prone areas rather than being moved to ‘safer’ inland locations (Mahon et al., 2013). Reasons for this reaction can be identified in the lack of legal enforcement of building codes (MA), uncertainty in local climate projections, and tourist demands. This demand component is represented in this study via the tour operators as agents of the customers, who clearly stated their collaboration with hotels is decided upon a seasonal basis and that significant price increases or decreases of amenities, such as being close to the shoreline, led to a change of cooperation partnerships or a total withdraw of business activities in a region (TO1, TO2).

A possible way of increasing the compliance of building codes could be provided through insurance companies or financial incentives (SL). Enterprises could receive preferential insurance rates or tax cuts if they take certain protection measures that minimizes exposure to disasters and financial risks (Wright, 2013).

The interviews and literature revealed that there are building regulations in many SIDS, but that their enforcement is problematic. The risk of damage to the infrastructure does not seem to outweigh the tourism demand pattern at the moment.

4.2.2. Adaptation taxes or levies

Taxation or levy systems could generate additional funds to finance adaptation measures. The volume of taxes could be determined at a business level and – for example – could relate to visitor numbers, size of the business, or be permanently fixed. Levies could be charged from visitors on arrival or on enterprises for the touristic usage of certain areas of the island, such as coral reefs or beaches for which adaptation costs are likely to occur.

Specific adaptation taxes or levies for the tourism industry are not implemented in any of the islands represented by interviewees from the governments. MA, PNG, and SI indicated that they are very cautious of creating an extra burden on the already competitive tourism enterprises operating in their countries. WT states, “generally speaking, taxing tourism is not helpful, tourism is enormously price sensitive”. Indeed the profit margins vary significantly among different enterprises. Local tour operators and accommodation suppliers tend to gain significantly higher margins than, for example, transportation companies, travel agents or international tour operators. The latter, therefore, tend to directly transfer extra costs to the customer (Buchanan, 2014; WT, TO1, TO2).

Apart from this hesitation against regulation, two interviewees said that fiscal instruments such as taxes or levies would be the most efficient way to raise funds for adaptation (TO1, TO2). Governments could use funding from taxes independently for adaptation interventions.

This autonomous management of funding was, on the other hand, a big concern raised by the industry (TO1, TO2, WT). They mentioned that taxes in many cases were used to fix holes in national budgets and were afraid that adaptation taxes could be misused or even disappear in dark channels. Therefore, there is a clear trust issue and any taxation system would need to be transparent. Tourism taxation can both stimulate tourism growth, but also create disadvantages (OECD, 2014), particularly if dependency on international investors is high. Global rankings for investment conditions such as ‘The Travel & Tourism Competitive Report’ (World Economic Forum, 2013) guide investments and consider taxation and regulatory burdens.

This high adaptive capacity of MNTCs leaves SIDS with a dependency on tourism with a weak regulating position. For example, attempts by Caribbean host countries to impose taxes on the cruise ship industry to secure greater revenue have usually led to cruise operators

removing the offending islands from their itineraries (Bresson & Logossah, 2011; Moberg, 2008, p.124; Wilkinson, 1999).

This leads to the conclusion that taxes and levies are promising instruments in order to rise funding for adaptation. However, SIDS should to consider the fragile dependency on the tourism industry and communicate the need for such interventions. A regional corporation of countries raising such taxes would prevent destination specific disadvantages and increase the regulating position of SIDS against the industry (TO2, WT). However, even the Caribbean's as a whole remains in competition with other destinations (WT). Therefore, it can be said that taxes appear to be an effective instrument, but dependencies and markets need to be carefully investigated so as not to cause an unintentional decline in demand.

4.2.3. Adaptation funds

Adaptation funds can be understood as funds that are created to invest in adaptation measures, projects or programs. Thus they can function in a comparable manner to the Adaptation Fund under the Kyoto Protocol, even though the source of funding will include the tourism industry (The Adaptation Fund, 2011). Funds are possible on all levels, global, regional, and local. Involving the tourism industry in financing a global fund appears to be ambitious and complex. TO2 raises concerns about how to design a global fund, with questions such as who is defined as a tourist? Which firms should be included? How can all country perspectives in negotiations be harmonized? He considers a regional or local fund as being more feasible. However, it would be interesting to conduct further research into how to involve the tourism industry in such global adaptation funding, as despite all the complexity, the finance raised from MNTCs could clearly be attributed to the \$100 billion target.

Regional and local funds could be initiated, sourced, and managed by governments, independent institutions, or the private sector (WT). The representative from the UNWTO suggested that the main proportion of finance should come from the private sector. This money could be used to finance adaptation measures that increase resilience of the tourism sector, such as planting mangroves (ex post) to enhance resilience against storms or rebuilding infrastructures (ex ante) in a climate resilient manner. All industry representatives rated such funds as a preferential way to raise adaptation finance, when compared to taxes or levies (TO1, TO2, WT). Similarly, the UNWTO, UNDP, and government officials (MA, SL, SI) rated it as a feasible instrument for raising funds.

No country could be identified that implemented a climate adaptation fund with the tourism industry involved in the funding structure. However, the Caribbean region implemented the

Caribbean Catastrophe Risk Insurance Facility (CCRIF), which functions in a comparable manner as an ex post oriented adaptation fund. The fund “is a risk pooling facility, owned, operated and registered in the Caribbean for Caribbean governments. It is the world’s first and, to date, only regional fund” (CCRIF, 2014). After hurricane Sandy in 2012, The CCRIF contributed a total of \$300,000 to finance recovery projects in Jamaica, Haiti, and the Bahamas (CCRIF, 2013). The latter received funding to “strengthen coastal defences damaged by Sandy... which are important for The Bahamas’ tourism industry” (ibid.).

The representatives from Mauritius, Solomon Islands, and Papua New Guinea all considered such a fund as a great idea, despite it being not implemented in any of their regions or countries. In Mauritius they are currently working on exploring the implementation of a fund comparable to the CCRIF (MA), but regional differences in development and wealth of potential partner nations create significant challenges. PNG, SI, and MA plans to set up a national climate change fund that partly finances adaptation. Nonetheless, MA and SI are cautious to involve the tourism industry as a source of funding. This once more demonstrates the dependency of SIDS on the sector, which limits their negotiation power.

The main advantage of funds, in comparison to taxes and levies, lies in their possible management structure and the assignability of finance. The industry could be part of the managing board of such a fund (TO2, WT) and funds are a joint commitment from various parties and thus increase awareness and involvement of stakeholders (UN, WT).

A challenge to such funds is the attitude of many tourism enterprises. Industry representatives stated in the interview that they see the main responsibility for adaptation by the destinations government and compared such measures with ensuring the overall protection in the region (TO1, TO2, WT). Wright (2013, p.3) confirms this finding and states that particularly MNTCs are “seeking to minimize their exposure to disasters and financial risks by transferring them to the local community”. This can lead to a limited overall budget to set up such funds, if international aid or money from the Adaptation Fund, or Global Environment Facility (GEF) cannot be accessed.

In conclusion, it can be said that involving the tourism industry in financing adaptation funds appears to be promising. The considerable transparent nature and possible involvement of the sector as managing board members, seems to raise the industries’ acceptance of such an instrument. Furthermore, finance coming from MNTCs could be tracked and clearly accredited to international climate finance. Nonetheless, creating extra burdens for the

industry in only one country or region could lead to competitive disadvantages. Therefore, funds should be set up in consultation with all stakeholders involved or on a regional level.

4.3. Tourism driven instruments

According to Christiansen et al. (2012) it is likely that most private finance for adaptation will come from domestic sources. However, it is unclear how such funding will look like and if the enterprises themselves will be the main agents to mobilize such targeted finance. Most interviewees estimated the awareness of the tourism industry about climate change as high. WT said that the industry sees climate change as a big ‘trend’ that will affect business in the future and that “climate change always comes up [at their yearly business summits] whether [they] plan to talk about it or not”. Literature confirmed this awareness of the industry in SIDS (Belle & Bramwell, 2005; Meheux & Parker, 2006).

Awareness, however, by no means automatically leads to adaptation action. On the contrary, the willingness of the sector to participate in financing climate adaptation is estimated as low by most interviewees. However, WTTC, similar to Pauw & Pegels (2013), raised the question of whether the private sector itself actually bothers about adaptation terminology. She suggests that many enterprises incorporate adaptation measures, and thus fund them, in their daily activities without being aware of it. Other reasons for inactivity (Wright, 2013; Becken & Hay, 2012; Sovacool, 2012; Becken et al., 2010; Turton et al., 2010) include: (i) uncertainty; (ii) that most objects of attraction are ‘common-goods’ and, therefore, state owned or managed; (iii) the conflicting time horizon of climate projections and regular economic investments; (iv) the framing of climate change in relation to other ‘more immediate’ challenges to economic profitability.

The interviews revealed that the main drivers of the industry to adapt to climate change are to protect their business or exploit beneficial opportunities. However, the form of investment, if investments are done at all, is highly dependent on the adaptive capacity of the stakeholder. Both representatives from major European tour operators, with a high adaptive capacity, indicated that they would rather move their business to economically more attractive destinations than significantly contribute to adaptation finance (TO1, TO2). It is to expect that hotel owners, with a limited adaptive capacity, on the other hand, would be more willing to engage in adaptation activities. To involve enterprises that are locally bound it will be important to frame adaptation in economical terms and display mutual beneficial or cost efficient ways of adaptation investments, such as investing in water efficient technology (UNW).

The third possible driver for the private sector to invest in adaptation is to use adaptation funding as a measure of CSR (Pauw & Scholz, 2012). Both tour operator representatives stated that for their customer structure, with mainly package tourists, it is currently and in the foreseeable future impossible to use adaptation projects in destinations in an effective Public Relations (PR) way – in which tourists are willing to accept price increases for the cause of climate change (TO1, TO2).

4.3.1. Water use management

International tourism in SIDS can be identified as being dependent on fresh water as well as a major user of it. Gössling et al. (2012a, p.13) investigated the link between tourism and water in the context of climate change and stated that:

“global growth in tourism, the trend towards higher- standard accommodation and more water-intense activities, which are likely to coincide with changes in the global climate system leading to declining water resources in many regions, pressure on water resources and related water conflicts are bound to increase in many destinations. As a consequence, tourism development in many areas of the world may become less sustainable or no longer feasible”.

This sentiment is shared by UNWTO et al. (2008) who estimate that climate change will impact the fresh water supply for tourism in all major SIDS regions, e.g. through saltwater intrusion caused by SLR. Some SIDS already import fresh water with tanker ships, including Fiji, Tonga, Bahamas, Antigua and Barbuda, and Nauru (UNESCO, 2012). Unsustainable water consumption can further exacerbate these impacts and create major challenges to the fresh water supply. This particularly applies to tourism facilities with golf courses and swimming pools which demand huge amounts of fresh water (Bishop, 2010). In Barbados, for example, 12% of the countries water supply is absorbed by tourism – three times the per capita rate of the local population (Charara et al., 2011). In Mauritius this ratio is as high as 40% (Gössling et al., 2012a). However, only the direct forms of water use of tourism facilities are well known (Gössling et al., 2012a). The indirect water requirements of tourism, including the production of food and energy, remain “inadequately understood, but [are] likely to be more substantial than direct water use” (Gössling et al., 2012a, p.1). Apart from the constraint of water availability for tourism, poor water quality, and media coverage of water issues can create image problems for destinations (Hall, 2010; Hall & Stoffels, 2006). Therefore, there is a clear need for tourism to engage more in a proactive water management (Hall & Härkönen, 2006), particularly in the context of future climate change impacts (van der Velde et al.,

2007). The representative from the UNWTO shared his experience from the ‘Sustainable Tourism through Energy Efficiency with Adaptation and Mitigation Measures’ (STREAM) project in Indonesia, during which they talked with hotel managers about water and energy reduction. His experience showed, that the hotel owners did not value water as they were pumping it for free and that the only way to gain the attention of the management was to argue that the pumping of water uses energy, which creates costs (UNW). This baseline could be the same in some SIDS, therefore the framing of environmental problems in economic terms is key to receive initial attention on which further action can be elaborated.

To practically manage water usage, Gössling et al. (2012a) provide a good review of measures to reduce water consumption (demand side) in hotels, including irrigation systems, planting indigenous plants, and measures to increase the overall water availability (supply side). A positive aspect of these adaptation instruments is the potential to simultaneously reduce costs and increase sustainable water management – “it seems beyond doubt that most of the measures that can reduce water use are economical” (Gössling et al., 2012a, p.13).

A good example of a successful water management project in the context of adaptation can be identified at the Coconut Beach Resort in St. Lucia. Initiated by the Caribbean Community Climate Change Centre and the GEF, the first Public Private Partnership (PPP) in the Caribbean with a focus on climate change was realized. The project reduced the water demand of the resort by 25% (UNISDR, 2012). The water has been made available to the neighbouring community, which is periodically threatened by drought (ibid.). Furthermore, wastewater is now treated and the ‘grey’ water is used to irrigate the lawns and golf courses. This successful intervention “enabled the Government of St. Lucia to put a policy in place that now requires all hotels to harvest rain water and process wastewater. Similar systems are being considered for replication in the Eastern Caribbean” (UNISDR, 2012).

The investigation showed that water management, as an adaptation instrument is very promising. In particular its cost effectiveness is a clear advantage. Government and donor agencies can help to create a suitable framework for action through policies, programs, training, and guidelines, to ensure the sustainability of profits and water supply for the whole destination. The interviews, and anecdotal evidence from development practitioners, clearly indicated that it is important to use economic terminology in order to receive the attention of accommodation suppliers for water related issues. Furthermore, such interventions, if there is a water shortage in the destination increased by climate impacts, could be accounted to international adaptation finance.

4.3.2. Risk Transfer Mechanisms

The most common risk sharing and transfer mechanisms in the tourism sector are insurance cover schemes. These kind of instruments are usually used “to manage risks that would be too large for companies or individuals to cover on their own” (Warner et al., 2013, p.11). Particularly in the context of climate change they can play a key role for tourism firms to reduce risks and enable investments in locations where negative impacts cannot totally be excluded.

However, “despite flawless adaptation strategies, climate change may bring some residual risks which cannot be transferred to the insurance market cost-effectively” (Warner et al., 2013, p.13). The UNFCCC (2012) estimated that for countries, which are highly exposed to slow-onset climatic processes, such as SLR, traditional risk transfer approaches could be unsuitable, because two main preconditions for traditional insurance schemes to work are not given – “namely the unpredictability of a specific event and ability to spread risk over time and regions, between individuals/entities”.

The Munich Climate Innovative Insurance, focuses its research and pilot projects towards investigating insurance solutions that can play a role in adaptation to climate change (MCII, 2014a). One such project is the Climate Risk Adaptation and Insurance in the Caribbean. It “seeks to address climate change, adaptation and vulnerability by promoting weather-index based insurance as a risk management instrument” (MCII, 2014b). They developed and tested two forms of parametric weather-index based risk insurance products (ibid.): (i) The Livelihood Protection Policy; and (ii) The Loan Portfolio Cover.

According to WT there are two main types of insurance products in the tourism sector, namely operational insurance that companies use and consumer insurances. Both products of the MCII project, which are currently mainly directed towards low-income households, could be adapted to tourism enterprise specific needs. In contrast to traditional insurance schemes, the weather-index based payout allows a non-bureaucratic immediate payout after disasters affected infrastructure. According to one employee of the MCII this is particularly helpful in a development country context, in which reliability of truthfulness of damage investigations can be questionable and take up resources. He furthermore stated that the pilot project in the Caribbean is successful and that it would be possible to implement such products in other regions. Most of the country representatives already heard about such innovative insurance schemes, in contrast to the representatives of the industry. However, the interviewees stated that the majority of the bigger tourism enterprises in SIDS are currently insured.

On the consumer insurance side Forster et al. (2012) discovered through choice models “that respondents were significantly less likely to choose holiday options where hurricane risk is perceived to increase, and significantly more likely to choose options that offered financial compensation for increased risk”. Hence it will be important for the tourism industry, hotels and tour operators, to ensure that compensation schemes reduce negative perceptions.

Thus it will be important to spread risk over regions, a huge amount of ‘customers’, and time, in order to keep the costs competitive. Same accounts for traditional insurance schemes for corporations in SIDS in total as insurances “can be relatively expensive for low-income countries ... due to high start-up costs, transaction costs and infrastructure requirements for data collection” (Warner et al., 2013, pp.20–21). The index-based schemes could help to reduce such costs significantly. Particularly, if payouts are not bound to the value of the asset, but insurance credits can be purchased and payouts are related to the amount an enterprise is holding of such credits.

Another overall advantage of widespread insurance schemes that consider climate change, is the possibility of “increased risk management awareness at the stakeholders’ level” (Warner et al., 2013, p.19). However, in contrast it also needs to be considered that “where insurance is not applied without adequate risk reduction it can be a disincentive for adaptation, as individuals may rely on insurance to manage their risks” (IPCC, 2012, p.322).

In conclusion, risk transfer mechanisms can play an integral part in managing increasing risks caused by climate change. However, new insurance solutions, particularly for SIDS that are exposed to slow-onset hazards are needed to create cost efficient insurance products. It seems that regional or worldwide insurance cover schemes appear to be most suitable to spread the risk, keep the costs on a low level, and trace investments.

4.4. Mixed approaches

Apart from the instruments mainly driven by either the industry or the government there are a range of measures that can be determined as mixed approaches. These include PPPs, cooperative DRM, and international adaptation finance schemes. In this field the international donor community can take up a major role in incentivizing action. According to Christiansen et al. (2012) this form of shared funding by public donors, non-governmental organisations, and public and private local institutions are common practice.

4.4.1. Public Private Partnership

Public Private Partnerships (PPPs) can be broadly outlined as arrangements between the public and the private sector (Hodge & Greve, 2007). A key-determining factor is the mutual beneficial outcome, at least in theory, of PPPs. Main incentives to initiate PPPs can be to combine specific qualities, such as know-how, of both public and private sector to create a better result (Rosenau, 2000) by using the innovative capacity of the private sector and potentially gaining additional funding (Christiansen et al., 2012; Hodge & Greve, 2007). In particular for SIDS, which are characterized with a limited public budget or development agencies, this can be an important motivation to realize integral projects.

In development work PPPs are also used in a form of subsidization of innovative business concepts. One example is the ‘develoPPP’ program by the German Federal Ministry for Economic Cooperation and Development, which initiated more than 1,500 partnerships since 1999 (BMZ, 2014). However, “the extent to which PPP is employed in climate adaptation is very limited, and even more so in the tourism sector” (Wong et al., 2012, p.136). UNW sees a high potential by international donors to initiate PPPs for adaptation in SIDS, even though “in the long term, the biggest contributor has to be the private sector”.

PPPs also have the potential to attract investments for adaptation or recovery of tourism infrastructure after a disaster has struck. Wong et al. (2012, p.136) investigated “if and how ... [PPPs] may help the tourism sector in ... [SIDS] in the South Pacific adapt”. They concluded that the tourism sector stakeholders “were positive about forming PPPs for adaptation” (Wong et al., 2012, p.140). Only one critic did not trust in the reliability of the government as a potential partner (ibid.). Three potential PPP projects as adaptation measures for tourism were suggested during the interviews (Wong et al., 2012, p.142): (i) an early warning system; (ii) an eco-village with touristic and educational features; and (iii) coastal infrastructure protection.

Another example of a PPP in the tourism sector is the 174-room Marriott branded hotel in Port-au-Prince, Haiti. It was realized by the Marriott Hotel Group in collaboration with the Clinton Foundation and the Digicel Group, and in compliance with self declared water and energy reduction targets¹¹ of the hotel group (Clinton Foundation, 2014; Marriott, 2014). Such investments are important to recover Haiti’s tourism sector and create employment, after natural disasters that destroyed large parts of Haiti’s touristic infrastructure (ibid.). Despite

¹¹ The Marriott Hotel Group intends to “reduce energy and water consumption by 20% by 2020 (Energy 20 percent per kWh/conditioned m²; Water 20 percent per occupied room (POR). Baseline: 2007)” (Marriott, 2014).

being a disaster prone destination, Haiti currently attracts a significant number of investors (WT). It seems like potential revenues are higher than threats, and that PPPs can foster investments of MNTCs.

PPPs often face a range of challenges and barriers, such as setting a common, agreed set of aims, and managing trust, power, and difference in work culture (Huxham & Vangen, 2002). The main barrier of PPPs for tourism enterprises can be identified in a limited interest to financially participate in projects by stakeholders with a high adaptive capacity (TO1, TO2) and trust issues (Wong et al., 2012; WT). International donor organizations could act as ‘neutral’ partners and increase the transparency and trust.

To conclude, PPPs appear to be a promising instrument to realize adaptation projects, particularly of large infrastructure interventions, as they enable a risk sharing of stakeholders and could foster MNTCs investments into adaptation or disaster prone destinations. Furthermore, investments made via PPPs between MNTCs and donor agencies could be focal points to track private sector investments in adaptation.

4.4.2. Disaster risk management

Tourism destinations in SIDS are exposed to a range of natural disaster, which are expected to become more frequent and intensified due to climate change. Vanuatu, Tonga, Mauritius, Solomon Islands, and Fiji, for example, belong to the 15 most exposed countries to natural disasters worldwide (Alliance Development Works, 2013). This increases, particularly in the tourism sector, the need for coordinated Disaster Risk Management¹² (DRM) interventions to secure infrastructure in coastal zones, lives, and the destinations’ reputation (Wright, 2013; Ritchie, 2009).

DRM in tourism is a systematic approach and demands cooperation of local disaster management agencies and industry actors, which “remains a challenge yet an imperative for creating a resilient industry” (UNEP, 2008, p.10). DRM in tourism can include a range of investments such as setting up early warning systems, implement plans and recovery strategies, planting mangroves, and building sea walls or resilient water and energy supplies (Wright, 2013; Becken & Hay, 2012; UNEP, 2008). SL concluded that investments in renewable energy technology, such as photovoltaic, could be accounted as adaptation measures as it provides autonomous energy supply during and after extreme weather events.

¹² DRM can be defined as the “processes for designing, implementing, and evaluating strategies, policies, and measures to improve the understanding of disaster risk, foster disaster risk reduction and transfer, and promote continuous improvement in disaster preparedness, response, and recovery practices, with the explicit purpose of increasing human security, well-being, quality of life, and sustainable development” (Bahabudur et al., 2014).

This is clearly a case where mitigation and adaptation measures are hard to separate, but could be a cost effective focal point for adaptation investments by the hotel sector, particularly, considering that many SIDS face some of the most expensive power prices in the world (Connell, 2013).

The interviews showed that, while there are collaborations between the governments and the private sector in the Solomon Islands, Mauritius, and St. Lucia, the tourism industry is not financially involved in cooperative measures in those SIDS. Tourism industry representatives consider the governments being responsible for such actions (WT, TO2). However, the tourism industry in Mauritius autonomously started to build hard structures, such as groynes or seawalls, to reduce its vulnerability. Unfortunately, those interventions appeared to be based on limited knowledge of how effective measures should be designed and turned out to be maladaptive¹³ – leading to adjacent beach loss, and eventually a total loss of the investments (Adaptation Fund, n.d., p.3). This clearly indicates that co-operational DRM can raise the cost efficiency of private sector investments.

However, a Return Of Investment in tourism often takes 5-10 years and long-term investments in DRM measures to protect property from “low-frequency high-impact events such as a tsunami or the long-term effects of climate change” can appear uneconomical, especially for MNTCs (Wright, 2013). Thus awareness among tourism enterprises towards the effectiveness of DRM measure has to increase (WT, UN) in order to foster investments. One risk reduction measure that is acknowledged for its effectiveness is using mangroves as natural sea walls (Becken & Hay, 2007; UNW). Studies suggest that mangroves growing at shorelines significantly reduce the risk for infrastructure (Osti et al., 2009; Srinivas & Nakagawa, 2008). This was acknowledged in the Solomon Islands where tourism developers have to sustain a certain amount of trees, if they build new infrastructure at a coastline (SI). Another good example can be found in Indonesia where the UNWTO, as a part of the STREAM project, used the appeal of mangrove forests as a tourist attraction and invented a program in which tourists can adopt a mangrove tree, i.e. pay for it, plant it, and follow its growth via social media (UNW). Additional benefits are that more than 2,000 people are involved in the mangrove program, many from the local community, and that the 38,000 trees planted act as carbon sinks and absorb approximately 52 tons CO₂eq by the end of 2014 (UNWTO, 2014c).

¹³ Maladaptation “is used to describe those acts that, through bad planning or inadvertent consequences, cause either local or distant consequences that outweigh gains” (Smit, 1994 in; Pelling, 2011).

Summing up, involving the tourism industry financially into DRM seems to be uncommon in SIDS while the industry generally assumes that DRM lies within the responsibility of the destinations' government. Literature suggests that collaborative and coordinated DRM interventions are important, but the main financial share of measures might need to be covered by public sources. However, innovative DRM approaches that create mutual benefits could be feasible and would involve the industry financially.

4.4.3. International adaptation finance scheme

Since the Kyoto Protocol several international finance schemes for climate change mitigation from private sector sources, such as emissions trading, were implemented. Ideas evolved to create a comparable mechanism to involve the private sector into financing adaptation. The Higher Ground Foundation, for example, developed a concept to create a voluntary market mechanism based on Vulnerability Reduction Credits (VRCs) that would be awarded for projects “over time after demonstrating sustained delivery of vulnerability reduction” (The Higher Ground Foundation, 2011). Companies in industrialized countries would have the choice to either purchase carbon credits or VRCs (ibid.).

Whereas the concept sounds promising in theory, it raises a range of questions of its feasibility. The concept suggests measuring vulnerability according to a set baseline, but standardizing vulnerability reduction is a complex issue. UN raised the point that “there are so many other things that can come into the equation, to what extent is it a government failure, to what extent is it a macro economic failure, to what extent is it a capacity failure” when vulnerability increases. Considering the fact that after years of work, “methodologies for coding and tracking adaptation finance [are still] ... inadequate” (Jones et al., 2012, p.2), such a scheme would need to be designed very carefully in order to proof its effectiveness. UN thinks that we are years away from such a feasible scheme. Most interviewees share this opinion.

Another issue would be the incentive of the tourism industry to participate. The interviewees from the tour operators, which would be the main target with other MNTCs, clearly stated that they currently cannot use adaptation projects as effective marketing tools and are less inclined to invest in adaptation without direct rewards. An adaptation finance scheme could unfortunately minimise the direct attribution of the project to the firm and hence prevent the potential to use it for marketing purposes. Including such a mechanism into mandatory cap and trade schemes as an offset option, on the other hand, could enforce participation on the industry. However, the efficiency is questionable considering the limited steering effect and

emission reductions of current mitigation schemes (TO2). Nonetheless, there is some interest to further explore such a scheme. The UNWTO for example, started to investigate the possibility of doing some research on such mechanisms.

In conclusion it can be said that such an international adaptation finance scheme is worth exploring in more detail. Particularly as tracking international investments by MNTCs, likewise as in the carbon markets would be relatively easy. However, the complexity and challenges of such an approach appear to be too significant to realize the mechanism in the near future.

4.5. Overview of findings

Overall the investigation has shown that there are a range of instruments and focal points to involve the tourism sector into adaptation finance in SIDS. Table 5 provides an overview of the findings. For each category, state driven, tourism driven, and mixed approaches a number of instruments were identified.

Concerning the ‘state driven’ instruments, the adaptation funds appeared to be the most promising instrument both regarding its overall feasibility and its potential to attribute the investments to the \$100 billion target. Adaptation funds were widely acknowledged by the interviewees as a feasible and effective instrument to gather funds. In particular, the possible shared management by the public and private sectors appeared to present major advantages compared to taxes or levies. Disadvantages of taxes and levies could include that they create barriers for foreign investments in the tourism sector or lead to a decreasing number of tourists in the specific island state. Even if the interviewees indicated that taxes are an effective instrument to gather funds, it could be difficult to attribute the funds to international climate finance as money collected from MNTCs and local enterprises are hard to differentiate. Comparable barriers could be identified for attributing the funds invested because of building codes and regulations, as interventions are difficult to differentiate. Despite the high potential of such codes and regulations to reduce vulnerability, tourism demands to stay close to the shoreline is likely to lead to implementation issues and neglect adaptation needs.

Two major ‘tourism driven’ instruments were identified: water use management and risk transfer mechanism. Water use management was considered to be cost effective and thus likely to get accepted and implemented by the accommodation suppliers. However, the potential for attributing investments in water effective measures to international climate finance appeared to be very difficult as finance is hard to track and investments in water

secure regions would not necessarily be considered to be adaptation. Payments of MNTCs in risk transfer mechanisms, on the other hand, could easily be tracked and insurance companies could transfer the data to UNFCCC bodies. Their feasibility can also be ranked as high and they may enable firms to operate in risk prone destinations. Only slow-onset risks might be too expensive to be covered by insurance schemes at a certain level of risk.

Of the three instruments categorized as ‘mixed approaches’, PPPs seem to have the highest potential. It would be easy to attribute investments made by the industry if PPPs are set up with major donor organizations. Furthermore, PPPs also seem to be feasible as they are applicable in multiple forms, incentivize private sector action, and are compatible with development aid goals. The downsides identified are that trust issues and unclear goal settings could reduce the effectiveness of interventions of PPPs. DRM measures appeared to be cost effective, but it is expected that the funds raised from the industry may be limited, as the industry representatives indicated that, from their perspective, the major share of the costs for DRM activities should be covered by governments. The ability to attribute DRM measures to adaptation finance is similarly tricky as tracking and categorizing interventions can be difficult. In contrast, funds in international adaptation finance schemes appear to be easy to track and thus attributing them to the \$100 billion goal should be feasible. However, an adaptation finance scheme may be the most difficult instrument to realize because of its complexity in tracking vulnerability reductions and amount of stakeholders involved. Furthermore, there is little incentives for the tourism industry to engage in such a scheme as they are currently unable to use adaptation actions for effective advertising. In this case, therefore, only enforced participation appears to be feasible.

Table 5: Overview of instruments to involve the tourism industry in adaptation finance and accountability to international adaptation finance¹⁴

| Category | Instrument | Overall feasibility of instrument | Accountability to international adaptation finance ¹⁵ |
|------------------------|--|---|---|
| State Driven | Building codes and regulations | <ul style="list-style-type: none"> + Effective to reduce vulnerability - Enforcement of regulations difficult - Can be expensive - Tourists demand to stay close to the shoreline opposes adaptation needs | Difficult to track finance, as interventions can be hard to distinct. |
| | Adaptation taxes or levies | <ul style="list-style-type: none"> + Effective to receive extra funding - Trust and transparency issues - Risk of creating barriers for investments by MNTCs - Risk of decreasing demand | Difficult to differentiate, incoming money from MNTCs and local tour operators. |
| | Adaptation funds | <ul style="list-style-type: none"> + Effective to gather funding + Widely acknowledge as a good instrument by interviewees + Transparent + Shared management of public and private sector possible - Involving all MNTCs - Gathering sufficient funding | Payments by MNTCs could easily be tracked and clearly categorized as adaptation finance. |
| Industry driven | Water use management | <ul style="list-style-type: none"> + Cost effective + Easy to communicate benefits to industry - Little incentive when water is available for 'free' for hotels | Difficult to track finance and attribute investments in water secure regions to adaptation. |
| | Risk transfer mechanisms | <ul style="list-style-type: none"> + Allows operating in disaster prone areas + Decreases investment risks - Might too expensive at a certain level of risk or slow-onset risks - Might prevent action to reduce vulnerability | Insurance companies could gather data on finance and transfer them to UNFCCC bodies. |
| Mixed approach | Public private partnerships | <ul style="list-style-type: none"> + Applicable in multiple forms + Incentivizes action by firms + Compatible with development aid goals - Trust issues and unclear goals of partners | Finance by MNTCs easy to track, if PPP partner is a major donor organization. |
| | Disaster risk management | <ul style="list-style-type: none"> + Coordinated interventions could be cost-effective for firms - Perception is that the government should cover costs for DRM activities | Difficult to track financial investments & attribute them to adaptation. |
| | International adaptation finance scheme | <ul style="list-style-type: none"> + Could include MNTCs into funding - Complicated to realize - Lack of incentives for private sector to engage | Easily to track the financial flows contributed by MNTCs. |

¹⁴ The colour system [red= complicated to use; orange= medium challenges; green=feasible] is not based on strict quantitative criteria, rather on qualitative findings derived from the interviews and insights the author gained during the research project.

¹⁵ This column indicates the feasibility to account the finance to the \$100 billion climate finance target.

5. Conclusions and recommendations for future research

This exploration showed that there are several promising instruments to involve the tourism industry of SIDS in adaptation finance. However, the willingness of industry stakeholders to get involved in financing climate change measures varies significantly due to their adaptive capacity and operational scale.

Whereas multinational tour operators have the highest flexibility and are not overly excited about financing adaptation measures, local hotel owners are the most inflexible stakeholders and tend to be more perceptive to adaptation investments. As the tourism industry is generally highly price sensitive they are more receptive of implementing certain measures if threats and opportunities are communicated in economic terminology. Table 5 displays that different instruments proved to be suitable for various stakeholders and purposes. For accommodation suppliers operating locally, measures in water efficiency and energy supply appeared to be the most cost effective and thus feasible interventions. On a destination or regional scale adaptation funds, risk transfer mechanisms, and PPPs proved to be particularly promising. Particularly, adaptation funds were widely acknowledged by the interviewees for their higher feasibility as they are respectively more transparent than taxes or levies and the industry could hold positions within the management board of the fund.

In perspective to investments by MNTCs that are theoretically most feasible to accredit them to the private sector sourcing of the \$100 billion target by 2020, another set of instruments appeared to be promising. Namely, a form of an adaptation fund, PPPs, risk transfer mechanisms, and an international adaptation finance scheme is useful. However, the investigation clearly demonstrated that the adaptation finance scheme is only theoretically applicable and would face significant challenges to be realized.

Nonetheless, it will be a challenge to involve the tourism industry for adaptation finance in SIDS. Varying incentive structures, the overall price sensitivity of the sector, and the flexible nature of tourism, calls for some frameworks by the governments to encourage action. Moreover, the investigation clearly showed that approaching the sector should be based on demonstrating cost-efficient interventions or possible threats, using economical terminology. Such an approach increases the chances of gaining the attention of firms, raising awareness, and creating a knowledge base on which the further necessities of adaptation action can be communicated.

Limitations

Different limitations of this study can be identified. First, the underrepresented accommodation sector can be criticized as limiting the validity of the study. However, the WTTC representative and all other interviewees work closely together with these stakeholders and revealed insights into their perceptions. Second, each of the interviewees is framed differently and only provides a subjective estimate based on their own expertise and experience (Liamputtong, 2013). Furthermore, the personal background of the researcher shaped this investigation in a particular direction (*ibid.*). All these different backgrounds mutually influence the outcome of this investigation.

Future research

This study explored potential instruments and revealed a general overview of their advantages, barriers, and feasibility. Therefore, further research will be required in order to generate more comprehensive insights into the applicability of each instrument. A review of investments in adaptation by the tourism industry could reveal estimates of potential financial contributions by the sector. A case study approach in a specific SID country could develop findings of how government interventions such as taxes, levies, and building regulations affect the demand side and investments. A focus group based investigation on a destination scale could reveal more details of how an adaptation fund or PPPs can be initiated. Furthermore, theoretical studies are needed to investigate the potential of involving MNTCs in sourcing an adaptation fund and/or how an international adaptation finance scheme could work in detail.

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