

# THE SUSTAINABLE TOURISM INDEX

## ENHANCING THE GLOBAL TRAVEL ENVIRONMENT



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## Executive summary

Tourism, as with most industries, exerts both positive and negative influences on the world. On the plus side, the sector's economic contribution is enormous. World Travel & Tourism Council (WTTC) estimates that, factoring in spending in ancillary sectors, travel and tourism contributed 10% of the world's GDP in 2016 and accounted for just under 10% of its total employment.<sup>1</sup> Rising incomes, especially in the emerging world, are enabling more and more people to travel and take in the natural and cultural wonders of their own and foreign countries, not to mention the shopping, leisure and nightlife opportunities of many of the world's metropolises.

All this, of course, comes at a cost. One is the enormous pressure tourism places on the environment. It is estimated that tourism's share of worldwide greenhouse gas emissions has been about 5% and is expected to grow in the coming years.<sup>2</sup> Overflowing tourist numbers are leading to physical degradation of many natural and historical wonders, such as Thailand's Koh Tachai island,<sup>3</sup> leading to their indefinite closure to visitors. In European cities such as Barcelona, Rome and Amsterdam, residents have begun taking to the streets to protest tourism's perceived effects on local rental prices, congestion and air quality.<sup>4</sup>

These factors help explain why the promotion of "sustainable tourism" is high on the agenda of international organisations spearheading

global efforts to combat climate change. The UN, for example, has designated 2017 as the International Year of Sustainable Tourism for Development. Tourism figures prominently in three of the UN's Sustainable Development Goals, published in 2015.<sup>5</sup>

There is indeed a considerable amount of co-ordination taking place at international levels, including by NGOs and industry bodies, to advance the adoption of sustainable practices in tourism. Partly as a result, progress is being achieved at grass-roots levels, in some cases by multinational businesses and in others by individual destinations and tourism operators, often with the help of domestic NGOs and industry bodies. In most countries, however, there is a vacuum at the national level, and government-level efforts in policymaking and implementation thus far tend to be fragmented and inconsistent.

The Sustainable Tourism Index assesses countries on their commitment to develop and promote sustainable practices in tourism. It finds that, not surprisingly, the world's developed countries have done more at the national level than their emerging-world rivals to formulate policy, foster adherence to recognised standards, encourage travel and tourism businesses to reduce their environmental footprint, co-ordinate efforts with NGOs and the private sector, and ensure protection of their cultural and historical assets.

<sup>1</sup> World Travel & Tourism Council, *Travel & Tourism Economic Impact 2017*

<sup>2</sup> Stefan Gössling, Daniel Scott and C Michael Hall, "Challenges of tourism in a low-carbon economy", *WIREs Climate Change*, July 2013

<sup>3</sup> "Thailand to close Koh Tachai island over tourism damage", BBC, 17 May 2016

<sup>4</sup> See, for example, "First Venice and Barcelona: now anti-tourism marches spread across Europe", *The Guardian*, 10 August 2017

<sup>5</sup> "Tourism and the SDGs", UNWTO website, <http://icr.unwto.org/content/tourism-and-sdgs>



European countries lead the index overall and in most domains. Of the ten countries included in the index, only France and Germany have taken concerted and sustained action at the national level to develop policy, set targets and monitor results. Even in these countries, however, implementation is patchy. Meanwhile, the scores of developing countries are weighed down by the dearth of both policy and co-ordination, although India, China and Brazil score comparatively well in a small number of areas, including the economic sustainability of their tourism industries.

The key findings are:

- **France and Germany show the strongest overall commitment to sustainable tourism.** The two countries stand out particularly for their national policy development. French regulations, for example, set specific targets and guidelines in areas such as carrying capacity and tourist transport. Germany is the index leader when it comes to co-ordinated action to improve environmental sustainability in tourism. It has systems in place such as mandatory environmental impact assessments (EIAs) to measure, monitor, and reduce water and energy usage in the industry, and to reduce emissions of greenhouse gases.
- **Fragmentation reigns, and coordination remains patchy.** Even in the top-scoring countries, implementation and monitoring is fragmented between different ministries, agencies and sometimes regional or state bodies. In no country, say experts interviewed for the study, is sustainable tourism policy sufficiently integrated between national, local and regional levels.
- **Developing countries fall well short in policy implementation.** Implementation too often gives way to revenue growth priorities when national budgets come under pressure, or when governments change. This problem is particularly acute in the emerging world. Indonesia, for example, has integrated environmental conservation targets into its national tourism law, but there are no action plans with clear targets. Lawmakers in India are showing greater awareness of sustainable tourism goals, but actual policies have yet to be approved and little attention has yet been given to mechanisms for implementing them.
- **NGOs and industry groups are partly filling the void.** Besides UNESCO's long-running efforts to protect its designated World Heritage sites, a large number of international and domestic organisations have been active in developing standards and providing guidance to tourism companies and destinations. Creating accreditation schemes, managing training programmes and advocating for sustainable tourism policy at different government levels are just a few examples of how these organisations are taking a leading role in this space.



- **Large businesses are forging ahead, but small ones struggle with sustainability.** Several multinational hotel and tourism groups have made concerted efforts to embed sustainable practices throughout their supply chains. The impact of such initiatives is potentially enormous given the linkages these companies and their suppliers have across industries. Sustainability reporting is now a common practice among publicly listed travel and tourism firms, and experts believe this has helped change their behaviour, particularly in their attention to emissions and resource use. Small businesses, however, do not yet face the same pressures to report and, consequently, to implement sustainable practices.
- **China's and India's high-growth tourism sectors could provide a foundation for action.** A strong tourism industry can contribute to sustainable tourism in a country by attracting more resources, raising awareness and providing financial support for industry players to achieve sustainable goals. China and India are index leaders in travel and tourism industry growth. With stronger policy commitment and implementation, these and other developing countries can make a big contribution to the worldwide spread of sustainable tourism practices.





## About the research

*The Sustainable Tourism Index: enhancing the global travel environment* is an Economist Intelligence Unit report, sponsored by HNA. The report is based on an index composed of 19 quantitative and qualitative indicators. These fall into five thematic categories: political and regulatory environment; environmental sustainability; socio-cultural sustainability; economic sustainability; and travel and tourism industry. Each of the ten countries in the index is scored across these five categories. The categories, and the indicators within them, are weighted according to our assumptions of their relative importance in supporting the development of sustainable tourism practices in these countries. A full explanation of the methodology is found in the appendix.

The analysis of the index results, conducted by The EIU, was supplemented with wide-ranging research and in-depth interviews with experts in the field. Our thanks are due to the following individuals (listed alphabetically by surname) for their time and insight:

- **Bin Dai**, president, China Tourism Academy
- **Peter DeBrine**, senior project officer, World Heritage & Cultural Tourism Programme, UNESCO
- **Rachel Dodds**, director, Sustaining Tourism
- **Randy Durband**, chief executive officer, Global Sustainable Tourism Council
- **Ahmad Mir Lateef**, research scholar, Vikram University
- **Andrea Nicholas**, managing director, Green Tourism
- **Yahsuo Ohe**, professor, Chiba University
- **Taleb Rifai**, secretary-general, United Nations World Tourism Organization (no longer serving as of December 2017)
- **Federico Vignati**, author and principal executive, CAF – Development Bank of Latin America
- **Agnes Weil**, director, sustainability and philanthropy, Club Med
- **Megan Epler Wood**, director, International Sustainable Tourism Initiative, Harvard Center for Health and the Global Environment

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## Introduction: travel, environment, heritage and growth

The Lascaux Cave in the Dordogne region of southwestern France contains some of the world's oldest and best-preserved examples of Palaeolithic cave art. It was described by the first expert to examine it as the "Sistine chapel of prehistory". Opened to the public in 1948, degradation caused by human breathing led to its closure in 1963. A replica site that opened 20 years later on the hill above brought tourists and archaeologists back to Lascaux in large numbers, resulting in it becoming one of the most popular prehistoric caves in the world. However, new concerns arose, as the footfall was having an adverse impact on the original cave below. Visitor numbers were restricted again, but in December 2016 a new, larger centre equipped with interactive digital technology was opened at a safe distance from the original cave. The site's director now expects 400,000 visitors a year.<sup>6</sup>

Lascaux embodies many of the challenges posed, as well as some of the beneficial impacts offered, by the pursuit of sustainable tourism, which can be defined as "the creation and maintenance of a tourism industry in which growth does not deplete but rather preserves or enhances local stocks of economic, social, cultural or environmental capital".<sup>7</sup> The term is relatively young, having come into use in the 1990s, but the concept behind it is rooted in the broader definition of sustainable development, which describes activities

that "meet the needs of the present without compromising the ability of future generations to meet their own needs".<sup>8</sup>

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*We are finding now that there are many destinations around the world, such as Venice, Barcelona, Amsterdam and others, where people are saying 'Enough tourists; we don't want any more.'*

TALEB RIFAI, UNITED NATIONS WORLD TOURISM ORGANIZATION

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According to the United Nations World Tourism Organization (UNWTO), sustainable tourism consists of:

- The optimal use of environmental resources in tourism development in ways which conserve natural heritage and bio-diversity;
- Respect for the socio-cultural heritage and traditional values of host communities; and
- Contribution to the long-term economic viability of tourism operations and the local industries that support them, providing socio-economic benefits to all stakeholders.<sup>9</sup>

<sup>6</sup> "Prehistoric cave art celebrated at new Lascaux centre in Dordogne", *The Guardian*, 15 December 2016

<sup>7</sup> Federico Vignati, Don Hawkins and Bruce Priedeaux, *Sustainable Tourism: driving green investment and shared prosperity in developing countries*, 2016

<sup>8</sup> United Nations, *Report of the World Commission on Environment and Development: Our Common Future*, 1987

<sup>9</sup> UNWTO and United Nations Environment Programme, *Making Tourism More Sustainable - A Guide for Policy Makers*, 2013



## A large and fluid ecosystem

The actors involved in sustainable tourism are numerous and varied. They include large and small tourism companies, tourism boards and agencies, the entire hospitality industry and the suppliers that support it, transportation companies, host communities, local and international NGOs, industry and environmental standards bodies, government at all levels, and, of course, tourists themselves. Almost any sustainable tourism initiative will involve several of these stakeholders. Individual destinations or companies will most likely have been guided by established standards or advised by an NGO or government agency and have undergone discussion with local suppliers and communities.

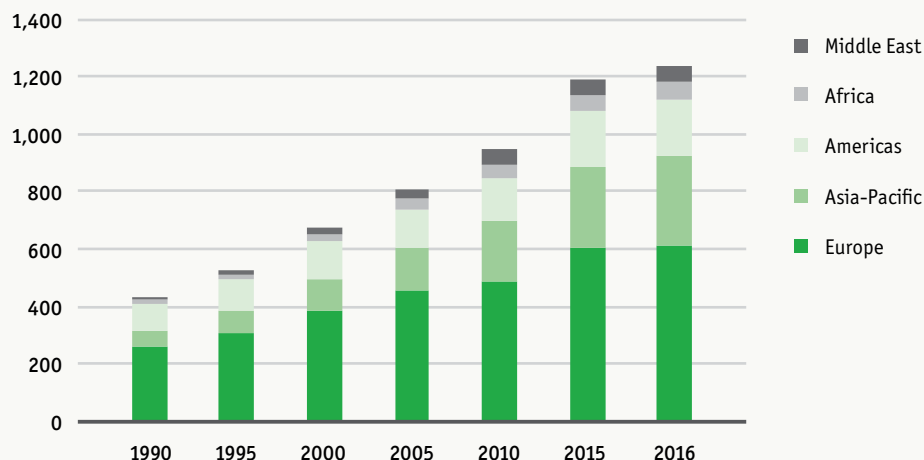
The effective pursuit of sustainable tourism initiatives therefore requires a large degree of co-ordination between the private and

public sectors as well as civil society. Isolated or single-actor initiatives can be impactful at a local level, but many experts believe that wider success, particularly at the national level, requires some degree of management or co-ordination of sustainability efforts within their tourism industries and among their tourist destinations. That starts, but does not end, with the development of a policy framework, which then must be accompanied by the development of private sector business models that foster and benefit from the pursuit of sustainable practices. “We need to make the case for sustainability to travel and tourism companies,” says UNWTO head Taleb Rifai. “It has to be a business case, not just a ‘good cause’ case.”

Managed well, sustainable tourism initiatives can deliver benefits to all stakeholders, at national, regional and local levels. These can take the form of conservation of environmental

**Figure 1. The more, the merrier?**

International tourism growth, 1990–2016 (m arrivals)



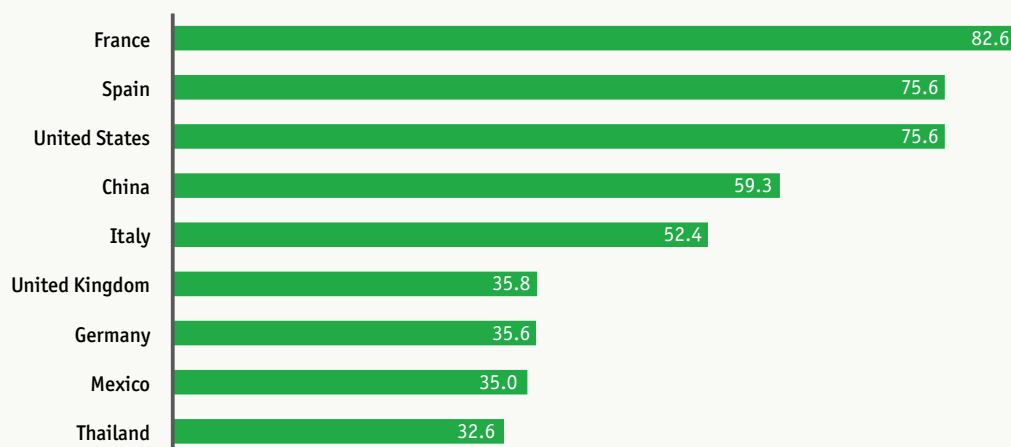
Source: UNWTO Tourism Highlights, 2017 Edition





**Figure 2. Leaving on a jet plane**

The world's leading tourism destinations, 2016 (m arrivals)



Source: UNWTO Tourism Highlights, 2017 Edition

or cultural assets; better efficiency in the use of energy and water and disposal of waste; and increased tourism revenue (for governments, businesses and communities) as market demand is met from environmentally aware travellers, a burgeoning cohort. The latter can be a particular boon to less developed countries in which tourism is a large component of GDP and a major source of employment.

## A benchmarking initiative

Recognising the importance of national and industry-wide co-ordination for the success of such efforts, the Sustainable Tourism Index is among the first undertakings to compare countries on their commitment to develop and promote sustainable practices in tourism.<sup>10</sup> Ten countries were selected for

inclusion in this inaugural exercise, based partly on the contribution of tourism industry revenue to their national GDP, and partly to ensure representation from each of the world's major regions.

Rich-world countries emerge as the strongest index performers, on the strength of national efforts to develop policy, foster adherence to recognised standards, encourage travel and tourism businesses to improve their environmental performance, co-ordinate efforts with NGOs and the private sector, and ensure protection of cultural and historical assets.

There is, however, a considerable gap in scores—both overall and in several indicator categories—separating the European countries, particularly France and Germany, from the US,

<sup>10</sup> The World Economic Forum's Travel & Tourism Competitiveness Index includes an indicator category relating to environmental sustainability, but the overall focus of the index is on industry competitiveness, while the Global Destination Sustainability Index benchmarks cities (not countries) in part on their environmental sustainability



**Figure 3. Overall index scores (out of 100)**

Average: 46.3

|    |           |      |
|----|-----------|------|
| 1  | France    | 73.9 |
| 2  | Germany   | 71.7 |
| 3  | UK        | 62.4 |
| 4  | US        | 53.1 |
| 5  | Japan     | 46.0 |
| 6  | India     | 36.9 |
| 7  | Brazil    | 34.6 |
| 8  | China     | 30.8 |
| 9  | Indonesia | 27.1 |
| 10 | Egypt     | 26.5 |

of environmental and socio-cultural sustainability. There are other examples of developing country progress, providing hope that the roots of sustainable tourism will grow there in the coming years (see box I).

Japan and the five developing world countries. This is not a surprise to Randy Durband, head of the Global Sustainable Tourism Council (GSTC), a standards and accreditation body, who believes that northern Europe as a whole, including Germany, the UK and the Nordic countries, is at the forefront of sustainable tourism practices. "This region leads others in a combination of traveller awareness and concern, travel provider engagement, government regulation and media focus," he says.

The index scores of developing countries, by contrast, are weighed down by the dearth of such policy, guidance and co-ordination. At the same time, India and China score comparatively well, and above some rich-world countries, in the economic sustainability of their tourism industries, a set of attributes that must be considered alongside indicators



## Box I. Shoots of progress in the emerging world

The aforementioned gap in scores between developed and developing countries masks a number of individual areas where the latter are putting building blocks in place that could bode well for the future development of sustainable tourism.

**Figure 4. Overall scores: developing countries (out of 100)**

Average: 31.2

|   |           |      |
|---|-----------|------|
| 1 | India     | 36.9 |
| 2 | Brazil    | 34.6 |
| 3 | China     | 30.8 |
| 4 | Indonesia | 27.1 |
| 5 | Egypt     | 26.5 |

### Policy

India has developed a sustainable tourism policy that sets out some milestones and contains metrics for some (though not all) groups of stakeholders. Indonesia's tourism law is comprehensive, with stipulations for meeting sustainability and eco-tourism standards. In both countries, however, other areas of the policy environment are weak.

### Environmental sustainability

National environmental policies or laws in China, Brazil and Egypt mandate the need for tourism (and other) developments to conduct EIAs.

### Socio-cultural sustainability

Brazil trails only Germany when it comes to the share of national territory (terrestrial and marine) that is under protection. China ranks fifth out of the ten countries indexed in terms of the effectiveness of tourism marketing and branding.

### Economic sustainability

India ranks third and China fourth in this category, on the strength of high levels of government investment in the travel and tourism sector, and the sector's share in total employment.

### Travel and tourism industry

China is the category leader overall, based on the growth of the sector's contribution to national GDP over the past decade. India, Brazil and Indonesia also outpace developed countries in this set of indicators.



# 1 Policy foundations: light touch or heavy hand?

Governments have several policy instruments at their disposal to encourage the adoption of sustainable practices in the tourist industry. The starting point is the existence of a national tourism policy (which may be enshrined in law) in which the importance of sustainable practices is set out clearly. Such a policy or law may provide the basis for the application of more specific instruments that help achieve sustainability targets, such as environmental taxes levied on tourist destinations or operators (or on tourists themselves), land use planning or requirements for EIAs, which are discussed in the next chapter.

European countries, especially France and Germany, stand out among the index countries for their policy development. France's national tourism policy, for example, specifically stipulates goals to be met in areas such as carrying capacity for territories and sustainable forms of tourist transport. Even in these countries, however, responsibility for implementation and monitoring is fragmented between different ministries, agencies, and regional or state bodies.

In the UK, although a national tourism law exists, the promotion of sustainable practices in the industry falls under the remit of the four home nations, Britain, Scotland, Northern Ireland and Wales. Their efforts vary widely, according to Andrea Nicholas, managing director of Green Tourism, a Scottish

accreditation body. "Scotland's government has always been very supportive of endorsing and promoting sustainable tourism," she says. "The Tourist Board has worked with the industry on several issues around waste minimisation, for instance. Scotland has very rigorous waste regulations which came into force about five years ago, and these have brought massive change to the hospitality industry." Official support in England for sustainable tourism has fallen off in recent years, she notes, while the authorities in Wales have been supportive but not proactive and those in Northern Ireland are just beginning to put plans into action.

**Figure 5. Policy and regulatory environment scores (out of 100)**

Average: 43.8

|    |           |      |
|----|-----------|------|
| 1  | France    | 96.0 |
| 2  | Germany   | 77.5 |
| 3  | UK        | 65.5 |
| 4  | US        | 53.5 |
| 5  | Japan     | 35.0 |
| 6  | India     | 29.0 |
| 7  | Brazil    | 26.0 |
| 8  | Egypt     | 24.0 |
| 9  | China     | 17.5 |
| 10 | Indonesia | 14.0 |



The picture that emerges even from the category's leaders is one of fragmentation: either good high-level work on national policy that does not filter down to lower levels of government, or successful regional initiatives that are not replicated elsewhere in the country. "I cannot think of one country that has a really well-established policy perspective on a national, local and regional level, integrated all the way through," observes Rachel Dodds, director of Sustaining Tourism, a Canada-based consultancy. Mr Rifai agrees, pointing out that the sustainable tourism agenda is still young and not well developed in most parts of the world. "We haven't reached the stage yet where we can see a country that in its entirety, as a nation, is devoting itself to developing such policies and implementing them."

For Mr Durband, the problem in most national governments is a lack of awareness, compounded by revolving doors. "Too many ministries of tourism or environment just shuffle people around. Many are assigned from outside tourism, and if and when they gain insights into sustainable management and policy formulation, many of them are soon gone."

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*Political agendas aren't long-term enough. It's three-to-five-year agendas in most countries, so even where there are great initiatives, as in the Nordic countries, the government changes and they all fall apart.*

RACHEL DODDS, SUSTAINING TOURISM

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## All in the implementation

Policy development means little without planning and metrics to guide its implementation. Indonesia, for example, has a national tourism law with fairly extensive stipulations for supporting environmental conservation at tourist destinations, but no clear action plans with targets or milestones. India's government, notes Ahmad Mir Lateef, a research scholar at Vikram University, has been developing policies relating to sustainable tourism but, he says, there are no mechanisms for implementing them. "The stakeholders at lower levels, in particular operators of tourism sites, have no incentives or motivations to implement sustainable practices," he says.

For Mr Durband, this underscores the need for leadership at the national level: "Tourism, including the pursuit of sustainable practices, needs management and it needs planning. That has to happen at the destination level, but it also requires some national, provincial and municipal codes and at least awareness of principles, and those have been very much lacking in the world."

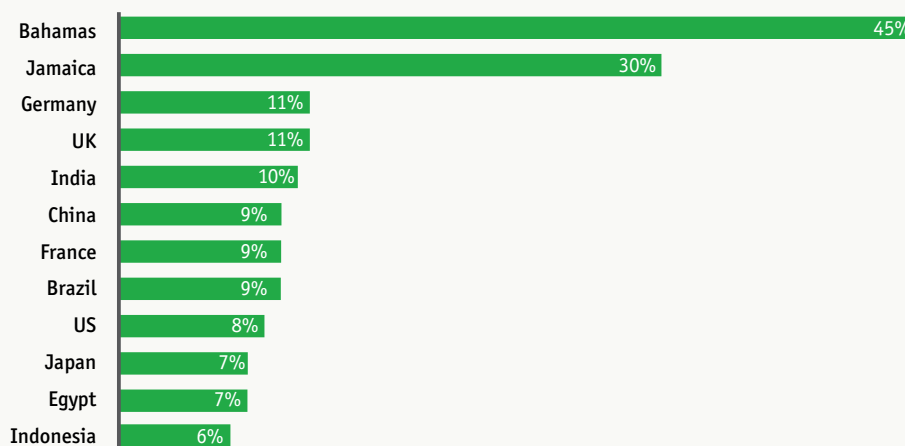
## Trade-offs

When it comes to tourism industry strategy overall in most of the index countries, there is no shortage of planning at national and lower levels. The sector is, after all, a major contributor to national GDP and to government budgets. In 2016, its total contribution to GDP was between 6% and 11% in the index countries (a figure which is much higher in poorly developed but popular Caribbean tourist destinations).



**Figure 6. Catering to the jet-set**

Total contribution of travel and tourism to GDP, 2016



Source: World Travel & Tourism Council, *Travel & Tourism Economic Impact 2017* reports

With the few exceptions highlighted earlier, such plans do not usually entail detailed targets for the achievement of sustainability-related objectives.

One reason for this is an apparent contradiction between sustainable development and revenue growth targets. "Government tourism policies are usually full of contradictions," says Ms Dodds. "When you see the words 'sustainable development' mentioned in a government policy document, the page before or after will often also say that their plan is to double or triple tourist numbers. The two don't go together."

Mr Rifai maintains it does not have to be this way. "Tourism growth and sustainability are not zero-sum at all," he says. "I see nothing wrong with revenues being a priority, but they should go hand in hand with sustainability. The question is, how to ensure that the more

you grow, the more the revenues from that are channelled toward initiatives that promote sustainable practices."







## 2 International and industry activism: setting the goal posts for green travel

For all its influence, government is just one of several actors in the sustainable tourism ecosystem. Given that policy frameworks are works-in-progress even in the most advanced countries and that implementation is patchy, vacuums naturally exist. More often than not these are filled by international and domestic NGOs.

This is the case in Latin America, for example, where governments provide less sustainability leadership than needed, according to Federico Vignati, author of a recent book on sustainable tourism<sup>11</sup> (in addition to serving as principal executive of the Development Bank of Latin America). “International and local NGOs have helped create momentum by educating key stakeholders at different levels, raising awareness and supporting the generation of proofs of concept that inspire companies to change their practices. NGOs have also facilitated such companies’ access to international expertise and technology.”

The most prominent international actor is the UNESCO World Heritage Committee, which has accorded 1,073 sites around the world international legal protection by virtue of their natural, cultural, historical, scientific or other significance. Each site is encouraged, says Peter DeBrine, who as senior project officer co-ordinates UNESCO’s World Heritage & Sustainable Tourism Programme, to have a detailed management plan that addresses tourism and visitor management. Mr DeBrine’s programme, established in 2011,

provides guidance to the managers of heritage sites on planning and implementing visitor access and other sustainability measures. He points out that broader stakeholder networks are needed, such as those set up in Germany, France and the UK, to help co-ordinate tourism management at each country’s heritage sites. Mr DeBrine and his team are also vocal advocates for sustainable tourism policy development by governments.

Smaller organisations, both commercial and not-for-profit, operate within countries or regions to provide advice and training in sustainable management practices to tourism bodies and destinations. Many such organisations develop standards that form the basis of accreditation systems. Green Tourism in the UK is an example, as are TourCert and Viabono in Germany. A prominent one that started in the US and has spread worldwide is Los Angeles-based Green Globe.

Industry groups have also led from the front in developing standards. In 2012 the WTTC alongside International Tourism Partnerships, a UK charitable organisation promoting sustainable practices in the hospitality industry, and KPMG, an accounting and consultancy firm, started working with 23 large hotel groups to develop common tools and standards for measuring carbon emissions. Their methodology has since been adopted by over 15,000 hospitality organisations.<sup>12</sup>

The GSTC, established in 2007 by the UNWTO, the UN Environment Programme, The UN Foundation

<sup>11</sup> Vignati 2016

<sup>12</sup> “Over 15,000 hotels globally adopt the Hotel Carbon Measurement Initiative”, Hospitality net, 5 June 2013





## Box II. Managing expectations in the standards war

Although sustainable tourism is a relatively young concept, there is no shortage of standards that businesses can choose to adopt and follow, thereby earning a label or award that will be attractive to environmentally-aware travellers. By one measure, there are over 200 such labels in existence today.<sup>13</sup> Deciding which set of standards to adopt can therefore be complex. Agnes Weil, head of sustainability at Club Med, a France-based operator of high-end holiday resorts, reports that it took her and her team about two years to decide between a large number of competing standards.

Gaining adherents to a specific set of standards requires large reserves of patience and persistence, according to Ms Nicholas. Since its founding in 1997, Green Tourism has conducted over 10,000 assessments of hospitality and tourism establishments in the UK, Ireland and Canada and accredited around 2,000 of them. The early wins, she says, were among accommodation providers: hotels, bed and breakfasts, and self-catering establishments. "Many of these had already gone through quality gradings and understood what an assessment involved," she says. More recent adherents have been

in different types of businesses, such as restaurants and visitor attractions, which were less familiar with grading.

The main reason why businesses avoid going through the assessment process is fear of failure, says Ms Nicholas. Some are daunted by the 150 assessment measures her organisation displays on its website, thinking they will need to dedicate staff for several months to manage the process. "We assess them against 60 measures in the end," she says, admitting that the process can still be frightening to proprietors of small establishments, especially when they realise that accreditation is not guaranteed.

What are the chances of a unification of sustainable tourism standards, which some believe would lead to the more rapid growth of sustainable practices around the world? Ms Nicholas is sceptical: "Environmental, social and economic situations differ widely in individual countries. For example, water management issues in the UK are very different from those in Africa. The most effective standards are those that are specific to the destination you are working in."

<sup>13</sup> Tourism 2030 Destinet Services, <http://destinet.eu/who-who/market-solutions/certificates/fo1442810>



and the Rainforest Alliance, an NGO, among other stakeholders, provides the closest thing today to a universally recognised global certification for sustainable tourism. The GSTC’s standards, like those of the other aforementioned bodies, are voluntary. “In the world of sustainability standards,” says Mr Durband, “the general feeling is today’s voluntary standards should be tomorrow’s legislation and regulation.”

## Environmental sustainability

Industry and NGO initiatives have had a greater direct effect than government policymaking when it comes to promoting environmental sustainability in travel and tourism, according to experts. Governments in some countries, however, have used their clout by lending their support to such projects. An example is the Hotel and Catering Energy Campaign, developed by the German Hotel and Restaurant Association and endorsed by the Federal Environment Agency. The campaign includes specific measures to reduce energy and water consumption as well as carbon emissions across the domestic hospitality industry. Establishments may volunteer to be audited under the programme, and if passed receive a gold, silver or bronze accreditation.<sup>14</sup>

*European Union mandates on carbon emissions are one of the most important and positive things that have hit travel and tourism sustainability globally.*

RANDY DURBAND, GLOBAL SUSTAINABLE TOURISM COUNCIL

Examples such as these help explain why Germany is the top-rated country in the index when it comes to environmental sustainability in tourism. It receives the top score, for example, on environmental governance, which refers to official systems in place to, for example, measure, monitor, and reduce water and energy usage in the tourism industry, and to reduce emissions of greenhouse gases. The federal government is also promoting the Climate Action Plan 2050, which sets out specific targets for each sector of the economy to achieve carbon neutrality.

**Figure 7. Environmental sustainability scores (out of 100)**

Average: 62.5

|    |           |      |
|----|-----------|------|
| 1  | Germany   | 91.0 |
| 2  | France    | 88.7 |
| 3  | UK        | 84.3 |
| 4  | Japan     | 73.0 |
| 5  | Brazil    | 62.6 |
| 6  | US        | 57.5 |
| 7  | India     | 47.2 |
| 8  | Egypt     | 45.5 |
| 9  | China     | 39.4 |
| 10 | Indonesia | 36.1 |

One tool at governments’ disposal for directly influencing tourism companies’ environmental footprint is the EIA. Germany’s government has passed a specific law mandating an EIA requirement for many types of tourism-related activities.<sup>15</sup> The same is true in France, the UK and

14 See European Commission, Member States’ Annual Tourism Reporting Template: Germany Update, June 2016; “DEHOGA Umweltcheck” on Destinet Tourism 2030 website, <http://destinet.eu/who-who/market-place/certifiers-section/europe-dehoga-umweltcheck>; “DEHOGA Environmental Check is growing in popularity”, Adelphi website, 27 April 2012, <https://www.adelphi.de/en/news/dehoga-environmental-check-growing-popularity>

15 Environmental Impact Assessment Act, published 5 September 2001, <http://extwprlegs1.fao.org/docs/pdf/ger36861E.pdf>



Japan, as well as in China, Egypt and Brazil. The US Environmental Protection Agency goes furthest in this area, requiring EIAs to be performed for all tourism-related infrastructure projects, and providing comprehensive guidelines for them (although the Trump administration has recently been dismissive of the EIA process).<sup>16</sup>

The index also compares countries on their environmental performance, as measured by economy-wide success in reducing, or slowing the growth of, greenhouse gas emissions and in improving air quality, waste water treatment and freshwater use, among others. (Tourism-specific indicators on environmental performance are not consistently available across all countries.) The UK comes top of the table on this composite indicator, closely followed by France and Germany.

The aviation industry's efforts to reduce emissions have also been co-ordinated and driven forward by industry bodies. Air travel, of course, is closely linked to tourism, and it is also a major source of carbon emissions, currently accounting for about 2% of the global total.<sup>17</sup> One group representing the world's airlines, the International Air Transportation Association (IATA), has received credit from independent sources for pushing the development of biofuels.<sup>18</sup> The association also conducts voluntary environmental assessments of its member airlines. Both IATA and the Air Transport Action Group, which represents a broader array of aviation industry companies and associations, are vocal supporters of the Carbon Offset and Reduction Scheme for

International Aviation, a global emissions reduction plan sponsored by the UN's civil aviation body and agreed by its members in October 2016.<sup>19</sup>

<sup>16</sup> See, for example, "Donald Trump lambasts consultants and EIA process", *Environment Analysis*, 13 June 2017

<sup>17</sup> "Over 190 Countries Adopt Plan to Offset Air Travel Emissions", *The New York Times*, 6 October 2016

<sup>18</sup> See, for example, Walter J Palmer, *Will Sustainability Fly?*, 2015

<sup>19</sup> "Airline Optimism On Carbon Offsetting Prevails As ICAO Assembly Nears", *MRO-Network.com*, 9 September 2016



### 3 Local heritage, local economy: a micro-view of global tourism

Sustainability means more than conservation of the environment and natural resources. It also means preservation and protection of destinations of unique cultural significance or heritage. As mentioned earlier, the UNESCO World Heritage Committee plays an instrumental role in affording protected status to many sites. France enjoys the highest density of World Heritage Sites among the ten index countries, followed by Germany and the UK, although China boasts the largest overall number (52 as of July 2017, second highest globally after Italy's 53).

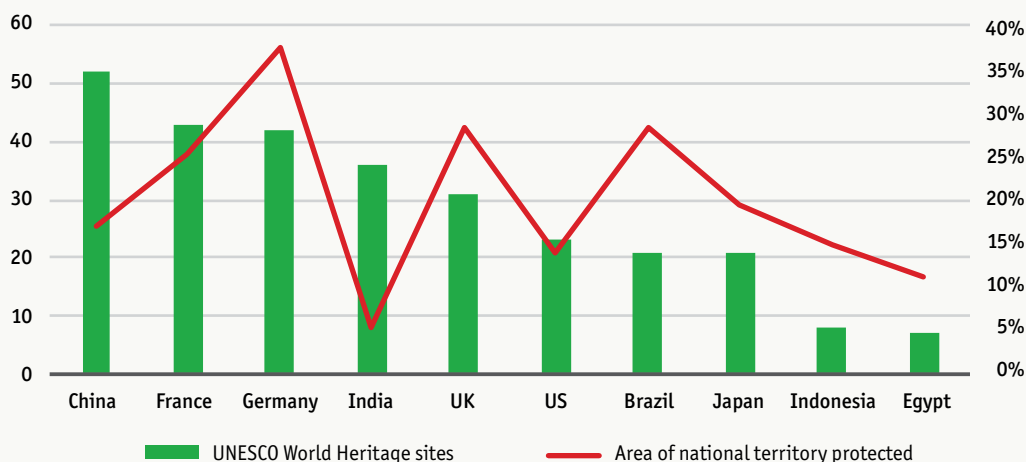
Protected areas in Europe have benefitted from another supra-national initiative, the European Charter for Sustainable Tourism in Protected

Areas. Established in 1995 by the European Federation of Protected Areas (Europarc), which represents organisations managing over 400 protected areas across the continent, the charter was conceived as a planning tool for implementing sustainable tourism practices in protected areas. It awards certificates to organisations managing designated areas which have spent two years developing a sustainable tourism action plan. Hotels, catering establishments, tour operators and other businesses must go through a certification process to be able to operate within a designated charter area.

Among the requirements is that each location and establishment engage in a participatory planning process that involves local stakeholders.<sup>20</sup>

**Figure 8. Heritage brigade**

Sites (#) and area (%) under protection



Sources: UNESCO, United Nations Statistical Division

<sup>20</sup> See Europarc website for more information, <http://www.europarc.org/nature/european-charter-sustainable-tourism>





The degree of protection accorded to countries' cultural and historical assets is one of the indicators in the socio-cultural sustainability category of the index, which is led by Japan. This category also compares countries in terms of international tourism arrivals, tourism marketing and branding, and personal safety.

**Figure 9. Socio-cultural sustainability scores (out of 100)**

Average: 41.8

|    |           |      |
|----|-----------|------|
| 1  | Japan     | 65.4 |
| 2  | Germany   | 60.9 |
| 3  | UK        | 58.6 |
| 4  | France    | 57.6 |
| 5  | US        | 48.4 |
| 6  | China     | 31.3 |
| 7  | Indonesia | 30.5 |
| 8  | India     | 28.0 |
| 9  | Brazil    | 20.6 |
| 10 | Egypt     | 17.0 |

water supply and sanitation, public security, and health services, can also benefit communities, especially poor ones in developing countries.

One of the chief precepts of sustainable tourism is that benefits of this economic activity are shared with the local communities (and by extension to the regions and nations of which they are a part). Another is that tourism does not result in negative side effects, such as damage to the local environment and depletion of natural resources that communities often depend on for their sustenance or livelihood.

The difficulty of achieving this balance is one reason why sustainable tourism is of increasing interest to China's authorities. "The premise of sustainable development is community development," says Bin Dai, president of the China Tourism Academy. "This means that people in the community, especially low-income residents, can share the benefits of tourism development. If we only focus on environmental protection, I don't think sustainability will be long-lasting."

## Community spirit

Tourism can have enormously beneficial effects on the local economy and community. These may take the form of sales revenue earned by local retail shops and establishments from tourist trade; from supply relationships between local businesses and travel industry companies, notably hotels; and from employment in tourist establishments themselves. The infrastructure required by tourism, such as transport and communications,

Hotels have a particularly strong responsibility to work with local communities, says Ms Weil, because their economic and environmental footprint on local areas is so potentially large: "Hotels must involve the local communities in their planning and other activities. You can do a lot at your own resort, but if just outside it conditions are poor, you will have little beneficial effect. You must work with, influence and support local communities and decision makers on the need and the means for sustainable practices."



For this to be effective, it cannot be limited to charitable or other corporate social responsibility initiatives. According to Megan Epler Wood, who directs the International Sustainable Tourism Initiative at the Harvard Center for Health and the Global Environment: “There is travel philanthropy, which is giving money to local communities, and then there is responsible supply chain management. The obvious example of that is buying more local products. Research shows that, hands down, supply chain management is the way to go if we want to help local communities.”

Viewed from a national perspective, this type of activity contributes to the economic sustainability of the tourism industry. Germany is the index leader in this category, which considers tourism employment and labour laws, as well as government investment in the sector.

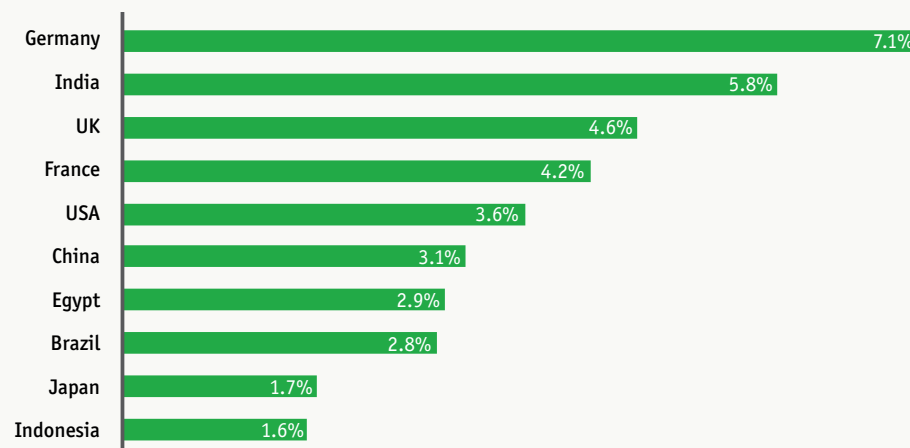
**Figure 10. Economic sustainability scores (out of 100)**

Average: 38.3

|    |           |      |
|----|-----------|------|
| 1  | Germany   | 59.7 |
| 2  | US        | 52.6 |
| 3  | India     | 50.9 |
| 4  | China     | 42.0 |
| 5  | UK        | 40.4 |
| 6  | Indonesia | 35.5 |
| 7  | Egypt     | 29.2 |
| 8  | Brazil    | 28.9 |
| 9  | France    | 27.3 |
| 10 | Japan     | 16.6 |

**Figure 11. All in a day's work**

Employment in tourism sector, 2016 (% share of total employment)



Source: UNWTO



### Box III. The case of the disappearing ryokan

The *ryokan* has been a fixture of Japanese travel culture for a millennium. Especially popular during the Edo period (the 17th to 19th centuries) and situated mainly along highways, these accommodations have offered travellers a place to sleep amid traditional Japanese hospitality. They are small and made of wood, with communal bathing and dining areas and floors covered by tatami matting. Guests sleep on futons rather than beds.

Their numbers have been declining over the past decade, however, as their profitability has suffered, despite often charging higher prices than the larger, Western-style hotels which are expanding quickly in Japan. A major reason for the decline is changes in demand on the part of Japanese travellers away from large groups, which ryokans can accommodate, toward couples or families. Yasuo Ohe, a professor at Chiba University, also believes that the management skills of smaller ryokans have remained low. “The operators are getting old and have not managed them efficiently, failing to adapt to this change in demand,” says Mr Ohe.

Mr Ohe’s research has shown that the decline is not across the board. Smaller ryokans (more likely to be family-owned and operated) have been more susceptible than larger ones to sub-par management and have been going out of business at a faster rate. Geographically, the areas of greatest ryokan decline are in the central and eastern regions of the country, including Tokyo where hotels are prevalent. The best performing ryokans, Mr Ohe found, are situated in the northern island of Hokkaido, where hotel density is lower and average ryokan size larger.

To reverse the trend, Mr Ohe argues that Japanese policymakers need to step in to provide management training in modern service provision and marketing for small-scale ryokans. The operators also need to learn from their larger counterparts about how to serve multiple market segments, including foreign as well as domestic tourists. More successful large ryokans, he notes, now often have separate bedrooms and serve Western-style food. Such a concession to modernity has been a step too far for many small ryokan owners, but survival may necessitate a change of heart.





## 4 Business leadership: sourcing sustainability

Making the business case for sustainable practices has not always been easy. Ms Weil explains: “Until about five years ago, articulating the case internally was more challenging than it is today. Sustainability is not yet the key selling point for our customers, employees or business managers, but it is definitely a rising issue.”

Judging by their corporate reporting in recent years, however, large hospitality companies appear to be finding that sustainability is good business. France’s Accor Hotels group, for example, claims to have reduced carbon emissions by 6%, energy usage by 5% and water consumption by 8% between 2011 and 2015. US-headquartered Marriott International says that between 2007 and 2015 its hotels reduced their greenhouse gas intensity by 13%, their energy intensity by the same amount, and their water intensity by 10%. The Intercontinental Hotels Group, with headquarters in the UK, reports similar progress in reducing its environmental footprint between 2013 and 2016, cutting carbon emissions by 7% and water use by 8% per occupied room.<sup>21</sup>

Sustainability experts are forever vigilant about “greenwashing” (the corporate practice of making inflated claims about one’s green credentials), but experts believe this systematic reporting itself is a sign that large hospitality companies are taking sustainability seriously. “We are seeing very good movement on measuring progress,” says Mr Durband, noting that all the aforementioned companies have well-established in-house environmental programmes. Ms Dodds believes

that the progress being reported is genuine: “In Europe, the big hotel chains and the major tourism operators are becoming much more energy and waste efficient. It’s not uncommon, for example, to see solar-heated hot water. In fact, the use of alternative energies in accommodations is becoming the norm.”

The problem, say both Ms Dodds and Ms Epler Wood, is that reporting is limited mainly to big corporates. “About 95% of the industry consists of medium and small sized enterprises that don’t have to report,” says Ms Dodds. “The Global Reporting Initiative<sup>22</sup> is brilliant and I think it’s changed a lot of behaviour in large tourism companies, but they [comprise] only a handful.”

### Waves of impact

Despite their relatively small numbers, big hotel and tourism companies can have an outsized impact on sustainability around the world by virtue of their large, global supply chains. According to Mr Durband, if just a dozen or so big companies succeed in embedding sustainable practices among most of their suppliers, the beneficial effects will be felt far and wide.

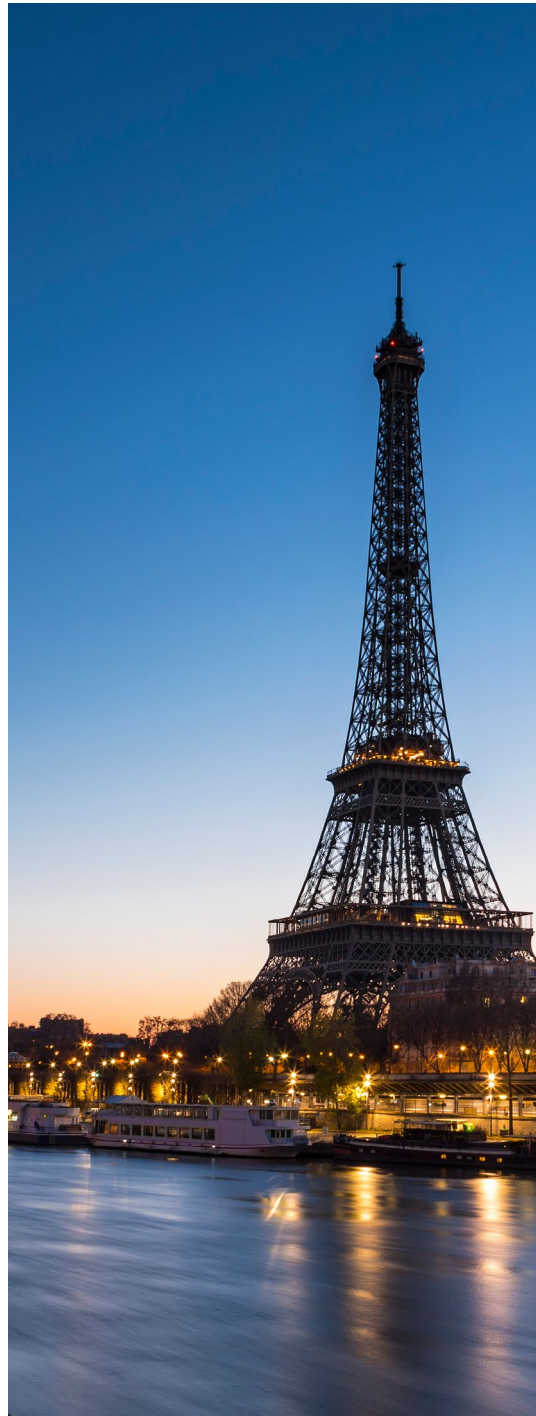
Ms Epler Wood credits some companies with employing detailed supply chain analyses to identify supplier practices that are having a negative impact in their local areas. Accor, for example, changed its food purchasing practices with a view to improving water use and irrigation

21 AccorHotels Environmental Footprint, April 2016; Marriott International 2016 Sustainability Highlights; IHG Annual Report 2016 (all reports available on company websites)  
22 A global, multi-sector project launched in the late 1990s to standardise sustainability reporting by organisations



practice in developing countries. Ms Dodds believes the impact of these types of initiatives can be substantial, given that such firms own thousands of hotels around the world.

Increasing the use of local suppliers should be a part of sustainable sourcing initiatives. According to Ms Weil, until a decade ago, hospitality companies may not have had purchasing specialists on the ground everywhere, but there are organisations that can help them. One is Agrisud, an NGO established in the 1980s in Africa with the mission, according to its website, of “fighting poverty through entrepreneurship”. According to Ms Weil, it does this by working with local producers “to help them farm more sustainably and find markets for their produce”. Since 2008, Agrisud has helped Club Med identify local small farmers in Senegal, Morocco, Tunisia, Brazil and Indonesia and assisted them in meeting its standards and developing agro-ecological practices.





## Box IV. Where growth fits in the sustainable tourism picture

"If governments and businesses around the world want to achieve sustainable development results in destinations, we have to rethink how that's going to be achieved," says Ms Epler Wood. "Tourism is one of the largest and fastest growing industries in the world, so there's no lack of resources. It's just a question of how they're allocated."

A strong and fast-developing tourism industry can indeed make a major contribution to sustainable tourism in a country by attracting more resources, raising awareness and providing financial support for industry players to achieve sustainable goals. Better travel and tourism infrastructure can also lead to improved energy and resource efficiency. In recognition of this, the index includes a category of indicators which compares countries on the growth of their tourism sector and the extent of their travel infrastructure.

The large developing countries in the index, led by China, score higher than most of their rich world peers, with average annual tourism sector growth exceeding 12% in both China and India over the past decade, and only slightly slower in Indonesia and Brazil.

**Figure 12. Travel and tourism industry scores (out of 100)**

Average: 40.8

|    |           |      |
|----|-----------|------|
| 1  | China     | 54.8 |
| 2  | US        | 52.9 |
| 3  | India     | 51.9 |
| 4  | Brazil    | 47.2 |
| 5  | Indonesia | 46.4 |
| 6  | Germany   | 43.5 |
| 7  | UK        | 35.6 |
| 8  | France    | 34.7 |
| 9  | Japan     | 26.5 |
| 10 | Egypt     | 14.9 |

This by no means ensures that a country's sustainable tourism agenda will be advanced. As we have argued throughout this paper, policy development, co-ordination, advocacy and awareness are necessary ingredients, most of which are lacking to one degree or another in developing countries. Should these elements emerge, a large, rapidly maturing and sophisticated tourism industry should provide a good basis for progress in sustainability.

Mr Dai is confident that, after years of rapid growth (a 12% average annual increase in the sector's contribution to GDP between





2007 and 2016<sup>23</sup>), a good balance is now in place between the twin demands of growth and sustainability in China. “In the past, we thought tourism was a sunrise industry and a smokeless industry,” he says. “Later we realised that our understanding of sustainable development was insufficient.” Now, according to Mr Dai, government at central, regional and local levels, tourism administrations, and other industry stakeholders are committed to ensuring that environmental and other sustainability standards are met and maintained while tourism activity grows.

“The biggest challenge in China is co-ordination of different stakeholders’ interests,” says Mr Dai. “We cannot damage our environment and the future in the name of development; nor can we impair the rights of community residents to develop a local tourism economy. It is a difficult choice.” Buying into the theory of sustainable development with policy and planning is one thing, but Mr Dai insists institutions like his will continue to study how such choices are made in practice.

23 WTTC, *Travel & Tourism Economic Impact 2017: China*



## Conclusion: filling the knowledge gaps in sustainable tourism

The Sustainable Tourism Index, and the broader study which it undergirds, was conceived as an effort to assess country level efforts to propagate and embed sustainable practices within the tourism sector. A common lament of most of our interviewees has been the dearth of comparable data that exists on this theme, especially at a country level. This remains a constraint for global benchmarking exercises of this nature. It is unfortunate because, as we have pointed out, considerable progress is being made in pockets. Our hope is that this study advances the efforts of governments, international organisations, academics and the broader sustainable development community to capture this progress in comparable country level indicators.

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*Twenty years ago I struggled to find examples of sustainable tourism. Now I have no problem finding them.*

RACHEL DODDS, SUSTAINING TOURISM

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of strong government leadership in sustainable tourism. Companies are seeing the commercial rationale of pursuing more sustainable practices and don't necessarily need governments to show them the way, this reasoning goes. Other experts point out that much of the progress thus far has been a result of broader commitments and practices beyond the tourism sector, such as the EU's successful efforts to encourage company trading of carbon emissions targets. More widespread reporting of data by tourism industry businesses, particularly the legions of small enterprises, and its collection at national levels, will help to shed more light on these issues and provide a fuller context for future debates.

There can be little question, however, that even if hotels, tourism operators and travel companies have made progress on sustainability without government intervention, such progress can be considerably greater if the authorities lend a hand. This may require a few sticks and carrots, but their countries' tourism destinations, the citizens that live near them and the tourists that visit them will all reap the benefits.

Which types of policies are actually having an impact on sustainability in tourism, and are some proving counter-productive? More data would help us answer this question. Given the positive results being achieved in some places, some experts in the field even question the importance



## Appendix: index methodology

The Sustainable Tourism Index is a country-level benchmarking exercise that compares the commitment of governments to develop and promote sustainable tourism. Sustainable tourism is defined as the creation and promotion of a tourism industry that preserves or enhances a country's social, cultural or environmental capital.

The index covers ten economies in the developed and developing world. The index scores economies across five categories: policy and regulatory environment, environmental sustainability, socio-cultural sustainability, economic sustainability, and travel and tourism industry. There are 19 indicators and 18 sub-indicators. The indicators fall into two broad categories:

- Quantitative indicators. There are 14 indicators and sub-indicators that are based on quantitative data—for example, participation rate in multilateral environmental agreements and tourism sector growth.
- Qualitative indicators. The remaining indicators and sub-indicators are qualitative assessments of an economy's commitment to sustainable tourism—for example, "Presence and comprehensiveness of sustainable tourism policy", which is assessed on a scale of 1-3, where:
  - 3=there is a clear, comprehensive section on sustainable tourism in the country's tourism policy

- 2=some mention of sustainability but not comprehensive (ie, does not include economic, socio-cultural and environmental sustainability)

- 1=limited to no mention of sustainability

The ten economies were selected based on contribution of tourism to GDP, income levels and population size, with upper and lower bounds on these metrics for geographic diversity.

### Data sources

The Economist Intelligence Unit's research team collected data for the index from March to May 2017. Wherever possible, publicly available data from official sources are used for the latest available year. The qualitative indicator scores are derived from publicly available information (such as government policies and reviews) and expert interviews. Qualitative indicators are presented on integer scales.

Indicator scores are normalized and then aggregated across categories to enable an overall comparison. To make data comparable, we normalised the data on the basis of:

$$\text{Normalised } x = (x - \text{Min}(x)) / (\text{Max}(x) - \text{Min}(x))$$

where Min(x) and Max(x) are, respectively, the lowest and highest values among the ten economies for any given indicator. The



normalised value is then transformed into a positive number on a scale of 0–100. The same process applies to quantitative indicators, where a high value indicates a better environment that supports sustainable tourism.

The following table provides a brief description of indicators, data and weights:

## Categories and weights

Our research team assigned category and indicator weights after consultations with internal analysts and experts.

We allocated 40% of the index weight to the **policy and regulatory environment** category. The indicators in this category assess overall tourism policy and the extent to which sustainable tourism is promoted. In this category, we review factors such as comprehensiveness of sustainable tourism policy and guidelines for tourism operators.

The **environmental sustainability** and **socio-cultural sustainability** categories are each assigned 20% of the weight. In the former, we assess the economy's environmental performance and governance factors. In the latter, we assess the availability and protection of tourism assets such as cultural and historical attractions. In the **economic sustainability** category, we study employment created by tourism and the protection of workers. This category is allocated 10% of the index weight.

The final category, **travel and tourism industry**, measures the size and growth of, as well as infrastructure to support, the tourism industry. This category comprises 10% of the index weight.



| INDICATOR   | RATING                                  | WEIGHT     |
|---|---|------------|
| <b>1) POLICY AND REGULATORY ENVIRONMENT</b>                         |   | <b>40%</b> |
| 1.1) Presence and comprehensiveness of a sustainable tourism policy | Composite score                         | 40.0%      |
| 1.1.1) Comprehensiveness of tourism policy                          | Rating 1-3                              |            |
| 1.1.2) Milestones and action plan                                   | Rating 1-3                              |            |
| 1.1.3) Monitoring and evaluation metrics                            | Rating 1-3                              |            |
| 1.1.4) National tourism law   | Rating 1-3                              |            |
| 1.2) Leasing and licensing for tourism operators                    | Rating 1-3                              | 25.0%      |
| 1.3) Adoption of global standards                                   | Rating 0-4                              | 5.0%       |
| 1.4) Cooperation between public and private stakeholders            | Rating 1-3                              | 10.0%      |
| 1.5) Inventory of tourism assets                                    | Rating 1-3                              | 10.0%      |
| 1.6) Stability of political environment                             | Rating 1-10                             | 10.0%      |
| <b>2) ENVIRONMENTAL SUSTAINABILITY</b>                              |   | <b>20%</b> |
| 2.1) Environmental governance                                       | Rating 1-5                              | 30.0%      |
| 2.2) Environmental impact assessments                               | Rating 1-3                              | 10.0%      |
| 2.3) Participation rate in multilateral environmental agreements    | %                                       | 20.0%      |
| 2.4) Environmental performance                                      | Composite score                         | 40.0%      |
| 2.4.1) Energy use per capita  | Kilograms                               |            |
| 2.4.2) Greenhouse gas emissions                                     | CO2 emissions (kg per PPP \$ of GDP)    |            |
| 2.4.3) PM2.5 (measure of air quality)                               | Micro-grams per cubic metre             |            |
| 2.4.4) Freshwater use   | %                                       |            |
| 2.4.5) Waste water treatment  | %                                       |            |
| 2.4.6) Biodiversity protection                                      | Score                                   |            |
| <b>3) SOCIO-CULTURAL SUSTAINABILITY</b>                             |   | <b>20%</b> |
| 3.1) Cultural and historical assets protection                      | Number                                  | 30.0%      |
| 3.2) International tourism arrivals                                 | Tourism arrivals as % of annual average | 30.0%      |
| 3.3) Effectiveness of marketing and branding to attract tourists    | Rating 1-7                              | 20.0%      |
| 3.4) Personal safety  | Composite score                         | 20.0%      |
| 3.4.1) Risk of violent crime  | Score                                   |            |
| 3.4.2) Risk of organised crime                                      | Score                                   |            |
| 3.4.3) Risk of hostility to foreigners                              | Score                                   |            |
| 3.4.4) Risk of natural disasters                                    | Score                                   |            |
| <b>4) ECONOMIC SUSTAINABILITY</b>                                   |   | <b>10%</b> |
| 4.1) Employment in tourism sector                                   | % share of employment                   | 33.3%      |
| 4.2) Labour laws risk rating  | Rating 1-4                              | 33.3%      |
| 4.3) Government tourism expenditure                                 | Annual growth rate (2007-2017)          | 33.3%      |
| <b>5) TRAVEL AND TOURISM INDUSTRY</b>                               |   | <b>10%</b> |
| 5.1) Tourism sector growth  | Average annual growth rate (2007-2016)  | 50.0%      |
| 5.2) Travel infrastructure  | Composite score                         | 50.0%      |
| 5.2.1) Airport density  | Per million population                  |            |
| 5.2.2) Railroad density   | Kilometres                              |            |
| 5.2.3) Hotel rooms  | Per 100 population                      |            |
| 5.2.4) Number of ATMs   | Per thousand adult population           |            |

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