Peter Prokosch

Tourism

Investing in energy and resource efficiency

This chapter was developed in partnership with the World Tourism Organization

Acknowledgements

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List of acronyms

ACIF	Amazon Carbon and Biodiversity Investment Fund
BAU	Business-as-usual
CBD	Convention on Biological Diversity
ECLAC	Economic Commission for Latin America and the Caribbean
CESD	Center on Ecotourism and Sustainable Development
CO_2	Carbon dioxide
CSR	Corporate social responsibility
DFI	Development Finance Institutions
DMO	Destination Management Organization
ERT	Environment-related tourism
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FONAFIFO	Costa Rica's National Forestry Financing Fund
G2	Green Scenario 2
GDP	Gross Domestic Product
GEF	Global Environment Facility
GER	Green Economy Report
GFANC	German Federal Agency for Nature Conservation
GHG	Greenhouse gas
GSTC	Global Sustainable Tourism Criteria
IEA	International Energy Agency
ILO	International Labour Organization
IPA	Investment Promotion Agency
ISO	International Organization for Standardization
ITF-STD	International Task Force on Sustainable Tourism Development
IUCN	International Union for Conservation of Nature
LDCs	Least Developed Countries
OECD	Organisation for Economic Co-operation and Development
PES	Payment for Ecosystem Services
PPI	Pro-poor income
RM	Ringgit Malaysia, currency of Malaysia
ROI	Return on investment
SIFT	Sustainable Investment and Finance in Tourism
SME	Small and medium-sized enterprise
SNV	Netherlands Development Organization
SPAN	Strengthening the Protected Area Network
ST-EP	Sustainable Tourism for Eliminating Poverty Initiative
TEEB	The Economics of Ecosystems and Biodiversity
TIES	The International Ecotourism Society
TPRG	Tourism Planning Research Group
TSA	Tourism Satellite Account
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNWTO	World Tourism Organization
VFR	Visiting Friends and Relatives
WEF	World Economic Forum
WTP	Willingness to Pay
WTTC	World Travel and Tourism Council
WWF	World Wide Fund for Nature

Key messages

1. Tourism has significant potential as a driver for growth for the world economy. The tourism economy represents 5 per cent of world Gross Domestic Product (GDP), while it contributes to about 8 per cent of total employment. International tourism ranks fourth (after fuels, chemicals and automotive products) in global exports, with an industry value of US$1 trillion a year, accounting for 30 per cent of the world's exports of commercial services or 6 per cent of total exports. There are around four billion estimated domestic arrivals every year and in 2010, some 940 million international tourists were recorded. Tourism is one of five top export earners in over 150 countries, while in 60 countries it is the number one export. It is also the main source of foreign exchange for one-third of developing countries and one-half of least developed countries (LDC).

2. The development of tourism is accompanied by significant challenges. The rapid growth in both international and domestic travel, the trends to travel farther and over shorter periods of time, and the preference given to energy-intensive transportation are increasing the non-renewable energy dependency of tourism, resulting in the sector's contribution of 5 per cent to global greenhouse gas (GHG) emissions, which is expected to grow substantially under a business–as-usual (BAU) scenario. Other challenges include excessive water consumption compared with residential water use, discharge of untreated water, the generation of waste, the damage to local terrestrial and marine biodiversity and the threats to the survival of local cultures, built heritage and traditions.

3. Green tourism has the potential to create new, green jobs. Travel and tourism are human-resource intensive, employing directly and indirectly 8 per cent of the global workforce. It is estimated that one job in the core tourism industry creates about one and a half additional or indirect jobs in the tourism-related economy. The greening of tourism, which involves efficiency improvements in energy, water and waste systems, is expected to reinforce the employment potential of the sector with increased local hiring and sourcing and significant opportunities in tourism oriented toward local culture and the natural environment.

4. Tourism development can be designed to support the local economy and reduce poverty. Local economic effects of tourism are determined by the share of tourism spending in the local economy as well as the amount of the resulting indirect economic activities. Increasing the involvement of local communities, especially the poor, in the tourism value chain can, therefore, contribute to the development of the local economy and to poverty reduction. For example, in Panama, households capture 56 per cent of total local tourism income. The extent of direct benefits to communities and poverty reduction will largely depend on the percentage of tourism needs that are locally supplied, such as products, labour, tourism services, and increasingly "green services" in energy and water efficiency and waste management. There is increasing evidence that more sustainable tourism in rural areas can lead to more positive poverty-reducing effects.

5. Investing in the greening of tourism can reduce the cost of energy, water and waste and enhance the value of biodiversity, ecosystems and cultural heritage. Investment in energy efficiency has been found to generate significant returns within a short payback period. Improving waste management is expected to save money for tourism businesses, create jobs and enhance the attractiveness of destinations. The investment requirement in conservation and restoration is small relative to the value of forests, mangroves, wetlands, and coastal zones including coral reefs, which provide ecosystem services essential for the foundation of economic activities and for human survival; the value of ecosystems for tourists remains undervalued in many cases. Investment in cultural heritage—the largest single component of consumer demand for sustainable tourism—is among the most significant and usually profitable investments. Under a green economy investment scenario, tourism makes a larger contribution to GDP growth, while

significant environmental benefits include reductions in water consumption (18 per cent), energy use (44 per cent) and CO_2 emissions (52 per cent), compared with BAU.

6. Tourists are demanding the greening of tourism. More than a third of travellers are found to favour environmentally-friendly tourism and be willing to pay between 2 and 40 per cent more for this experience. Traditional mass tourism has reached a stage of steady growth. In contrast, ecotourism, nature, heritage, cultural and "soft adventure" tourism are taking the lead and are predicted to grow rapidly over the next two decades. It is estimated that global spending on ecotourism is increasing at a higher rate than the industry-wide average growth.

7. The private sector, especially small firms, can, and must be mobilised to support green tourism. The tourism sector involves a diverse range of actors. The awareness of green tourism exists mainly in a selection of larger-scale firms. Smaller firms are mostly outside this sphere and diverse supplier groups may not be connected at all. Specific mechanisms and tools to educate small and medium-sized tourism-related enterprises are critical and are most effective when they are accompanied by actionable items. The promotion and widespread use of recognised standards for sustainable tourism, such as the Global Sustainable Tourism Criteria (GSTC), can help businesses improve sustainability performance, including resource efficiency, and assist in attracting additional investment and customers.

8. Much of the economic potential for green tourism is found in small and medium-sized Enterprises (SMEs), which need better access to financing for investing in green tourism. The majority of tourism businesses are SMEs with potential to generate greater income and opportunity from green strategies. Their single greatest limiting factor for greening, however, is lack of access to capital. Governments and international organisations can facilitate the financial flow to these important actors with an emphasis on contributions to the local economy and poverty reduction. Public-private partnerships can spread the costs and risks of large green tourism investments. Besides reducing administrative fees and offering favourable interest rates for green tourism projects, in-kind support such as technical, marketing or business administration assistance, could also help.

9. Destination planning and development strategies are the first step towards the greening of tourism. In developing tourism strategies, local governments, communities and businesses need to establish mechanisms for coordinating with ministries responsible for the environment, energy, labour, agriculture, transport, health, finance, security and other relevant areas. Clear requirements are needed in such areas as zoning, protected areas, environmental rules and regulations, labour rules, agricultural standards and health requirements particularly related to energy, emissions, water, waste and sanitation.

10. Government investments and policies can leverage private sector actions on green tourism. Government spending on public goods such as protected areas, cultural assets, water conservation, waste management, sanitation, public transport and renewable energy infrastructure can reduce the cost of green investments by the private sector in green tourism. Governments can also use tax concessions and subsidies to encourage private investment in green tourism. Time-bound subsidies can be given, for example, on the purchase of equipment or technology that reduces waste, encourages energy and water efficiency, the conservation of biodiversity and the strengthening of linkages with local businesses and community organisations. At the same time, resource and energy use as well as waste generation need to be correctly priced to reflect their true cost to society.

1 Introduction

This chapter seeks to make the case, primarily an economic one, for investing in the greening of tourism and it provides guidance on how to mobilise such investments. The objective is to inspire policy makers to support increased investment in greening the sector. The chapter shows how green investment in tourism can contribute to economically viable and robust growth, decent work creation, poverty alleviation, improved efficiency in resource use and reduced environmental degradation.

A growing body of evidence shows that greening tourism can lead to broad economic, social and environmental benefits for host countries and their communities (Mill and Morrison 2006, Rainforest Alliance 2010, World Economic Forum 2009a, Klytchnikova and Dorosh 2009). Tourism's potential for creating employment, supporting livelihoods and enabling sustainable development is huge, given that it is one of the main sources of foreign-exchange income—the principal source for one-third of developing countries and one-half of the world's LDCs according to the UN Conference on Trade and Development (UNCTAD 2010).

The chapter starts with an explanation of what is meant by greening tourism, followed by a discussion of the challenges and opportunities facing the sector. It then discusses the goals for greening the sector and the potential economic implications of green investment being made in the sector, including the results from a modelling exercise. Finally, the chapter presents the conditions that are important for enabling the greening of the sector.

1.1 Tourism in a green economy

Tourism in a green economy refers to tourism activities that can be maintained, or sustained, indefinitely in their social, economic, cultural and environmental contexts: "sustainable tourism". Sustainable tourism is not a special form of tourism; rather, all forms of tourism may strive to be more sustainable (UNEP and UNWTO 2005). A clear distinction should be made between the concepts of ecotourism and sustainable tourism: "the term ecotourism itself refers to a segment within the tourism sector with focus on environmental sustainability, while the sustainability principles should apply to all types of tourism activities, operations, establishments and projects, including conventional and alternative forms". [1]

Sustainable tourism describes policies, practices and programmes that take into account not only the expectations of tourists regarding responsible natural-resource management (demand), but also the needs of communities that support or are affected by tourism projects and the environment (supply)[2]. Thus, sustainable tourism aspires to be more energy efficient and climate sound (e.g. by using renewable energy); consume less water; minimise waste; conserve biodiversity, cultural heritage and traditional values; support intercultural understanding and tolerance; generate local income and integrate local communities with a view to improving livelihoods and reducing poverty. Making tourism businesses more sustainable benefits local communities and raises awareness and support for the sustainable use of natural resources. In this chapter, the conceptual and operational framework for sustainability in tourism is based on the Global Sustainable Tourism Criteria (GSTC), an international consensus on the minimum criteria that a tourism business should follow to approach sustainability[3]. A group of key variables based on the GSTC are used for the analysis of the greening of tourism in this chapter.

The movement toward more sustainable tourism promotes significant improvements in the performance of conventional tourism, as well as growth and improvements in smaller, niche areas centred on natural, cultural and community resources. The expansion of the latter, as a proportion of the industry as a whole, may have especially positive implications for biodiversity conservation and rural poverty reduction. However, the greening of conventional and mass tourism is likely to have its largest effects on resource use and management, as well as on increased economic spillovers and the inclusion of disadvantaged populations.

1. *International Year of Ecotourism 2002*, available at http://www.unep.fr/scp/tourism/events/iye/pdf/iye_leaflet_text.pdf.

2. ILO (2010b) views sustainable tourism as "composed of three pillars: social justice, economic development, and environmental integrity. It is committed to the enhancement of local prosperity by maximizing the contribution of tourism to the destination's economic prosperity, including the amount of visitor spending that is retained locally. It should generate income and decent employment for workers without affecting the environment and culture of the tourists' destination and ensures the viability and competitiveness of destinations and enterprises to enable them to continue to prosper and deliver benefits in the long term".

3. The Global Sustainable Tourism Criteria (GSTC) were developed as part of a broad initiative managed by *The Partnership for Global Sustainable Tourism Criteria* (GSTC Partnership), a coalition of over 40 organisations working together to foster increased understanding of sustainable tourism practices and the adoption of universal sustainable tourism principles. The Partnership was initiated by the Rainforest Alliance, the United Nations Environment Programme (UNEP), the United Nations Foundation and the United Nations World Tourism Organization (UNWTO). See www.gstcouncil.org/resource-center/gstc-criteria.htm.

2 Challenges and opportunities for tourism in a green economy

2.1 Challenges

The tourism industry faces a multitude of significant sustainability-related challenges. Challenges that need to be resolved through the greening of the industry include (1) energy and GHG emissions; (2) water consumption; (3) waste management; (4) loss of biological diversity; and (5) effective management of cultural heritage.

Energy and GHG emissions

The tourism sector's growing consumption of energy, especially in travel and accommodation, and its dependence on fossil fuels has important implications for global GHG emissions and climate change as well as for future business growth. Several elements contribute to tourism's increasing energy consumption, including growth rates in international tourist arrivals and domestic travel; trends to travel further and over shorter periods of time; as well as preference given to energy-intense transportation (e.g. aircraft and car travel over train and bus, and flying first and business class instead of economy (Peeters et al. 2010). The sustainability and competitiveness of tourism depends in part on energy efficiency (reductions in overall energy use) and a more intensive use of renewable resources.

After transport, accommodation is the most energy-intensive component of the tourism industry, through its demand for heating or cooling, lighting, cooking (in restaurants), cleaning, pools and, in tropical or arid regions, the desalination of seawater. A general rule is that the more luxurious the accommodation, the more energy will be used. In a wide review of studies, energy-use in hotels range between 25 and 284 MJ/guest-night (Peeters et al. 2010). Tourism-related transport consumption of energy is related to travel mode. Coach and rail transport, cars and buses, aircraft and cruise ships have diverse energy intensities.[4]

There is no systematic international country dataset on energy consumption from tourism activities. The UNWTO and UNEP (2008) estimate 250 MJ per person is consumed through activities not related to travel to the destination or accommodation on an average international tourist trip, 50 MJ per person is expended on shorter and less activity-oriented business trips and 100 MJ per person for Visiting Friends and Relatives (VFR) trips. The weighted global average of energy consumption for activities of international tourists is estimated at 170 MJ per trip, excluding transport and accommodation. As a comparison, world daily energy consumption per capita is estimated at 135 MJ (a value that includes energy generation and industry).[5]

Given the rising global trend for travel and the growing energy intensity of most trips, future emissions from the tourism sector are expected to increase substantially, even considering current trends in technological energy-efficiency gains in transport (air and ground) and accommodation. Tourism is estimated to create about 5 per cent of total GHG emissions (1,302 Mt CO_2), primarily from tourist transport (75 per cent) and accommodation (21 per cent, mainly from air-conditioning and heating systems). A globally-averaged tourist journey is estimated to generate 0.25 tonnes of CO_2 (UNWTO and UNEP 2008). The World Economic Forum (WEF 2009b), using a different set of sub-sectors, estimated global GHG emissions from tourism to be 13 per cent higher (1,476 Mt CO_2 in 2005). The report distinguishes direct and indirect emissions from tourism, with direct emissions being defined as "carbon emissions from sources that are directly engaged in the economic activity of the tourism and travel sector." While these are included in the WEF estimate, indirect emissions are excluded, i.e. emissions from electricity usage in airline or travel agent offices, and emissions from transportation of hotel consumables, such as food or toiletries (Peeters et al. 2010). Scott et al. (2010) estimate the sector contributed between 5.2 per cent and 12.5 per cent of all anthropogenic radiative forcing in 2005.

Over the next 30-50 years, GHG emissions from the tourism sector are projected to grow substantially in a business-as-usual scenario, in large part because emissions from aviation, the most important emitter in the industry, are expected to grow by at least a factor of 2 to 3 (UNWTO and UNEP 2008, WEF 2009b). Aviation

4. For instance, in New Zealand, the total energy consumed for tourism transport and accommodation is distributed by 43 per cent for road transport, 42 per cent for air travel, 2 per cent for sea transport and 1 per cent for rail transport, with accommodation comprising the remaining 12 per cent. For local travel, coach tourism consumes the greatest energy per day, followed by camper tourists, soft comfort and auto tourists (Becken et al. 2003).

5. Own estimation with data from the International Energy Agency, available at http://data.iea.org/ieastore/default.asp.

and tourism are expected to account for a large share of emissions unless a major change in the emission trajectories is achieved (Peeters et al. 2010).

Water consumption

While water use by tourism, on a global basis, is far less important than agriculture, industry, or urban domestic use, in some countries and regions, tourism can be the main factor in water consumption. In such areas, it can increase pressure on already diminished water resources and compete with other sectors as well as subsistence needs of local populations (Box 1). Tourism can also directly affect water quality, for example, through the discharge of untreated sewage or freshwater abstraction (Gössling 2010).

Global direct water consumption by international tourism (accommodation only) is estimated to be 1.3 km^3 per year (Gössling 2005). Available data suggests that direct water use in tourism varies between 100 and 2,000 litres per guest night, with a tendency for larger, resort-style hotels to use significantly more water than smaller, pension-like establishments or campsites. The main water-consuming factors are golf courses, irrigated gardens, swimming pools, spas, wellness facilities and guest rooms.

UNEP (2003) estimates that in the USA, tourism and recreation consume 946 million cubic metres of water per year, of which 60 per cent is linked to lodging (mostly spent on guest consumption, landscape and property management and laundry activities), and another 13 per cent is for foodservice. Total yearly water consumption by tourism in Europe is estimated at 843 million cubic metres. Each tourist consumes 300 litres of freshwater per day on average, whereas luxury tourists can consume up to 880 litres. By comparison, average per capita residential consumption in Europe is estimated at 241 litres per day.[6]

Waste management

Waste management is another increasing and well-recognised challenge in the industry. Every international tourist in Europe generates at least 1 kg of solid waste per day, and up to 2 kg/person/day for the USA (UNEP 2003). By comparison, CalRecovery and UNEP (2005) report total country waste generation, including industrial and other sources, for Austria (1.18 kg/person/day), Mexico (0.68 kg/person/day), India (0.4 kg/person/day) and the USA (2.3 kg/person/day).

Impacts are also considerable for wastewater management, even in high-income countries. In the Mediterranean region, for instance, it is commonplace for hotels to discharge untreated sewage directly into the sea (WWF 2004), with 60 per cent of water used in tourism resulting in sewage in need of disposal (GFANC 1997). In the European Mediterranean, only 30 per cent of municipal wastewater from coastal towns receives any treatment before discharge. Anecdotal evidence suggests that this is also the case in many other countries outside the European Union (Gössling 2010).

6. Author's estimation with data from AQUASTAT-FAO. Available at http://www.fao.org/waicent/faoinfo/agricult/agl/aglw/aquastat/dbase/index.stm.

Box 1: Water consumption for tourism and local communities

Tourism development is concentrated in coastal areas and on small islands, where potable water is typically scarce. This scarcity can be caused by either a physical absence of freshwater, or because the necessary infrastructure or resources are lacking. A tourism-thirsty industry can secure its water needs wherever it operates, although this can create situations of stark water inequity between tourists and neighbouring communities. Tourism's water demands can even lead to the appropriation of supply to the detriment of local domestic and agricultural needs, caused by the overexploitation of aquifers and reservoirs and the lowering of groundwater tables.

In a popular resort area of one South Asian country, for example, privately-owned water tankers buy water from villages through local elites and transport it to supply nearby hotels. This leaves villagers with water supply to their communal standpipes for a few hours a day only (Tourism Concern 2009 and 2010). Luxury resorts on an East African island are estimated to use up to 2,000 litres of water per tourist per day, almost 70 times more than the average daily domestic consumption of local people (Gössling and Hall 2006).

Golf tourism is rapidly expanding. An estimated 9.5 billion litres of water are used to irrigate the world's golf courses per day, equivalent to the daily needs of 80 per cent of the global population. One Mediterranean island, where water is so scarce it must sometimes be shipped in, is planning to increase its golf courses from three to 17, with tourism cited as the principal driver. This will involve building over agricultural land and constructing several desalination plants to ensure continual supply (Tourism Concern 2009).

Source: Tourism Concern (2010)

Loss of biological diversity

There are many examples where large-scale tourism has had detrimental effects on biodiversity, including coral reefs, coastal wetlands, rainforests, arid and semi-arid ecosystems and mountainous areas (UNWTO 2010d). Coral ecosystems have suffered strong adverse impacts from the use of coral for construction materials for hotels, over-fishing off reefs to feed tourists, sewage dumping and sedimentation from improperly managed runoff from buildings, parking lots, and golf courses. Coastal wetlands, particularly mangroves, have routinely been damaged or destroyed to build beach resorts. And in arid and semi-arid ecosystems, golf courses and other water-intensive activities have lowered water tables affecting local fauna and flora. Biodiversity will be greatly affected by the way in which tourism grows and develops, especially in developing countries (UNEP 2010). Moreover, failure to incorporate biodiversity concerns in destination planning and investment will have detrimental effects on the natural environment, increase conflict with local communities, and lead to reduced value-creation potential for both the destination and investors (notably as interest in nature-based tourism is growing rapidly around the world and represents a strategic argument for maintaining biodiverse environments, which are often tourist destinations in developing countries).

Management of cultural heritage

Interest in unique cultures by tourists can result in adverse impacts and severe disruption for communities. There are examples of communities overrun by large numbers of visitors, commercialisation of traditions and threats to cultural survival from unplanned and unmanaged tourism. Tourism destinations are occasionally built by outsiders (usually with government approval) in areas that indigenous or traditional communities consider to be theirs, and where the development was neither desired nor locally validated. These situations lead to conflicts that make cooperation and mutual benefits nearly impossible to achieve, and instil animosities that negatively affect the local communities and the tourism destination. Frequently, the cultural issues overlap and are aggravated by environmental issues such as access to water, coastal resources and wildlife. Over the last two decades, with the growth in ecotourism and alternative travel, tourism impacts on vulnerable cultures has begun to be taken seriously by the tourism industry, governments, non-governmental organisations and the cultural groups involved (Wild 2010).

2.2 Opportunities

The following trends and developments provide a particularly promising space for greening tourism: (1) sizing and growth of the sector; (2) changing consumer patterns; and (3) maximising potential for addressing local development and poverty reduction.

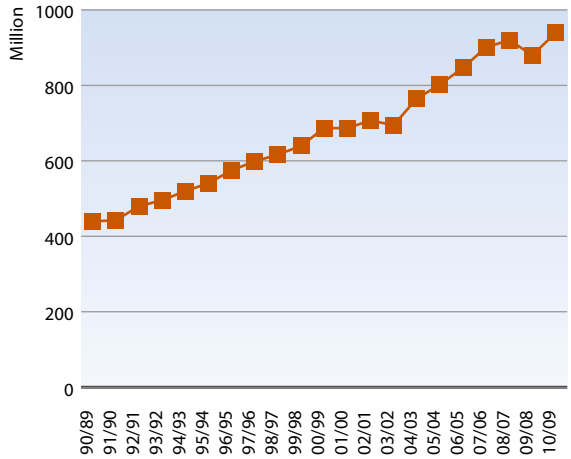


Figure 1: World international tourist arrivals

Source: UNWTO (2008, 2010b and 2011)

Sizing and growth of the tourism sector

Tourism is one of the most promising drivers of growth for the world economy. The sheer size and reach of the sector makes it critically important from a global resource perspective. Even small changes toward greening can have important impacts. Furthermore, the sector's connection to numerous sectors at destination and international levels means that changes in practices can stimulate changes in many different public and private actors.

The tourism economy represents 5 per cent of global GDP, while it contributes to about 8 per cent of total employment. International tourism ranks fourth (after fuels, chemicals and automotive products) in global exports, with an industry value of US$ 1 trillion a year, accounting for 30 per cent of the world's exports of commercial services or 6 per cent of total exports. Tourist arrivals have shown continuous yearly growth over the last six decades, with an average 4 per cent annual increase during 2009 and 2010. This trend has held in spite of occasional short drops from international crises, such as pandemics, recessions and terrorism. There are around four billion estimated domestic arrivals every year (UNWTO and UNEP 2008) and international tourism arrivals reached 922 million in 2008, dropped to 880 million in 2009, and then recovered in 2010 with 940 million (UNWTO 2011) (Figure 1). The tourist industry has been sensitive but resilient to economic, political and social global phenomena. The number of tourist trips is expected to continue to grow for the next decade, with the number of international tourist arrivals expected to reach 1.6 billion by 2020 (UNWTO 2001).

However, the economic significance of tourism is highly variable across countries. While it represents only 1.9

per cent and 3.3 per cent of GDP in Japan and Peru respectively, it represents 7.7 per cent and 10.9 per cent of GDP in South Africa and Spain respectively (UNWTO 2010c; WTTC 2010b). Regarding employment, the tourism industry contributes with 2.8 per cent, 3.1 per cent, 6.9 per cent and 11.8 per cent of total employment for the same countries (UNWTO 2010c; WTTC 2010b); in terms of investment, it accounts for 5.8 per cent, 9.9 per cent, 13 per cent, and 13.8 per cent of total investment respectively (WTTC 2010 and 2010b).[7]

Proportionately, tourism will grow faster in less developed countries than in developed economies in the next ten years. Destinations in emerging economies receive 47 per cent of worldwide international tourist arrivals and US$ 306 billion in international tourism receipts (36 per cent of the global total). Moreover, growth in the decade since 2000 has been most marked in emerging economies (58.8 per cent). Market share has also grown more significantly in emerging economies (from 38.1 per cent in 2000 to 46.9 per cent in 2009). Recent trends and forecasts point to a spreading of tourism to new destinations, largely in developing countries, where there is outstanding potential to support development goals, and where new environmental and cultural attributes can make an important contribution to more sustainable tourism destinations (UNWTO 2010b).

Changing consumer patterns

Tourist choices are increasingly influenced by sustainability considerations. For instance, in 2007 TripAdvisor surveyed travellers worldwide and 38 per cent said that environmentally-friendly tourism was a consideration when travelling, 38 per cent had stayed at an environmentally-friendly hotel and 9 per cent specifically sought such hotels, while 34 per cent were willing to pay more to stay in environmentally-friendly hotels (Pollock 2007). Center on Ecotourism and Sustainable Development (CESD) and International Ecotourism Society (TIES) (2005) found that a majority of international tourists are interested in the social, cultural and environmental issues relevant to the destinations they visit and are interested in patronising hotels that are committed to protecting the local environment. Increasingly, they view local environmental and social stewardship as a responsibility of the businesses they support. Choice experiments conducted in Uganda conclude that biodiversity attributes increase the willingness to visit tourism attractions, independently of other factors (Naidoo and Adamowickz 2005). Research also indicates that consumers are concerned about the local environments of their travel destinations and are willing to spend more on their holidays if they are assured that workers in the sector are guaranteed ethical labour conditions in the places they are visiting (ILO 2010b). On the other hand, Rheem (2009) argues that less than a third of American travellers indicate a willingness to pay some sort of premium for green travel, higher prices (cost premium) being seen as a demand barrier for 67 per cent of respondents.

Traditional mass tourism such as "sun-and-sand" resorts has reached a steady growth stage. In contrast, ecotourism, nature, heritage, cultural and soft adventure tourism, as well as sub-sectors such as rural and community tourism are taking the lead in tourism markets and are predicted to grow most rapidly over the next two decades. It is estimated that global spending on ecotourism is increasing at a higher rate than the industry-wide average growth. Nature-based tourism is an important economic component of the entire tourism market, including 75 per cent of Australia's international tourism, while 42 per cent of European recreational tourists in 2000. In 2006, nature tourists contributed US$ 122.3 billion to the USA's tourism market (UNWTO 2010d). About 14 per cent of international visitors to South Africa in 1997 engaged in an "adventure activity" during their stay (Travel to South Africa n.d.). Of the 826,000 tourists to Kenya in 1993, 23 per cent visited national parks and reserves for wildlife safari tourism (Sindiga 1995). In 1993, the Asia-Pacific region alone reported 10 per cent of tourism revenue came from ecotourism activities (Dalem 2002).

There is empirical evidence that tourists seeking environmental and culturally differentiated destinations are willing to pay more for this experience. Inman et al. (2002) estimate this to be between 25 per cent and 40 per cent. The World Economic Forum (WEF) (2009) estimates that 6 per cent of the total number of international tourists pay extra for sustainable tourism options and 34 per cent would be willing to pay extra for them. One third to one half of international tourists (weighted toward the USA) surveyed in a CESD and TIES (2005) study said they were willing to pay more to companies that benefit local communities and conservation. Research by SNV (2009) records two studies where 52 per cent of respondents in a UK survey would be more likely to book a holiday with a company that had a written code to guarantee good working conditions, protect the environment and support local charities, while some 58.5 million US travellers would pay more to use travel companies that strive to protect and preserve the environment.

Wells (1997) presents a survey of nature-tourism willingness to pay (WTP) studies and shows that, in almost all cases, consumer surplus (private value of benefits from nature tourism) is higher than collected fees from tourists. In other words, the value of ecosystems for tourism is undervalued in many cases. For instance, Adamson (2001) estimates that 50 per cent or more of the economic value

7. See Annex 1 for an indication of the economic dimension of tourism in a country sample.

from Manuel Antonio National Park in Costa Rica is not captured in entrance fees. Willingness to pay (WTP) for entrance fees from international tourists was estimated at US$ 12 (compared with a US$ 6 actual entrance fee) and US$ 6 for national tourists (compared with an actual fee of US$ 2). Furthermore, it is estimated that the average value of coral reef opportunities for recreation and tourism is almost US$ 68,500 per hectare per year in 2007 values, while it could reach up to more than US$ 1 million (TEEB 2010). The maximum monetary value of ecosystem services for tourism, per hectare per year, has been estimated for coastal systems (US$ 41,416), coastal wetlands (US$ 2,904), inland wetlands (US$ 3,700), rivers and lakes (US$ 2,733) and tropical forests (US$ 1,426) (TEEB 2010).

Potential for local development and poverty reduction

Making tourism more sustainable can create stronger linkages with the local economy, increasing local development potential. Of particular and recognised importance (Hall and Coles 2008) are: purchasing directly from local businesses, recruiting and training local unskilled and semi-skilled staff, entering into neighbourhood partnerships to make the local social environment a better place to live, work and visit for all, and ability to improve the local natural environment within its areas of direct and indirect influence (Ashley et al. 2006). The move toward more sustainable tourism has been shown in a number of destinations to enhance this local development potential through several means:

1. Its ability to harness biodiversity, landscape and cultural heritage available in developing countries can play a major role in enhancing incomes and employment opportunities;

2. Tourism is a relatively labour-intensive sector traditionally dominated by micro and small enterprises with activities particularly suited for women and disadvantaged groups;

3. A tourism product is a combination of different activities and inputs produced by many sectors: enhanced spending by tourists can benefit agriculture, handicrafts, transport, water and waste management, energy efficiency and other services;

4. As tourism development at destinations requires investment in facilities such as roads, water supply, and energy, it improves the basic common infrastructure facilities required for development of other sectors and improvement of quality of life (Bata 2010); and

5. Tourism employs more women and young people than most other sectors: providing economic benefits and independence to women is very important in terms of supporting child development and breaking the cycle of poverty.

3 The case for investing in the greening of tourism

3.1 Spending in the tourism sector

Tourism drives significant investments. Adding even small percentages of investment for a greener sector results in very significant increases in investment flows. Furthermore, much new investment flow is directed toward developing countries, where increased investment could have greater impact on green outcomes. It is estimated that travel and tourism-sector investments reached US$ 1,398 billion in 2009, or 9.4 per cent of global investment. It increased on average by 3 per cent during the last decade, notwithstanding a significant contraction in 2009 (-12 per cent). Global investment in tourism has fluctuated between 8 per cent and 10 per cent of total world investment over the last 20 years. In developing countries, such as in the Caribbean region, this figure could be as high as 50 per cent (WTTC 2010).[8] In OECD countries, investment in hotels, travel agencies and restaurants range from 6 per cent of national gross value added in Germany to 32 per cent in Portugal (OECD 2010).

Foreign Direct Investment (FDI) is an important source of world tourism investment. The stock of outward and inward FDI in the hotels and restaurants sector reported by UNCTAD (2009) accounts for almost 1 per cent of total FDI stock. This figure, however, does not take into account other tourism-related elements in other sectors, such as construction, transport or business activities. There is a growing focus on tourism as a generator of FDI in developing countries, where it is a priority of many Investment Promotion Agencies (IPAs). In this regard, the case of Costa Rica is illustrative as foreign investment in the tourism sector represented 17 per cent of total FDI inflows in 2009 and 13 per cent on average for 2000-09.[9]

3.2 Benefits in employment

Tourism is human-resource intensive due to the service nature of the industry. It is among the world's top job creators and allows for quick entry into the workforce for youth, women and migrant workers. The *wider* tourism economy provides, both directly and indirectly, more than 230 million jobs, which represents about 8 per cent of the global workforce. Women make up between 60 and 70 per cent of the labour force in the industry and half the workers are aged 25 or younger (ILO 2008). In developing countries, sustainable tourism investment can help create job opportunities, especially for poorer segments of the population.

The move toward more sustainable tourism can increase job creation. Additional employment in energy, water, and waste services and expanded local hiring and sourcing are expected from the greening of mainstream tourism segments. Furthermore, an increasing body of evidence suggests significantly expanded indirect employment growth opportunities from segments oriented toward local culture and the natural environment (Cooper et al. 2008; Moreno et al. 2010; Mitchell et al. 2009).

Tourism creates jobs directly and leads to additional (indirect) employment. It is estimated that one job in the core tourism industry creates about one and a half additional jobs in the tourism-related economy (ILO 2008). There are workers indirectly dependent on each person working in hotels, such as travel-agency staff, guides, taxi and bus drivers, food and beverage suppliers, laundry workers, textile workers, gardeners, shop staff for souvenirs and others, as well as airport employees (ILO 2008). These relationships influence the many types of workplace relationships that include full-time, part-time, temporary, casual and seasonal employment and have significant implications for employment opportunities within the sector. A study of South Africa shows that direct employment in the core tourism sector only accounts for 21 per cent of total employment creation due to tourism spending in 2008 (Pan African Research & Investment Services 2010). Available data indicate that every new job in tourism can have multiplying effects in the whole economy, as illustrated in Table 1.

8. It is worth mentioning that WTTC estimates incorporate all fixed investment expenditure by tourism service providers and government agencies, in facilities, capital equipment and infrastructure for visitors. In this sense, it could be overestimating infrastructure investments that are not tourism sector specific but affect the whole economy (for instance, road improvements or airport construction). Still, it is the only cross-country source of tourism investment data available.

9. Author's calculations with data from the Central Bank of Costa Rica. Available at www.bccr.fi.cr, accessed on September 12, 2010.

For the EU 27, GHK (2007) estimates direct and indirect employment multipliers for environment-related tourism at between 1.69 and 2.13. This means that for every 100 jobs directly created in the sector, 69 more are created elsewhere in the economy as a result of indirect effects and the figure increases to 113 when induced effects are taken into account. The authors define Environment-related tourism (ERT), as activities where the natural environment (not the built environment) is responsible for influencing the choice of destination for the tourism activity, including visits to hills, mountains, coasts, farmland, woods, forests, springs, lakes and wildlife and the activities of fishing (sea, game and coarse), walking, climbing, golfing, skiing, cycling, bathing/swimming, etc.

It is estimated that sustainable tourism in Nicaragua, a destination that focuses very prominently on its culture and natural environment, has an employment multiplier of 2. That is, for every job in the tourism sector, additional local employment is created, with higher wages than the national averages (Rainforest Alliance 2009).

	Total employment per single job in the tourism sector	Employment per US$ 10,000 tourist expenditure
Jamaica	4.61	1.28
Mauritius	3.76	not available
Bermuda	3.02	0.44
Gibraltar	2.62	not available
Solomon Islands	2.58	not available
Malta	1.99	1.59
Western Samoa	1.96	not available
Republic of Palau	1.67	not available
Fiji	not available	0.79
UK (Edinburgh)	not available	0.37

Table 1: Sample of tourism employment multipliers
Source: Cooper et al. (2008)

3.3 Local economic development and poverty reduction

Local economic development

Tourism is an important and effective driver of local economic development. Tourist spending enters the local economy to varying degrees depending principally on the structure of the tourism business and its supply chain at a destination. The economic contribution entering the economy is the local contribution and is typically measured as an average amount per tourist, and as a percentage of the total tourism spending that stays in the local economy. That which is not retained in the local economy is "leakage." Multiplier effects are limited by leakages, which reduce the positive economic impacts of tourism. Wells (1997) reports values of leakage as a percentage of gross tourism receipts ranging from 11 per cent (Philippines) to 56 per cent (Fiji)

The income multiplier is used to describe the amount of the indirect economic activity resulting from the local contribution. The economic development potential of tourism is a direct function of the local contribution and multiplier – larger local contributions and larger multipliers each lead to greater economic activity in the local economy and there are important synergies between them. From a global perspective, Mill and Morrison (2006) review the literature on income multipliers and present a list of estimations from different countries and regions. Income multipliers can be relatively low for specific destinations such as the City of Winchester (0.19) and higher for a country such as Turkey (1.96). According to Cooper et al. (2008), tourism impacts income in different ways depending on the country or region where it develops. Every US dollar spent by overnight tourists impacts income in the economy between 1.12 to 3.40 times. This high variability indicates that local economic impact development will depend on particular characteristics of the tourism business model, in particular the quantity and type of products and services sourced from the local economy.

In destinations where a large percentage of tourist needs are locally supplied (beds and linens, food and beverage, equipment and supplies, labour, tour and transportation services, souvenirs, among others), local contribution and multipliers tend to be high, and the resulting economic impact correspondingly greater. In destinations where substantial income is not captured locally, economic impact from tourism is less. This effect can vary dramatically between destinations:

- For Granada, Nicaragua, the Rainforest Alliance (2009) reports a case study of sustainable tourism where local purchases represent only 16 per cent of total purchases;

- For the Canary Islands, Hernández (2004) finds that 43 per cent of total tourism expenditure is supplied from outside the local economy through direct, indirect and induced imports; and

- In New Zealand, it is estimated that 24 per cent of tourism expenditure is for imports of goods and services sold directly to tourists by retailers (Hernández 2004).

Looking at a single destination illustrates how substantial tourism's economic impact can be. For example, for Panama, Klytchnikova and Dorosh (2009) present a detailed evaluation of tourism's impact in the local economy of three different regions. The income multiplier for the tourism industry (hotels and restaurants) is the largest of all economic sectors. An additional US$ 1 in

value added results in US$ 2.87 total income. This large multiplier is due to strong backward linkages in terms of demand for local food products as well as forward linkages of household spending from tourism income. This gain results from consumer spending effects as incomes earned in various activities are spent in the domestic economy. In comparison, multipliers are smallest (1.30 to 1.64) in sectors such as the Panama Canal, mining and textiles where there are few production linkages (as much of the inputs are imported). In contrast, the multipliers for fruit, shellfish and other agricultural exports are especially large because much of the income earned accrues to rural households who spend a high proportion of their incomes on non-tradable goods and services in the local economy.

There is an increasingly convincing body of evidence indicating that more sustainable tourism can increase both the local contribution and multiplier effect. Within a given (or similar) destination, local contribution and multiplier increase the more the local community is involved in the tourism value chain, through the supply of products, labour, tourism services and, increasingly, "green services." The few available meta-studies indicate considerably higher multipliers for natural and culturally-oriented destinations (Chang 2001). Destination-specific studies, such as Brenes (2007) for Costa Rica indicate similar effects. The logic is sound – more local purchases (substituting imports) will increase local contribution, and the income effect will be greatest when local actors are the beneficiaries of those linkages.

Poverty reduction

When tourism-related income grows with a substantial reorientation in favour of the poor, poverty can be reduced. Thus, in 2002 the UNWTO launched the Sustainable Tourism for the Elimination of Poverty initiative (ST-EP), aimed at reducing poverty levels through developing and promoting sustainable forms of tourism.[10] Increased tourism, local contributions and multiplier effects can accrue to wealthy, middle income, or the poor. Therefore, interventions must be made to help poor people become part of the processes that drive the industry (ILO 2010a). Investors and developers, as well as local and national governments, play a critical role in determining the role poorer populations play in the tourism industry. The local industry can also help by engaging in and encouraging the use of local companies for the provision of transport, services and food in order to generate local income and employment multipliers and contribute to alleviate local poverty:

■ In the case of Malaysia, Tourism Planning Research Group (TPRG 2009) describes the case of accommodation businesses and the shares of income generated and distributed across the chain. The final impact on local communities depends on the business structure and the economic activities related to tourism. In the case of the accommodation sector, most income is captured by hotel owners. However, an important share is received by small-business owners and local people involved in informal activities (Figure 2). From all tourism expenditure, 28 per cent is captured by hotels, while craft artisans obtain 5 per cent and local small businesses get 11 per cent.

■ In Zanzibar, Tanzania, Steck et al. (2010) estimate that only 10.2 per cent of total tourism income is captured by poor local people. The study found that the industry is heavily dependent on imports for both primary supplies and staff of suitable quality, both of which are normally avenues for participation of locals.

■ In Panama, households capture 56 per cent of total local tourism income (Klytchnikova and Dorosh 2009). Which households benefit the most, however, depends on the region in which the tourism revenues are generated. In the Colón Zone, most of the gains in household incomes (63 per cent) go to urban non-poor households and only 20 per cent of the income gains accrue to poor households. In contrast, in Bocas del Toro, where poor households account for a larger share of the regional labour force, 43 per cent of the total increase in household incomes accrues to the poor while the percentage gain in household incomes is nearly the same across household groups. The results for Chiriqui Province report household income gains received by the poor of 19 per cent, although the share earned by rural households is higher (46 per cent).

Empirical studies suggest that, at best, between one-fifth and one-third of total tourist expenditure in the destination is captured by the poor from direct earnings and supply chains (Mitchell and Ashley 2007). The impact of tourism on poverty depends on various factors including employment, the skill level of the labour force, changes of prices (goods and services and factors of production), ownership of micro and small enterprises and labour-market composition. As with income effects, there is increasingly convincing evidence that more sustainable tourism (particularly in rural areas) can lead to more positive poverty-reducing effects.

■ In Costa Rica, Rojas (2009) estimated the impact of tourism on poverty levels and found that without tourism incomes the local incidence of poverty would

10. ST-EP has identified seven different mechanisms through which the poor can benefit directly or indirectly from tourism: (1) Undertaking measures to increase the level of the poor working in tourism enterprises; (2) Maximising the proportion of tourism spending that is retained in local communities and involving the poor in the supply process; (3) Promoting the direct sales of goods and services to visitors by the poor from informal businesses; (4) Establishing and managing more formal tourism enterprises by the poor, either individually or at a community level; (5) Using taxes or levies on tourism income or profits with proceeds benefiting the poor; (6) Supporting the poor in money or in kind, by visitors or tourism enterprises; and (7) Investing in infrastructure that offers local communities the chance to gain new access to available resources (UNWTO 2004b).

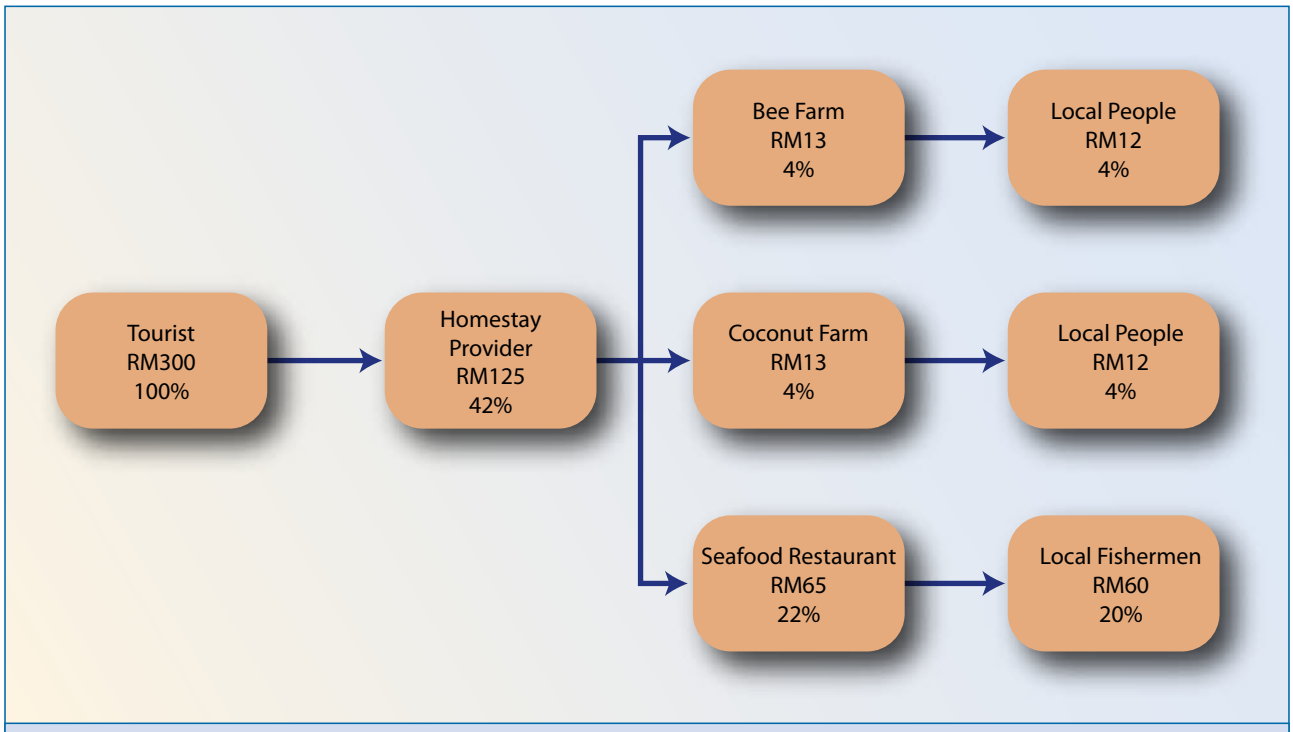


Figure 2: Accommodation linkages and tourist income distribution in Tanjong Piai, Malaysia
Source: TPRG (2009). Note: RM=Ringgit Malaysia (1 RM=US$ 0.30)

be higher in urban and rural sectors (Table 2). This result is consistent with other studies for the country. For instance, the Economic Commission for Latin America and the Caribbean (ECLAC 2007) estimates that tourism contributes to a reduction in poverty of 3 per cent in Costa Rica (and 1 per cent in Nicaragua). From a site comparison perspective, Brenes et al. (2007) estimated the impact of Tamarindo (mass tourism destination) and La Fortuna (natural and adventure attractions destination) and found that average monthly wages in La Fortuna (US$ 437) were higher than in Tamarindo (US$ 392). Moreover, they estimated a 0.64 probability of income improvement for La Fortuna inhabitants when working in the tourism sector. The evidence indicates that tourism is contributing to poverty reduction in Costa Rica, with the sustainability approach of the country as a driver of living conditions improvement.

■ In Malaysia, using a value-chain analysis, TPRG (2009) finds that economic benefits received by local people account on average for 34 per cent of total income generated by tourism. The relatively high pro-poor income share, particularly in restaurants (Table 3), may reflect various public and private initiatives to employ or involve locals in tourism business operations.

3.4 Environmental benefits

There is increasing motivation from both the private and public sectors to invest in making tourism more sustainable. Although the availability of global investment data specific to sustainable tourism is currently not of a sufficient quantity to draw any robust conclusions, it is clear that there is an increased awareness of the need and value of conserving unique natural, social and cultural assets of destinations.

Private and public investment in tourism includes infrastructure (roads, airports, national parks, private reserves, hospitality installations and other sites and facilities); environmental conservation (natural attractions, beaches, mountains, rivers, biodiversity, natural barriers and endemic species); education (labour-

	With tourism income	Without tourism income
National	17.69%	19.06%
Urban	16.93%	18.40%
Rural	18.73%	20.0%

Table 2: Impact of tourism on poverty rates in Costa Rica, 2008
Source: Rojas (2009)

	Share in tourism revenue	Share of PPI
Accommodation and hotel meals	88.4%	7.3%
Restaurants	4.4%	47.0%
Retail	3.7%	27.0%
Tours and excursions	3.0%	18.8%
Other	0.5%	n.a

Table 3: Breakdown of tourism income and pro-poor income (PPI) contribution in Malaysia
Source: TPRG (2009)

force skills, including the greening of the skills base); capacity building; and technology improvements (cleaner production, sustainable management). Investment in sustainable tourism offers a wide range of opportunities, notably in the areas of water, energy, waste and biodiversity, which can generate significant returns.

There is a growing trend within the tourism industry of investment in sustainability. For instance, the Accor hotel chain has been testing environmental technologies such as photovoltaic electricity, grey water re-use and rain-water recovery. Additional capital expenditure in energy efficiency and sustainable construction and renovation projects is estimated at a relatively modest 6 per cent of total construction costs (for a 106-room hotel), with excellent returns (WTTC 2009). Sol Meliá Hotels & Resorts have institutionalised their sustainability programme with independent certification for the company, including hotels and corporate offices on an international level, and a specific budget for the strategic project of sustainable development, financed entirely by company funds (WTTC 2010).

Energy

In hotels and other accommodation there is considerable scope for investment in energy-efficient features and services, including refrigeration, television and video systems, air conditioning and heating (particularly reduction or elimination of these systems through improved design), and laundry. Such investments are driven by increasing energy costs; likely carbon surcharges; increasing expectations of customers (particularly from Europe and North America); technological advances with low-carbon technology; and in some cases, government incentives. Many leading airlines are exploring alternative fuel strategies, as well as changes in routing, aircraft and flight practices. The railroad industry, particularly in Europe, is positioning itself as a green and community-linking alternative to air travel. Increased energy efficiency for tourism translates as reduced operational costs, increased customer satisfaction, and higher investment in energy efficiency (through retrofits and improvements).

Evidence suggests that investment in a more efficient use of energy in the sector generates significant returns (Box 2). Hamele and Eckardt (2006) reported the results of environmental initiatives in European hotels, bed & breakfast and camping sites, on energy consumption. On average, energy costs in hotels represented about 6 per cent of their annual turnover, whereas in the best practice establishments, this expense factor typically represented 1.5-2.8 per cent. Recent studies have shown that a 6 per cent increase in investment in energy-efficient design & equipment can lower electrical consumption by 10 per cent (Six Senses 2009); low-cost water-efficient design and operation can reduce consumption by 30 per cent (Newsom et al. 2008, Hagler Bailly 1998), and that overall financial cost-recovery of a destination's

Box 2: Investment in energy efficiency and savings

Six Senses, a luxury hotel group, reports that the return on investment of various energy-savings measures applied in resorts located in Thailand ranges from six months to ten years:

- The energy monitoring system cost US$ 4,500, enabling the resort to achieve 10 per cent energy savings and to identify areas for further savings;
- Investment for the mini chiller system was US$ 130,000, which saves US$ 45,000 annually, and thus pays off in 2.8 years;
- The heat-recovery system cost US$ 9,000, saving US$ 7,500 annually, corresponding to 1.2 years payback time;
- The laundry hot-water system cost US$ 27,000, saving US$ 17,000 annually (1.6 year payback time);
- Efficient lighting cost US$ 8,500, resulting in US$ 16,000 savings per year, i.e. taking six months to pay back (not considering the longer life-span of the lights);
- Investment in a water reservoir was US$ 36,000, leading to annual savings of US$ 330,000 (less than a month payback time);
- Biomass absorption chillers cost US$ 120,000, resulting in US$ 43,000 saving annually, i.e. 2.8 years payback; and
- Medium voltage (6.6kV) underground electric copper cables cost US$ 300,000. Payback is roughly 10 years from lower energy loss, but other benefits include less radiation, less power fluctuation, reduced fire risk and a prettier resort without old hanging low voltage electrical cables.

Source: Six Senses (2009)

green strategy (ratio of present value savings to present value capital expenditures) can be between 117 per cent and 174 per cent for investment recovery from hotel buildings operation efficiency (Ringbeck et al. 2010).

Rainforest Alliance (2010) presents an estimate of costs and benefits of sustainable-energy management practices for a sample of 14 tourism businesses in Latin America (Belize, Costa Rica, Ecuador, Guatemala and Nicaragua) based on GSTC indicators. The energy bill was reduced in 64 per cent of companies, with average annual savings of US$ 5,255 (maximum of US$ 17,300). Required investment ranged from 1 per cent to 10 per cent of annual operations costs. Average investment was US$ 12,278 (maximum US$ 56,530). The average payback of investments is 2.3 years.

Water

Internal water efficiency and management programmes, and investments in water-saving technology in rooms, facilities and attractions reduce costs. Greater efficiency and improved management allows for the increase of number of rooms/visitors in water-constrained destinations. With regard to the most water-consuming factor, irrigation, considerable reductions can be achieved through alternative gardening (choice of species, landscaping) as well as the use of grey water. Golf courses can be designed to require less water, and operators can measure soil moisture to help control and optimise water use. Hotels with spas and health centres can engage in a range of water-saving measures, while new hotel construction can seek to avoid pool landscapes and other water-intensive uses (Gössling 2010).

With regard to direct water use for tourists, Fortuny et al. (2008) demonstrated that many water-saving technologies relevant to hotels and other businesses have short payback times (between 0.1-9.6 years), making them economically attractive. Investments in water-saving systems, grey water reuse and rainwater collection and management systems can help reduce water consumption by 1,045 m^3 per year, or a 27 per cent lower volume per guest per night.

In the Rainforest Alliance (2010) study, the water bill was reduced in 31 per cent of companies, with average annual savings of US$ 2,718 (maximum of US$ 7,900), a particularly large number given the very low price of water charged in those countries. Required investment ranged from 1 per cent to 3 per cent of annual operations costs. Average investment was US$ 2,884 (maximum US$ 10,000). Average annual savings were US$ 2,718, for a payback period of 1.1 years.

Waste

Improved waste management provides opportunities for business and society. Lower levels of generation improves financial return for private sector actors, and better management of that waste creates opportunities for jobs, and enhances the attractiveness of destinations. Hamele and Eckardt (2006), reporting the results of an analysis of 36 hotels in the 2 to 4-star categories in Germany and Austria, showed average values per overnight-stay for solid waste (1.98 kg) and waste water (6.03 litres). The average cost of managing these two waste streams is € 0.28 per occupied room night. In Rainforest Alliance (2010), solid waste was reduced in 71 per cent of companies, with average annual savings of US$ 3,600.

Biodiversity

UNEP (2010) argues that biodiversity conservation will be greatly affected by the way in which tourism grows and develops, especially in developing countries hosting biodiversity hotspots, where tourism is expected to become increasingly important. Demand growth for experiences that involve contact with wildlife and pristine (or near pristine) ecosystems and the expectations from guests that tour operators respect and protect the natural resource base are increasingly driving changes in the tourist industry. Policies of mainstream tourism are likely to change towards more effective conservation of sensitive ecosystems, driven by market demand and large operator programmes (for instance, cruise-industry guidance on coastal systems). Moreover, the increasing trends for nature-based tourism will encourage conservation and tourism revenues (including protected-area fees) to grow in tandem. Current trends towards increasing nature-based and ecotourism are likely to continue or accelerate as pristine areas become increasingly rare, leading in turn to the incorporation of natural areas in tourism development and greater transfer of benefits toward natural areas.

Conservation and restoration provides a highly profitable, low-cost investment for maintaining ecosystem services (Box 3). Avoiding loss of ecosystems by conservation, particularly of forests, mangroves, wetlands and coastal zones, including coral reefs, is a sound investment from a cost-benefit analysis. This appears to hold from both a societal investment perspective as well as a private one. The review of dozens of restoration projects worldwide concludes that restoration compared with biodiversity loss provides a benefit/cost ratio of 3 to 75 in return of investments and an internal rate of return of 7 to 79 per cent (Nellemann and Corcoran 2010).

More than 70 per cent of Latin American hotels surveyed by Rainforest Alliance (2010) support biodiversity conservation while 83 per cent of them indicate that conservation practices have created competitive advantages through operation savings, improved image and process improvements. Ringbeck et al. (2010) report significant returns of green investments in tourism

Box 3: Strengthening the Protected Area Network (SPAN)

Strengthening the Protected Area Network (SPAN) is an initiative funded by the Global Environment Facility (GEF) designed to maximise the potential of the protected-area system in Namibia by bolstering its management and establishing partnerships. It is a six-year project with a GEF grant of US$ 8.5 million and co-financing amounting to US$ 33.7 million. Global Environment Facility analysis indicates that tourism in Namibia's protected areas contribute to 3.1 to 6.3 per cent of the country's GDP. Investment by the government of Namibia in the past 20 years has achieved a rate of return of 23 per cent. The government has increased the annual budget for park management and development by 300 per cent in the past four years. A quarter of the park-entrance revenue is to be reinvested in park and wildlife management through a trust fund, providing additional sustainable financing of US$ 2 million annually. First implemented in 2007, The National Policy on Tourism and Wildlife Concessions on State Land has approved more than 20 new tourism and hunting concessions. After two years it had generated more than US$ 1 million annually in fees payable to the government. Local communities were granted most of the concession rights in protected areas, creating revenue and jobs for local people.

Source: GEF (2009)

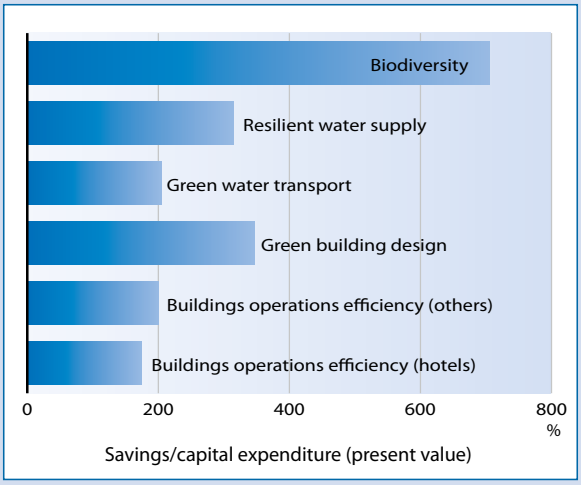
at major sun and beach destinations in Spain (Box 4). The authors estimated a present value of investments (capital expenditure) on water and energy efficiency, emissions mitigation and biodiversity conservation of US$ 1 billion and a significantly higher present value of savings (US$ 2.5 billion), with strongest investment recovery from biodiversity.

3.5 Cultural heritage

The largest single component of consumer demand for more sustainable tourism is for cultural authenticity (CESD and TIES 2005). Cultural heritage includes living cultures, both mainstream and minority, as well as historical, religious, and archaeological sites. Tourism

Box 4: Financial cost-recovery of green programmes in tourism

Based on its experience with the greening process of one of the world's leading sun-and-beach tourist destinations (a seaside locale in Spain), Booz & Company report significant returns from investment in energy efficiency and GHG emissions, lower water consumption, better waste management practices and biodiversity conservation. The green transformation strategy was developed after a thorough baseline analysis that showed, like most tourist destinations, unsustainable water and energy consumption patterns, problems with waste management and the risk of total depletion of key natural resources such as coral reefs and marine animals (main attractions). Capital expenditure on greening the tourism sector can quickly be offset by the savings in operation costs, which include not only the costs of greening initiatives, but also the socioeconomic effects of lost tourism revenue. Savings by reducing operation costs from green programmes, compared with the capital expenditure, range from 174 per cent (hotel buildings operation efficiency) to 707 per cent (biodiversity conservation). Private investment and public funding was used to secure sufficient funding. The greening transformation followed a three-step process, including an assessment of the destination's environmental status, the development of a green strategy and the collaborative execution of projects related to the green strategy.



Source: Ringbeck et al. (2010)

can offer opportunities for continuation, rejuvenation or enhancement of traditions and a way of life.

Culture is rarely static, and linking tourism and cultural survival may bring benefits as well as changes and challenges for a community to address. The possible socio-cultural costs and benefits of tourism to a vulnerable culture are rarely quantified. Tourism projects need to include a programme to monitor economic and cultural benefits so that vulnerable cultures can assess and manage the impacts of tourism on their communities (Wild 2010). Aside from the intangible benefits, most commentators believe that investment in cultural heritage is among the most significant, and usually profitable, investments a society, or tourism sector, can make (Box 5).

3.6 Modelling tourism[11]

To quantify the likely effects of increased investments in tourism, the green investment scenario (G2) simulated in the modelling exercise allocates on average 0.2 per cent of global GDP[12] (or US$ 248 billion at constant 2010 US dollar prices) per year between 2011 and 2050 to the tourism sector, which is further disaggregated into energy, water and waste management, staff training, and biodiversity conservation.[13] The green investment represents 4% of tourism GDP. This would most likely comprise a mixture of public as well as private investments. Assumptions of the model are presented in Annex 3 and results of simulations are detailed below.

Results of the simulation

The results of the simulations of the green investment scenario indicates that total arrivals of international tourists will increase by 2.8 per cent per year by 2030 and then at a lower rate of 2.5 per cent per year in the longer term to reach 2.6 billion in 2050, which is 30 per cent below the corresponding business-as-usual scenario (BAU2) due to the shift towards less frequent -but longer- trips in the green scenario[14]. The immediate impacts of international and domestic tourism will lead to a yearly direct tourism expenditure of US$ 11.3 trillion on average between 2010 and 2050 in the green investment scenario (in such areas as sales in the hotel sector, hotel payments for wages and salaries, taxes, and supplies and services). These direct expenditures have strong impacts on the destination economies resulting from various rounds of re-spending of tourism expenditure in other industries (i.e. industries supplying products and services to hotels). The total expenditure, including direct and indirect expenditures, will reach US$ 21.5 trillion on average over the next 40 years in the green scenario. The resulting higher economic growth drives the sector GDP to grow from US$ 3 trillion today to US$ 10.2 trillion in 2050, exceeding the corresponding BAU scenario by 7 per cent. Direct employment in this sector is expected to grow to 580 million in the green scenario by 2050, compared with 544 million in the corresponding BAU projection. The training of these new employees requires US$ 31 billion of investment per year on average in the next 40 years.

Despite the rising flow of tourists, the green investment will lead to significant resource conservation through considerable efficiency improvements and reduction of losses:

■ Tourism **water consumption** is projected to be 6.7 km^3 in 2050 in the green scenario, undercutting the corresponding BAU scenario by 18 per cent. In the meantime, additional investments are projected to increase water supply, which is essential for many tourism-dependent, water-stressed countries – on average 0.02 km^3 per year above BAU2 from desalination, and 0.6 km^3 per year from conventional sources (treated wastewater, surface and underground water) through better management over the 40-year period.

Box 5: Differential economic contribution from cultural areas

In Western Australia, attempts have been made to measure the economic value of cultural heritage through direct tourism expenditure, using three locations: the city of Freemantle, the city of Albany and the town of New Norcia. In order to determine the proportion of the total overnight visitor expenditure that could be directly attributable to cultural heritage, an attribution factor was generated based on data from visitor surveys and other sources. The study found that between 63 per cent and 75 per cent of a visitor's expenditure was due to the cultural heritage of the area, generating in the region of US$ 40-$ 80 per visitor per day.

Source: Tourism Western Australia, available at http://www.westernaustralia.com, accessed on September 10, 2010

11. This section (including forecasts and simulations regarding international tourism growth) is based on the Millennium Institute's work for the Green Economy Report.

12. Tourism accounts for 5% of global GDP.

13. In the G2 green investment scenario, an additional 2 per cent of global GDP is allocated to a green transformation of a range of key sectors, of which tourism is one (see Modelling chapter for more detailed explanation of scenarios and results).

14. BAU2 refers to the BAU scenario with an additional 2 per cent of global GDP per year invested according to current patterns and trends (see Modelling chapter).

■ Under the green scenario, tourism **energy supply and demand** will see both the expansion of renewables and efficiency improvements across all tourism activities. The incremental renewable-energy supply associated with tourism will be 43 Mtoe per year on average, including the expansion and introduction of renewable power generation and biofuels. On the demand side, the total energy consumption for various tourism activities will reach 954 Mtoe in 2050 under the green scenario, representing 44 per cent of avoided energy use relative to BAU2. These savings come from a mix of effective measures in individual activities – a modal shift to less carbon-intensive transport (e.g. electrified train and coach), behavioural changes (e.g. shorter-haul trips) to reduce total travel distance, better energy management (e.g. setting targets and benchmarking for hotels) – as well as across all sectors – technological advances in fuel efficiency and fewer inefficient uses due to better equipment or greater environmental awareness. More specifically, tourism transport, thanks to the transport-sector investments, will see the largest saving (604 Mtoe below the corresponding BAU scenario), followed by tourist accommodation, with 150 Mtoe of avoided consumption in 2050.

■ As a result of these energy savings, **CO_2 emissions** will be mitigated substantially relative to the corresponding BAU projection (-52 per cent by 2050), returning to the current level of 1.44 Gt in 2050, or 7 per cent of global emissions. The relative increase of the share of global emissions generated by tourism derives from a projected growth of tourism GDP higher than the average projected growth of global GDP. Tourism is expected to grow faster than most other sectors; and, without green investments, its environmental impacts would be much higher. By 2050, transportation is expected to still be the principal emitter (0.7 Gt), with aviation and cars accounting for 74 per cent and 24 per cent of the reduction respectively. Accommodation, as the second-largest emitter, will account for 0.58 Gt of emissions in 2050. The remaining CO_2 emissions (98 Mt) are caused by other tourism activities. In addition to the mitigation of CO_2 emissions in the green economy, as climate is a key resource for tourism and the sector is highly sensitive to the impacts of climate change, these sustainable practices should strengthen the capacity of tourist destinations to adapt to unfavourable climatic conditions.

■ Furthermore, investment in tourism **waste management** allows for a higher rate of waste collection and reuse (recycling and recovery). In 2050, 207 Mt of waste will be generated by the tourism sector in the green scenario, compared with 180 Mt in the corresponding BAU scenario (due to higher GDP and tourist visitor nights in green scenarios). On the other hand, green investment is estimated to allow 57 Mt more reuse of waste than in the corresponding BAU scenario, therefore cutting net waste disposal (taking into consideration waste reuse) in 2050 by 30 Mt relative to BAU2.

■ These savings will result in potential avoided costs that can be reinvested in socially and environmentally responsible local activities (such as protected areas, local transportation or staff capabilities and skills), increasing the indirect and induced effects of tourism expenditure on local development. In particular, spending by visitors from wealthier regions to developing countries helps to create much-needed employment and opportunities for development, reducing economic disparities and poverty.

4 Overcoming barriers: enabling conditions

Tourism can have positive or negative impacts depending on how it is planned, developed and managed. A set of enabling conditions is required for tourism to become sustainable: to contribute to social and economic development within the carrying capacities of ecosystems and socio-cultural thresholds. This section presents recommendations to create the enabling environment for increased investment in sustainable tourism development, overcoming barriers in the areas of (1) private-sector orientation; (2) destination planning and development; (3) fiscal and government investment policies; (4) finance and investment; (5) local investment generation. Recommendations are based substantially on the policy recommendations of the International Task Force on Sustainable Tourism Development (ITF-STD).[15]

Tourism market tendencies indicate that the main drivers towards sustainable tourism investment decisions are consumer demand changes; business actions to reduce operational costs and increase competitiveness; coherent policies and regulations for environmental protection; technology improvements; private efforts for environmental and social responsibility and natural resource conservation. These are leading the transformation of the industry and determining the returns on investments.[16] The systemic characteristic of a sustainable tourism industry stresses the need to invest more in energy and water efficiency, climate-change mitigation, waste reduction, biodiversity conservation, the reduction of poverty, the conservation of cultural assets and the promotion of linkages with the local economy. The savings and higher returns expected from actions in those areas can simultaneously be invested in new green investment projects, creating a self-enforcing greening dynamic that could enhance competitiveness and strengthen sustainability.

A cross-cutting barrier to greener or more sustainable tourism investment is the lack of understanding and recognition of the value created for companies, communities and destinations from the greening of tourism. The sharing of knowledge, information and experiences among public, private and civil society actors is a necessary first step towards overcoming these barriers.

4.1 Private-sector orientation

Tourism is a heterogeneous industry[17] where hundreds (and sometimes thousands) of actors operate in multiple market segments, even within a single country or region. These segments include conventional and mass tourism as well as niche areas such as ecotourism, adventure tourism, rural tourism, community-based tourism, sports fishing, cruise tourism and more recently, health tourism. The principal businesses within the tourism industry are accommodation, tour operation, and transport (land, air, and aquatic). In addition, tourism has diverse linkages through several economic activities, from lodging, entertainment and recreation, to transportation, professional services and advertisement, among others.[18] While all can and should benefit in the medium to long term, greening will require very different actions and investments, and benefit companies in different ways – there is no single strategy or recipe for all to follow. A coherent strategy for green tourism growth must, therefore, cover all segments and activities, and the ways in which they interact.

The tourism industry is dominated by Small and Medium-sized Enterprises (SMEs). Although online travel agencies and large conventional tour operators control an important share of international travel from Europe and North America, tourism destinations are characterised

15. The ITF-STD was comprised of members from UNEP, UNWTO, 18 developed and developing countries, seven other international organisations, seven non-governmental organisations, and seven international business associations. It was an outcome of the 2002 World Summit on Sustainable Development, which declared that "fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development". The work of the Task Force will continue with its successor, the Global Partnership for Sustainable Tourism (http://www.unep.fr/scp/tourism/activities/partnership/index.htm).

16. Drivers and likely implications of sustainable investments in key strategic areas for tourism (energy, climate change, water, waste, biodiversity, cultural heritage and the local economy) are summarised in Annex 2.

17. Tourism does not fit the standard notion of an "industry" because it is a demand-based concept. It is not the producer who provides the distinguishing characteristics that determine how tourism is classified, but rather the purchaser, i.e. the visitor (OECD 2000).

18 The Tourism Satellite Account (TSA) indicates that "tourism industries comprise all establishments for which the principal activity is a tourism characteristic activity." Tourism characteristics consumption products and tourism industries are grouped in 12 categories: accommodation for visitors, food and beverages serving activities, railway passenger transport, road passenger transport, water passenger transport, air passenger transport, transport equipment rental, travel agencies and other reservation services activities, cultural activities, sports and recreational activities, retail trade of country-specific tourism characteristic goods, and other country-specific tourism characteristic activities (see UNWTO 2010c).

by the predominance of smaller businesses. For example, close to 80 per cent of all hotels worldwide are SMEs (WEF 2009a) and, in Europe, this figure is 90 per cent.[19] Additionally, providers of goods and services for the industry tend to be small, local businesses. Reaching out to such a wide variety of small businesses, across numerous sectors, continents and languages is a daunting task. Without information, knowledge and tools, greening will be nearly impossible. Nonetheless, engaging these critical actors is a necessary condition for a sustainable industry. In Nepal, for instance, incentives for private-sector participation in capacity-building events and the implementation of sustainable action plans have helped to increase their access to international sustainable tourism markets, improved project performance and stimulated interest among other companies in Nepal in sustainable tourism business practices, creating synergies throughout the industry (UNEP 2008).

Organisational management is a key element of business sustainability. According to By and Dale (2010), successful management of change (political, economic, social and technological) is crucial for the survival and success of tourism SMEs, particularly with the following eight critical factors: adaptability and flexibility; commitment and support; communication and co-operation; continuous learning and improvement; formal strategies; motivation and reward; pragmatism; and the right people (skilled and motivated collaborators). Kyriakidou and Gore (2005) argue that best performing SME operations in hospitality, tourism and leisure industry share cultural features such as cooperative setting of missions and strategies, development of teamwork and organisational learning.

Tourism businesses are no different to other businesses when it comes to the criteria that must be considered in deciding whether to invest in them. However, there are some specific characteristics that will affect tourism business costs (Driml et al. 2010):

■ Tourism businesses are relatively labour-intensive and therefore labour costs often make up the largest proportion of operating costs;

■ The cost of inputs for capital investment and operation are higher for remote locations;

■ The cost of capital will attract a premium if there is uncertainty about returns from investment in tourism;

■ The price of land in tourist-desirable locations will be governed by competition with other land uses which may be able to pay more (due to higher returns);

■ Project planning and approvals cost will be high if assessment is lengthy or complex; and

■ Labour and land make up a high proportion of inputs and are subject to payroll tax and land tax.

A question is how to address these *basic* issues while making sustainable investment decisions. In this regard, the ITF-STD recommends that "tourism businesses and government institutions in charge of tourism should adopt innovative and appropriate technology to improve the efficiency of resource use (notably energy and water), minimise emissions of greenhouse gases (GHG) and the production of waste, while protecting biodiversity, helping reduce poverty and creating growth and sustainable development conditions for local communities." The business case for investing in these areas is sound. At the private-sector level, hotel owners, tour operators, and transport services can play a key role in protecting the environment and influencing tourists to make sustainable choices. Increased public environmental awareness, including traveller awareness, has contributed to the development of a host of voluntary industry initiatives and the definition of environmental performance at the national, regional and international levels (UNEP 1998). Many larger corporations are already addressing their environmental and social impacts. In many countries, SMEs account for the vast majority of businesses and can have a significant environmental impact; however, they tend to be more reactive to addressing environmental issues (Kasim 2009). Nevertheless, increasing pressure from consumers could force them to address more impacts in order to remain competitive.

Enabling conditions for engaging the industry

1. Tourism promotion organisations, resource management agencies and Destination Management Organizations (DMOs) should link tourism products (i.e. parks, protected areas and cultural sites) more closely with marketing positions. This will ensure a consistent and unique selling position in world tourism markets based on high-value experiences at natural and cultural sites in a compact geographical area.

2. Tourism industry associations and wider industry platforms play an important role in engaging tourism businesses in sustainability as well as developing practical tools to respond to many common challenges. As in most industries, the concept of corporate social responsibility (CSR) is increasingly recognised in the tourism sector and is being promoted by industry bodies, at the international as well as national levels. However, a formal response, including measures such as triple-bottom-line reporting, environmental management systems and certification appears to be prevalent only within

19. Available at www.hotelenergysolutions.net, accessed on September 30, 2010.

a selection of larger firms. Smaller firms are largely outside this sphere, and diverse supplier groups may not be connected at all. Experience in many countries has shown that well designed mechanisms and tools to educate SMEs are critical, but are most effective when they are accompanied by concrete, actionable items.

3. International development institutions, such as multilateral and bilateral cooperation agencies, and Development Finance Institutions (DFIs) should engage directly to inform, educate and work collaboratively with the tourism industry to integrate sustainability into policies and management practices, and secure their active participation in developing sustainable tourism. At the national level, government and civil-society engagement should be a critical part of these efforts to coordinate action.

4. The increased use of industry-oriented decision-support tools would help speed the adoption of green practices. Hotel Energy Solutions, TourBench and SUTOUR are examples of projects designed to provide assistance to Europe's tourism enterprises to identify potential investments and cost-saving opportunities for sustainable decision making to ensure profitability and competitiveness (saving money and investment in ecological building measures and equipment with low energy consumption); provide visitor satisfaction (fulfilling their demands and expectations for high environmental quality); achieve efficient use of resources (minimising the consumption of water and non-renewable energy sources); secure a clean environment (minimising the production of CO_2 and reducing waste); and conserve biological diversity (minimising the usage of chemical substances and dangerous waste products).

5. The promotion and widespread use of internationally recognised standards for sustainable tourism is necessary to monitor tourism operations and management. The private sector tends to perform best when clear criteria, objectives and targets can be identified and incorporated into their investment plans and business operations. The Global Sustainable Tourism Criteria (GSTC), issued in October 2008, provides the most promising current platform to begin the process of grounding and unifying an understanding of the practical aspects of sustainable tourism, and prioritising private sector investment.[20] The GSTC should be adopted in order to assess industry's performance and support policy recommendations. At a national and even sub-national level, GSTC, supported by information sharing and access to experts and experienced greening pioneers, is a critical step.

6. Economies of scale in the tourism sector could be achieved by means of *clustering*. A high environmental quality is a key input by those companies that pursue competitive advantages based on sound environmental management. In the case of tourism, the conservation of the natural capital of a country has a chainable effect and complementary influence on many firms. Clustering can strengthen backward and forward linkages in the tourism value chain and drive sustainability in the whole industry. Natural and cultural attractions are the most valuable assets for tourism development. The tourism *cluster* must become actively engaged in environmental management and conservation. Active collaboration with the public sector and community organisations will strengthen competitive position for the entire cluster. In the case of Croatia, for instance, Ivanovic et al. (2010) show that small businesses dominate the tourism market share in the total number of enterprises and generate the highest employment rates and income. However, they also show the lowest rate of productivity. This situation partly results from limited understanding of the potential benefits of clustering in tourism, including economies of scale; growth of technological and organisational know-how, and higher market share.

4.2 Destination planning and development

Destination planning and development strategies will be a critical determinant for the greening of tourism. Every destination is unique, and therefore each development strategy must be sensitive to the destination's unique assets and challenges, while creating a vision to deliver the destination's goals for environmental sustainability. Destination planners and policy officials are frequently unaware of the opportunities that greener tourism can bring to their destination. And even those who are aware usually lack the skills or experience necessary to build sustainability into new or ongoing destination development efforts.

Advancing greening goals through tourism planning and destination development requires the ability and institutional capacity to integrate multiple policy areas; consider a variety of natural, human and cultural assets over an extended time frame; and put in place the necessary rules and institutional capacity. A destination cannot successfully implement a green tourism strategy

20. The Global Sustainable Tourism Criteria Partnership began in 2007 and member organisations include the World Tourism Organization (UNWTO), United Nations Environmental Programme (UNEP), United Nations Foundation, Expedia.com, Travelocity-Sabre, and over 50 other organisations (Bien et al. 2008).

without the right laws and regulations in place, or the right governance structure to oversee them. Legislation should protect the environment, limit potentially harmful development, control detrimental practices, and encourage healthy behaviour. Clear rules in these areas, based on the destination strategy and its unique asset base, determine the direction, scale and scope of government and private investment in more sustainable tourism.

Enabling conditions for greener destination planning

1. Higher-level government, community and private tourism authorities must establish mechanisms for coordinating with ministries responsible for the environment, energy, labour, agriculture, transport, health, finance, security, and other relevant areas, as well as with local governments. Clear requirements such as zoning, protected areas, environmental rules and regulations, labour rules, agricultural standards, and health requirements (particularly for water, waste and sanitation) establish clear rules of the game, and define the operating climate for investment. These decisions relate very closely to fiscal and investment considerations discussed in the following section.

2. Organisations engaged in developing tourism strategies should make use of credible scientific methods and tools encompassing economic, environmental and social approaches and assessments for sustainable development that will help stakeholders related to different components of the value chain understand their environmental and socio-cultural impacts.

3. Tourism Master Plans or Strategies provide a supply-side approach for developing a tourism destination. Environmental and social issues must be included in these plans in order to manage the critical assets and promote greener outcomes. Green transformation programmes will be more effective if produced by a multi-stakeholder participatory planning process, as well as through the development of partnerships at local, national, regional and international levels. Multilateral environmental and social agreements and the organisations that support them should be included in the process.[21] Public, private and civil-society stakeholders should make a decision on the kind of tourism industry they want to consolidate in the medium and long terms, considering the possible impacts on the natural resource base and the development opportunities for the country. Therefore, the creation of a sound institutional framework is required. Coordination among key actors and environmental regulations enforcement are key conditions. In addition, when investing in tourism sustainability, main short-, medium- and long-term objectives should be followed, based on:

   ■ The contribution to country macroeconomic balances;

   ■ The creation of local direct and indirect employment;

   ■ The use of local raw materials and inputs;

   ■ The benefits created in other productive sectors (multipliers *outside* the industry);

   ■ The effects on local development and poverty;

   ■ The modernisation, diversification and sustainability of the tourism value chain; and

   ■ The growth of the internal and external demand for sustainable tourism.

4. When promoting sustainable tourism, a coherent destination planning policy is necessary to create a sound international reputation, a *country brand* that differentiates and positions the country competitively. According to FutureBrand (2008), while tourism is often the most visible manifestation of a country brand, it is clear that the image, reputation and brand values of a country impact its products, population, investment opportunities and even its foreign aid and funding. Therefore, a holistic nation approach is required in order to align public and private sector initiatives to create a successful country brand based on sustainability.

5. Assessment of carrying capacity and social fabric should be considered to take into account external and internal impacts of tourism at destination. While it is difficult to evaluate due to great differences from one destination to another, maximum thresholds could be agreed on so as to provide guidance for the development of planning policies.

4.3 Fiscal policies and economic instruments

The greening of tourism will require a more sophisticated use of instruments within government purview, such as fiscal policy, public investment, and pricing mechanisms for different public goods.

21. For instance, these include the principles of the Global Code of Ethics for Tourism adopted by UNWTO and endorsed by the UN General Assembly as well as the recommendations and guidelines provided by Multilateral Environmental Agreements and conventions, as appropriate, including the Convention on Biological Diversity (CBD), the World Heritage Convention, the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD) and the Code of Conduct for the protection of children against sexual exploitation in travel and tourism.

Tourism investment from government should focus on business motivations for sustainable management as key targets. Incentives should be consistent with both environmental protection and value added creation. Market trends and competitive advantages need to be mutually reinforced. In this regard, policy coherence is a necessary condition. From a national perspective, sustainable tourism policy should address market failures (including externalities) in a consistent manner, avoiding the creation of additional distortions through government interventions. Like markets, governments can fail. Selected interventions must promote a more efficient allocation of goods and resources than would occur in the absence of government action. Social policy should address compensation and benefits to workers, access to improved opportunities, human resource development, and value chain integration strategies. In the case of sustainable tourism policies, more coherence in terms of targets (location investments, development of specific areas for destination, national and local infrastructure investments), management (institutional coordination, impact analysis studies) and incentives (effectiveness, cost-benefit, and adequacy) is required to maintain sound competitive advantages. Where possible, the use of incentives should be based on market instruments rather than command and control measures. Some forms of market failures deserve special attention, particularly those that prevent learning how new sustainable tourism businesses can be produced profitably (self-discovery externalities), impede simultaneous and integrated investments which decentralised markets cannot coordinate (coordination externalities), and omit public inputs (legislation, accreditation, transport and other infrastructure, for instance).

Enabling conditions in fiscal and government investment policies

1. In the case of tourism, policy intervention towards investment sustainability can be justified as far as enabling conditions promote the sustainable use of natural resources and therefore create positive externalities for the society. Alternative, less productive uses of natural resources (i.e. unsustainable agriculture) or possible depletion activities (i.e. housing construction) could be compensated (for their opportunity cost) with policy instruments that increase profitability for sustainable tourism businesses and generate positive environmental externalities. Free-riding (non-compliance by companies) should be avoided with an effective performance monitoring and impact evaluation mechanism. There is a need to conduct periodical evaluations and impact analysis of tourism incentives, from an economic, social and environmental perspective.

2. Defining and committing to critical government investments in the green enabling environment plays a central role in determining private sector investment and direction. Government investments in protected areas, cultural assets, water, waste management, sanitation, transportation and energy infrastructure investments play a critical role in private sector investment decisions toward greener outcomes. Investments in public infrastructure related to tourism or investments in private tourism businesses should estimate their social and environmental impacts and adopt economic measures to compensate and offset unavoidable impacts.

3. Appropriate taxation and subsidy policies should be framed to encourage investment in sustainable tourism activities and discourage unsustainable tourism. Use of taxation is often resorted to for keeping developments in limits (for instance, taxes on use of resources and services at the destinations) and controlling the specific inputs and outputs (like effluent charges and waste services).

4. Tax concessions and subsidies can be used to encourage green investment at the destinations and facilities. Subsidies can be given on purchase of equipment or technology that reduces waste, encourages energy and water efficiency, or the conservation of biodiversity (payments for environmental services) and the strengthening of linkages with local businesses and community organisations.

5. Establish clear price signals to orient investment and consumption. The price for such public goods as water production and supply, electricity and waste management send important signals to the private sector. Governments frequently price these goods at very low levels (frequently even free) to encourage investment, only to find that low prices encourage waste, place a drain on communities and make it very costly (financially and politically) to raise prices.

4.4 Financing green tourism investments

Environmental and social investments are relatively new, and remain outside the mainstream of financial markets (particularly in developing countries). In many cases, barriers are based on misperceptions or lack of knowledge. For example, for many green investments, payback periods and amounts are not clearly established (due to limited experience with them), creating uncertainty for banks or other investors that can jeopardise financing. Also, the return on many green investments includes easily measurable components (such as energy savings), combined with more difficult

to measure components such as guest satisfaction which can make calculating returns tricky.[22]

In other cases, framework conditions in destination countries limit investment. For example, higher interest rates in many countries make investments that are completely viable in wealthy countries, unviable in the local environment. Another frequently cited situation found in many developing countries is that the financial regulatory systems classify environmental investments as non-productive assets, requiring banks to hold greater reserves, resulting in higher interest rates and less investment.

Enabling conditions for finance

1. The single greatest limiting factor for SMEs in moving toward greener tourism is lack of access to capital for this type of investments. Green investments must be seen as value-adding and made on their economic and financial merits, without prejudice. This will require greater private sector awareness of the value of green investment, and also policy coordination with Ministries of Finance and regulatory authorities.

2. Regional funds for local tourism development could help overcome financial barriers for green investments where investments also generate public returns (through positive externalities). Foreign Direct Investment (FDI), private equity, portfolio investment, and other potential funding sources should be also aligned with sustainable projects and strategies for the tourism industry. Ringbeck et al. (2010) argue that not all green initiatives are financially possible for the local or national parties undertaking them, and destinations are not always able to generate enough revenue through their own resources. When local financial resource limitations exist, obtaining external funding could help ensure the long-term sustainability of investments.

3. Mainstream sustainability into tourism development investments and financing. In this regard, the Sustainable Investment and Finance in Tourism (SIFT) network is working to integrate the expectations of private investors, the leveraged strength of the financing and donor community, and the needs of developing destinations. The SIFT Network aims to establish a common, voluntary standard to encourage greater sustainability in tourism investments by public, private and multilateral investors; intensify financing of sustainable tourism projects; increase sustainable investments in the tourism sector; improve capacity of developing destinations; and leverage unique knowledge and reach others. SIFT efforts should permeate to regional, national and local financial organisations (counterparts), and help integrate other global sustainable financial initiatives (e.g. UNEP FI, Equator Principles) to support green investments in tourism.

4. Establish partnership approaches to spread the costs and risks of funding sustainable tourism investments. In the case of SMEs, for example, besides sliding fees and favourable interest rates for sustainability projects, in-kind support like technical, marketing or business administration assistance, could help to offset the cash requirements of firms by offering them services at low cost. In addition, loans and loan guarantees could include more favourable grace periods, soften the requirements on personal asset guarantees or offer longer repayment periods. Loans for sustainable tourism projects could be set up with guarantees from aid agencies and private businesses, lowering risk and interest rates.

4.5 Local investment

As discussed above, sustainable tourism creates additional opportunities to increase local economic contribution from tourism. An often-overlooked aspect of these linkages is that they also offer opportunities for increased investment in local communities. Capitalised and formalised businesses in the tourism value chain enhance local economic opportunity (through employment, local contribution and multiplier effects) while also enhancing local competitiveness among tourists demanding greater local content. This win-win situation is recognised in the UNWTO's ST-EP initiative. Notably, many of the targeted mechanisms are investment enhancing as well as local-income enhancing.

This promotes a greater number and variety of excursions in a given destination, a "buy local" movement in food and beverages sector and growth of specialised niches. Efforts by tourism businesses to include local communities within value creation, public and private initiatives of local workers training, and the development of infrastructure and supporting industries, creates new conditions for business development, more equitable growth and less leakage. These businesses require investment, and can expect substantial growth opportunities in successful destinations.

Enabling conditions for increasing local contribution

1. Strengthen tourism value chains to back SME investment. Destination tourism is usually stable enough to provide sufficient guarantees for investors and bankers. Long-term contracts for products and services to hotels or other anchor businesses create

22. For example, Frey (2008) found in a survey of South African tourism businesses that 80 per cent of respondents agree that responsible tourism management leads to enhanced employee morale and performance, improves company reputation and is an effective marketing tool. However, businesses are not investing sufficient time or money into changing management practices.

suitable conditions, and simple mechanisms to monitor performance.

2. Expand the use of solidarity lending mechanisms to permit groups of local suppliers to access credit and build capital. Solidarity lending (guarantees provided by a peer group) has proven successful in fisheries, agriculture, and handicrafts – all industries of critical importance to successful sustainable tourism destinations.

3. Enhance development bank access to individuals and small businesses that are not eligible for credit, or are involved in the provision of public services (such as protected areas management, guiding, waste management, infrastructure construction, among others).

4. Establish seed funds to permit new green industries to develop locally. For example, solar collectors and photovoltaic systems can be imported as complete systems, or can be assembled locally from imported components. The latter encourages local investment and promotes local economic contribution. It also permits adaptation of the technologies to better suit local tourism needs.

5 Conclusions

Tourism is a leading global industry, responsible for a significant proportion of world production, trade, employment, and investments. In many developing nations, it is the most important source of foreign exchange and FDI. Tourism growth, environmental conservation, and social wellbeing can be mutually reinforcing. All forms of tourism can contribute towards a green economy transition through investments leading to energy and water efficiency, climate-change mitigation, waste reduction, biodiversity and cultural heritage conservation, and the strengthening of linkages with local communities. Making tourism businesses more sustainable will foster the industry's growth, create more and better jobs, consolidate higher investment returns, benefit local development and contribute to poverty reduction, while raising awareness and support for the sustainable use of natural resources.

The potential economic, social and environmental costs of a BAU scenario in the tourism industry are not always considered when evaluating the cost of investments toward sustainability. Concern about required investments and financing sources availability are common when considering actions for making tourism more sustainable. Nevertheless, empirical evidence shows that demand for traditional mass tourism has reached a mature stage whereas the demand for more responsible forms of tourism is booming and are predicted to be the fastest growing tourism markets in the next two decades. Tourism-market tendencies indicate that main drivers towards investment in sustainable tourism relate to consumer demand changes, actions to reduce operations costs and increase competitiveness, coherent policy and regulations, technology improvements, stronger efforts for environmental and social responsibility and natural resource conservation. These are leading transformation of the industry and determining the returns on investments.

In a BAU scenario up to 2050, tourism growth will imply increases in energy consumption (111 per cent), greenhouse gas emissions (105 per cent), water consumption (150 per cent), and solid waste disposal (252 per cent). On the other hand, under an alternative greener investment scenario (in energy and water efficiency, emissions mitigation and solid waste management) of US$ 248 billion (i.e. 0.2 per cent of total GDP), the tourism sector can grow steadily in the coming decades (exceeding the BAU scenario by 7 per cent in terms of the sector GDP) while saving significant amounts of resources and enhancing its sustainability. The green investment scenario is expected to undercut the corresponding BAU scenario by 18 per cent for water consumption, 44 per cent for energy supply and demand, 52 per cent for CO_2 emissions. This will result in potential avoided costs that can be reinvested in socially and environmentally responsible local activities – such as local transportation and staff capabilities and skills – increasing the indirect and induced effects of tourism expenditure on local development. In particular, the spending by foreign visitors from wealthier regions in developing countries helps to create much-needed employment and opportunities for development, reducing economic disparities and poverty, notably through the multiplier effect and the reduction of leakage.

Tourism can have positive or negative impacts depending on how it is planned, developed and managed. Various enabling conditions are required for transforming tourism to contribute to social and economic development within the carrying capacities of ecosystems.

To promote sustainable tourism in a green economy, the national, regional, and local economy should first provide a good investment climate, featuring security and stability, regulation, taxation, finance, infrastructure, and labour. Various tourism stakeholders should collaborate and share knowledge and tools in order to understand the overall picture of environmental and socio-cultural impacts of tourism activities at destinations. There is also a need for policy coherence, which can include economic instruments and fiscal policy to reward sustainable investments and practices and discourage the most costly externalities associated with uncontrolled tourism expansion. In the case of tourism, government and private tourism authorities should coordinate with ministries responsible for the environment, energy, agriculture, transport, health, finance, security, and other relevant areas, as well as with local governments.

By steering the direction of policy and spearheading sustainability efforts, government authorities can motivate and influence other stakeholders – both public and private – to engage in behaviour that bolsters a destination's sustainability. It is necessary that tourism promotion and marketing initiatives emphasise sustainability as a primary option. To create local development opportunities, marketing efforts should ensure access to domestic and international markets by sustainable local, small, medium, community-based and other tourism suppliers (especially in developing

countries). As the tourism industry is dominated by SMEs, it is also essential to facilitate their access to industry-oriented decision-support tools, information, knowledge as well as to capital. Partnership approaches to lower the costs and risks of funding sustainable tourism investment and in kind support to SMEs should be considered so as to facilitate the shift toward green tourism activities.

The design and implementation of a sustainable tourism *enabling environment* should be based on a sound formal and well-documented analysis. Policymakers should set baselines and measurable targets with regard to short-, medium-, and long-term results of sustainable tourism promotion and marketing. It is important to note that the success of tourism destinations should be evaluated not only in terms of arrivals but also in terms of broader economic, social and environmental drivers, as well as its impacts. Sustainable tourism policymaking should be based on sound quantitative analysis. Valuation exercises (such as choice experiments) can help identify opportunities for sustainable tourism development from the demand side. Tools such as input-output and general equilibrium models, business surveys, and the Tourism Satellite Accounts (TSA) can support policy design and business strategy. The adoption of international standards and criteria (e.g. GSTC) at a global scale is highly recommended in order to assess comparable results and unify an understanding on the practical aspects of sustainable tourism enabling prioritising of private sector investments. Further, increased adoption of management standards for environmental and labour performance[23] would greatly assist tourism operators in strengthening their internal management capacity to reduce environmental impacts and protect their workers, and enhance capacity to relate to community stakeholders.

The effects of tourism can vary dramatically between destinations. More quantitative studies are necessary to clearly understand the reasons for such variations, to expand the evidence base at a national and sub-national level on tourism and local employment, procurement through local supply chains, poverty reduction, environmental benefits, and other relevant areas. Domestic tourism (in many countries the most important source of tourism income) should be further analysed. Business performance and the determinants of higher Return on Investment (ROI) on green investments are key variables to study.

This chapter analyses the main variables that influence tourism development and aims to demonstrate that concerted greener policies can steer the growth of the sector toward a more sustainable path, generating economic benefits, while strengthening its social and environmental context. Its findings and recommendations are addressed to all tourism stakeholders.

23. These include the ISO 14000 series for environmental management, ISO 26000 series for social responsibility management and S.A. 8000 series for working conditions.

Annex 1: Economic sizing of the sector

Country	Domestic tourism consumption / total tourism consumption (%)*	Tourism gross domestic product / GDP (%)*	Jobs in tourism industries / total jobs (%)*	Tourism investment / total investment (%)**
Australia	73.9	4.1	4.8	12.5
Chile	75.0	3.1	2.6	7.5
China	90.8	4.2	2.3	8.5
Czech Republic	45.3	3.0	3.3	11.0
Ecuador	69.4	4.1	1.8	12.4
Honduras	54.5	5.7	5.3	8.4
Israel	61.0	1.8	2.6	7.6
Japan	93.5	1.9	2.8	5.8
Latvia	51.4	1.9	9.0	7.4
Lithuania	56.4	2.6	2.6	9.8
Netherlands	80.8	3.0	4.3	7.3
New Zealand	56.2	12.0	9.7	15.0
Peru	74.4	3.3	3.1	9.9
Philippines	80.7	6.9	9.7	11.3
Poland	41.0	2.0	4.8	7.1
Romania	47.7	2.2	8.3	7.3
Saudi Arabia	61.5	5.0	3.9	3.9
Slovakia	44.1	2.9	7.3	11.4
Slovenia	43.0	4.9	11.5	12.0
Spain	42.3	10.9	11.8	13.8

* Estimated with TSA country data for latest year available (mainly 2007). ** 2009 values.

Table A1-1: Economic relevance of tourism in selected countries

Source: Author's calculations with data from UNWTO (2010c) and WTTC (2010)

Annex 2: Drivers and likely implications of investment in sustainable tourism strategic areas

Strategic area	Sustainability drivers	Likely implications
Energy	■ Increased energy costs ■ Likely carbon surcharges ■ Customers expectations (particularly from Europe and North America) driving operators and entire supply chain ■ Availability of low-carbon technology ■ Possible government incentives ■ Decreasing costs of renewable energy technologies ■ Eco-labels and/or voluntary standards ■ Regulations/legislation on energy efficiency and performance of buildings	■ Maintain or reduce operating costs for tourism operators through energy efficiency ■ Increased customer satisfaction ■ Investment in energy efficiency (retrofits, improvements) ■ New energy-efficient investment stock ■ Investment in more energy efficient features and services (such as efficient refrigeration, television and video systems, air conditioning and heating and laundry) ■ Differentiation of operators and their value chains ■ Modest shift toward short-haul versus long-haul tourism, with the effect increasing with energy costs (and offset to the extent efficiency is increased)
Climate change	■ Costs of GHG emissions (driven by post-Kyoto rules) ■ Concern of customer base about carbon footprint ■ Host government policies and priorities (climate change mitigation and energy) ■ Uptake of corporate social responsibility (CSR) ■ Climate change impact on tourism sites	■ Same as for energy efficiency ■ Increased substitution of fuels toward electricity, particularly increased investment in passive solar collectors, photovoltaics and alternative fuels for vehicles ■ Increased number of project developers orienting business strategies toward lower-carbon footprint ■ Expectations of broader stakeholder base ■ Demand for carbon offsets and other mechanisms to compensate for residual emissions
Water	■ Water scarcity ■ Price for water and conflicts ■ Expectations from travellers for responsible water management ■ Expectations from major tour operators	■ Reduction in water costs from internal water efficiency ■ Investments in water saving technology in rooms, facilities (such as laundry and swimming pools) and attractions (such as golf courses, gardens and water-based attractions) ■ Increase in number of rooms/visitors in water-constrained destinations ■ Slight advantage to destinations with more abundant water supplies in terms of variety of activities and cost of water resources ■ Increased use of water treatment systems, at firm/project level and destination
Waste	■ Customer demand for clean destination ■ Public opinion ■ Degradation of water resources owing to waste dumping and waste water ■ Pressure from major tour operators	■ Lower pollution and natural resource ■ Improved solid waste management ■ Reduction of open waste dumping sites and poorly managed landfills ■ Investments in waste water management equipment, treatment and disinfection. ■ Investment in sanitary landfills and solid waste recycling capacity ■ Lower sewage and clean-up fees
Biodiversity	■ Increased tourist preference for experiences that involve contact with wildlife and pristine (or near pristine) ecosystems ■ Expectations from guests that operators protect the natural resource base ■ Government regulations regarding sensitive ecosystems such as coral reefs, coastal wetlands and forests ■ National policies to attract resources through tourism capable of protecting critical biological habitat ■ Ecosystem services potential for tourism revenue generation	■ Demand for nature-based tourism likely to accelerate as pristine areas become increasingly rare ■ Increased number of policies and related practices in mainstream tourism to more effectively protect sensitive ecosystems ■ Improved design of individual projects and destinations incorporating biodiversity conservation *in situ*, and through compensatory mechanisms ■ Increased incorporation of natural areas in tourism development and greater transfer of benefits toward natural areas through entrance fees and Payment for Ecosystem Services (PES) schemes

Table A2-1: Drivers and likely implications of investment in sustainable tourism strategic areas
Source: Author's compilation

Strategic area	Sustainability drivers	Likely implications
Cultural heritage	■ Tourist preference for experiences that involve contact with authentic cultural landscapes ■ Expectations from guests that their tourism operators respect and protect traditional culture ■ Increased awareness of World Heritage Sites ■ Recognition and appreciation for cultural diversity	■ Respect and recognition of traditional culture, particularly in context of assimilation into a dominant culture. Help to community members to validate their culture, especially when external influences of modern life cause the young to become disassociated from traditional life and practices ■ Conservation of traditional lands and natural resources on which the culture has traditionally relied ■ Help to reduce poverty within a community or cultural group. Increased opportunities for young to remain in community instead of seeking alternative opportunities in cities and towns. Meet the needs of cultural groups, such as health care, access to clean water, education, employment and income ■ Reduced risk of losing unique cultural attributes
Linkages with Local Economy	■ Demand for more contact with local communities ■ Greater number and variety of excursions in a given destination ■ "Buy local" movement in food and beverages sector ■ CSR uptake ■ Public and private initiatives of local workers training ■ Growth of specialised niches (ecotourism, rural tourism, adventure tourism, sports fishing, agrotourism and community-based tourism) ■ Development of infrastructure and supporting industries	■ Concerted efforts by tourism authorities, local officials and civil society organisations to increase local content ■ Responses by tourism operators and increasing use of indicators to track local contribution (which feed into tourism satellite accounts) ■ Deepened supply chain in local economy, generating increased indirect employment ■ Increased spending in local economy from income effects in direct and indirect employee consumption and purchases ■ Improved income distribution among industry stakeholders ■ Decreased leakage (imports of intermediate goods and foreign workers)

Table A2-1: Drivers and likely implications of investment in sustainable tourism strategic areas

Source: Author's compilation

Annex 3: Assumptions of the model

1. Tourism energy management:
25 per cent of the tourism sector green investment (on average US$ 61 billion per year) is allocated in 2011-2050 to both energy demand reduction through efficiency improvements and increase of renewable energy supply.

Abatement of emissions from energy use: Emissions from tourism activities are reduced in the green scenario through efficiency improvements in tourism electricity and fuel consumption and behavioural changes towards longer stay and fewer trips, shorter travel distance and transport modal shifts (from aviation and private cars to cleaner transport, e.g. coach and electric railway). This investment adds up to US$ 18 billion per year on average over the next forty years, or 29 per cent of the tourism energy green investment in the green investment case (G2). The same rates of efficiency gain and modal shifts as in associated GER sectors are assumed, while the assumption in increase of stay (by 0.5 per cent per year) and reduction of trips (to retain total guest nights) is based on the scenarios presented by UNWTO and UNEP (2008). The investment is estimated by using CO_2 abatement costs included in International Energy Agency (IEA) (2009). More specifically, for tourism transportation:

■ The length of stay is assumed to increase by 0.5 per cent per year (on average 3.7 days in 2050) instead of a 0.5 per cent decrease per year (2.5 days in 2050) in BAU, in line with the scenarios of UNWTO and UNEP (2008). To be consistent with the projected total guest nights in other scenarios, tourist arrivals in the green investment scenario are reduced. Thereby these travelling behavioural changes result in fewer but longer trips, but would not affect total number of guest nights. In addition, IEA's assumption of reduced travel is a good fit with the green tourism goal (short travel and longer stays).

■ With respect to transport modal shift and energy efficiency in the green scenario, to ensure coherence across the sectors, the same assumptions as in the GER transportation sector are used for tourism. In accordance with IEA's reports, it is assumed that by 2050 in the green scenario, 25 per cent of car travel and air travel is replaced by bus or rail. The ratio of transport energy efficiency in the green investment scenario (by 60 per cent) is based on the amount of green investment and unit abatement costs from IEA.

■ Renewable energy production: Additional investments of 71 per cent of the tourism energy green investment (or US$ 43 billion on average per year) between 2010 and 2050 are allocated to the introduction and expansion of renewable power generation and biofuel production. The cost assumptions are collected from IEA (2009).

2. Tourism water management:
0.1 per cent of the tourism-sector green investment (on average US$ 0.24 billion per year) is allocated in 2011-2050 to both water demand reduction through efficiency improvements and increase of water supply[24]:

Water efficiency improvement: The amount of investment in water-efficiency improvement, aimed at reducing tourism water demand, is assumed to be US$ 0.16 billion per year on average (or 65 per cent of investment in tourism water management) over the 40-year period. The unit cost is assumed to be US$ 0.28/m^3.

Water supply: The remaining (35 per cent) of tourism-sector water investment (US$ 0.86 billion per year on average between 2010 and 2050) aims to increase water supply from desalination and conventional water sources:

■ Desalination: 30 per cent of water-supply investment (US$ 0.026 billion per year on average), over the 40-year period will be invested in water desalination. The cost to supply water desalination is set at US$ 1.1/m^3.

■ Conventional water supply management: 70 per cent of the total water-supply investment (US$ 0.06 billion per year on average) is allocated to conventional water-supply management measures, including treatment of wastewater, reservoir storage, and surface and underground water supply. The unit cost to increase conventional water supply is set at US$ 0.11/m^3.

3. Waste management:
13 per cent of tourism-sector green investment (on average US$ 32 billion per year) is allocated in 2011-2050 to upstream (collection) and downstream (reuse) waste treatment:

■ Waste reuse: 8 per cent of the tourism waste investment is invested in waste recycling and recovery, totalling on average US$ 2.4 billion per year over the next 40 years under the green investment scenario. The unit costs of recycling and compost are assumed to be US$ 138 per tonne and US$ 44.85 per tonne respectively.

24. The low level of investment allocated to tourism water sector is due to the relatively small amount of water consumption in tourism compared to the total of all sectors, as the same unit costs and improvement percentage are used for all water users.

■ Waste collection: the remaining 92 per cent of green investment in tourism waste management is allocated to improve the waste collection rate, totalling on average US$ 30 billion per year over the next 40 years under the green investment scenario. The upstream cost of waste treatment is assumed to rise from US$ 1,083 per tonne in 1970 to US$ 1,695.5 per tonne in 2050.

4. Training of employees:
12 per cent of tourism investment in the green investment scenario, or US$ 31 billion on average each year between 2011 and 2050. The cost of training per employee is assumed to be US$ 117 for 120 hours, while all new employees attend training for one year in total over the duration of their career (together with the assumption that as many as possible would be local workforce). Overall, the total cumulative cost of training one employee is assumed to reach US$ 2,854. A variety of scenarios were simulated to study and evaluate the impacts of the variation in training cost per employee per year, in the range of between 30 per cent lower and higher than the assumed cost (or from US$ 1,998 to US$ 3,711).

5. Biodiversity conservation:
50 per cent of tourism investment, or US$ 123 billion on average each year between 2011 and 2050. Three scenarios are simulated based on different biodiversity conservation costs. These are (a) US$ 119 per hectare, assuming only forest conservation – using the average cost offered by FONAFIFO[25]; (b) US$ 451 per hectare assuming the possibility to undertake forestry and agriculture on that land (based on the experience in Costa Rica, from Forestry chapter); (c) US$ 1,380 per hectare assuming that housing and other related business opportunities can be created, based on what is offered by Amazon Carbon and Biodiversity Investment Fund (ACIF)[26].

25. Fondo Nacional de Financiamiento Forestal, Costa Rica.

26. The Amazon Carbon and Biodiversity Investment Fund (ACIF) offers between US$ 276 and US$ 3,450 per ha, but it is a very specific case for 100,000 ha (US$ 3,450/ha seems high for an average). As a consequence, US$ 1,380/ha is used as a maximum value of conservation cost in this analysis.

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