

Sustainability management in the aviation and tourism industry

Frankfurt University of Applied Sciences

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Sustainability management
in the tourism industry

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Sustainability management in the aviation and tourism industry

Sustainability of tourism

Stakeholders

New risks management

Tourism impact

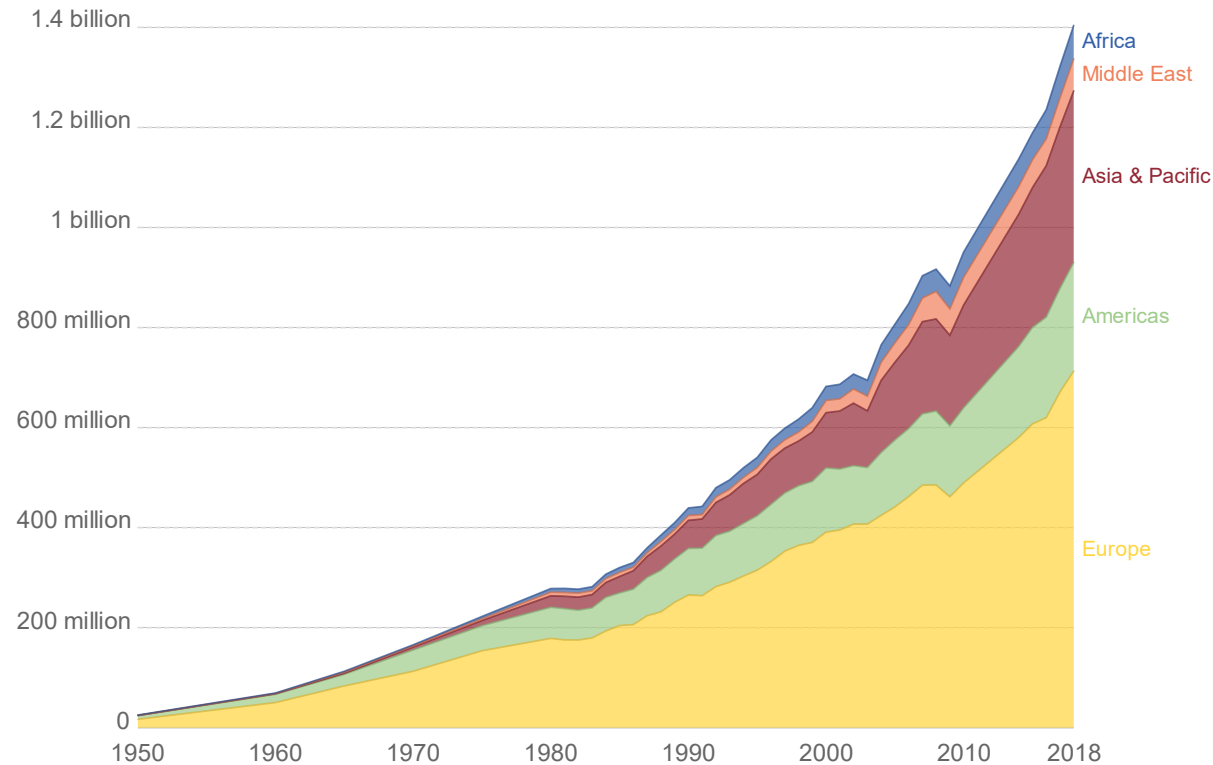
Challenges tackling

UNWTO & KPIs

Travel arrivals 1950-2018

International Tourist Arrivals by World Region

Our World
in Data



Source: United Nations World Tourism Organization - World Tourism Barometer (2019)

OurWorldInData.org/tourism/ • CC BY

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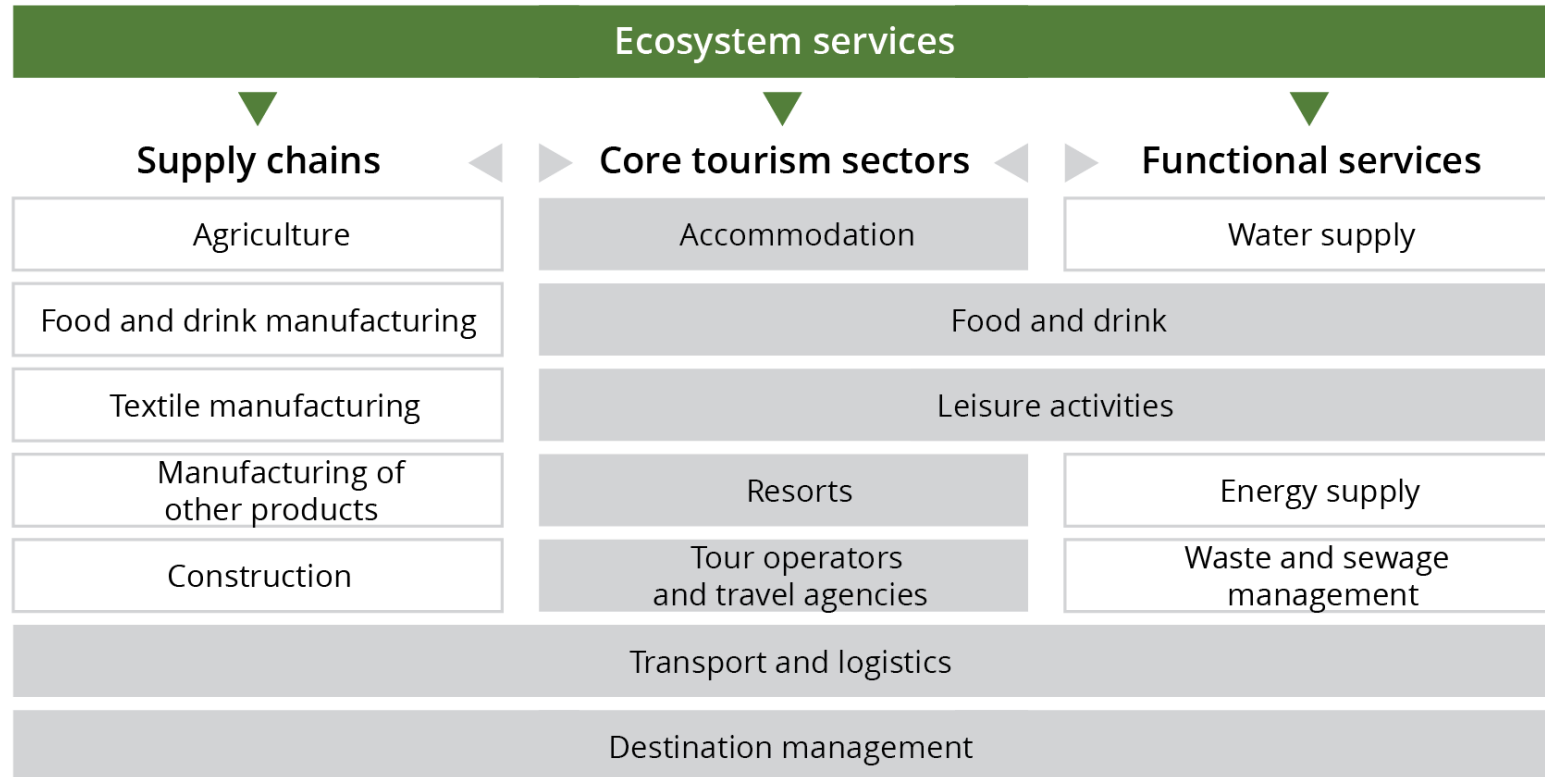
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Tourism is a complex system of different sectors



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Tourism as a climate change offender

The contribution of tourism to greenhouse gas (GHG) emissions is rising. Calculations of the contribution of tourism to global carbon dioxide (CO₂) emissions range from 3.9% to 6% of human emissions, with 4.9% the best estimate. As the world becomes more affluent, the sector is expected to grow by an average of 4% annually and reach 10% of global GDP within ten years. The sector's emissions are on course to grow 130% between 2005 and 2035.

On a tourist level the drivers a heterogeneous

Tourism at the individual level



Sector contributions to climate change	Tourism	Food	Buildings
Individual emissions	6 t CO ₂ -eq (24%)	3 t CO ₂ -eq (12%)	4 t CO ₂ -eq (16%)

Source: UN Environment, 2019

Water



Up to 2000 l water/day & tourist

Energy



75 kWh on average for accommodation alone

Land Use

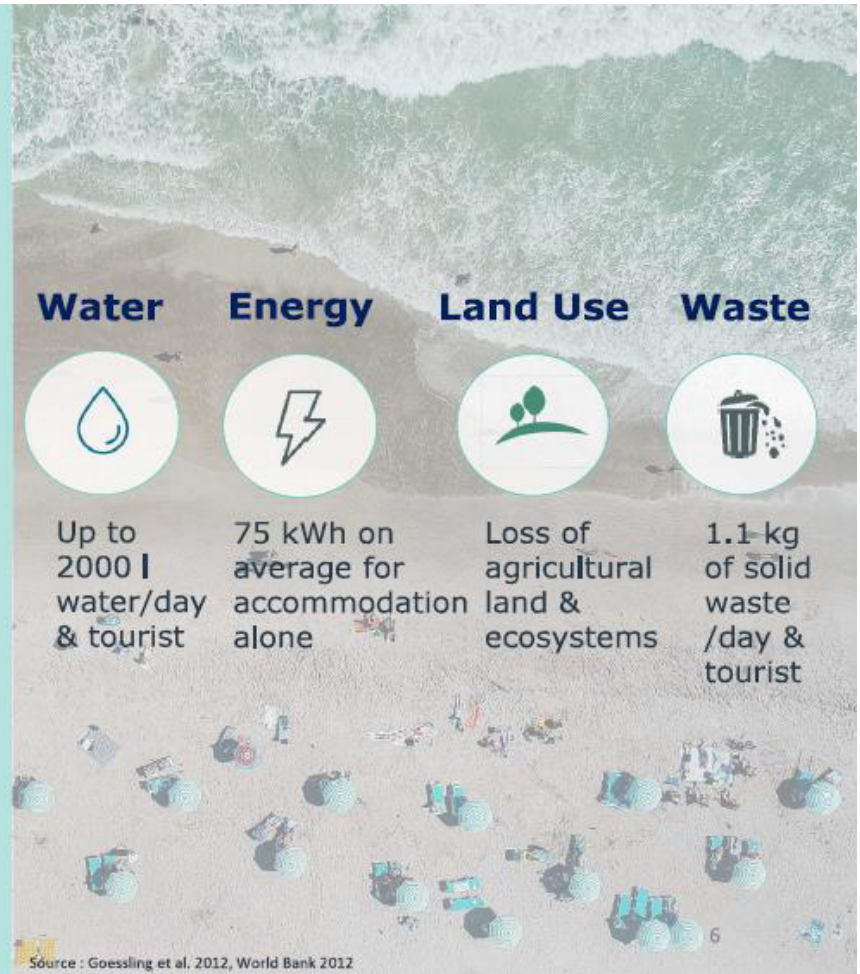


Loss of agricultural land & ecosystems

Waste

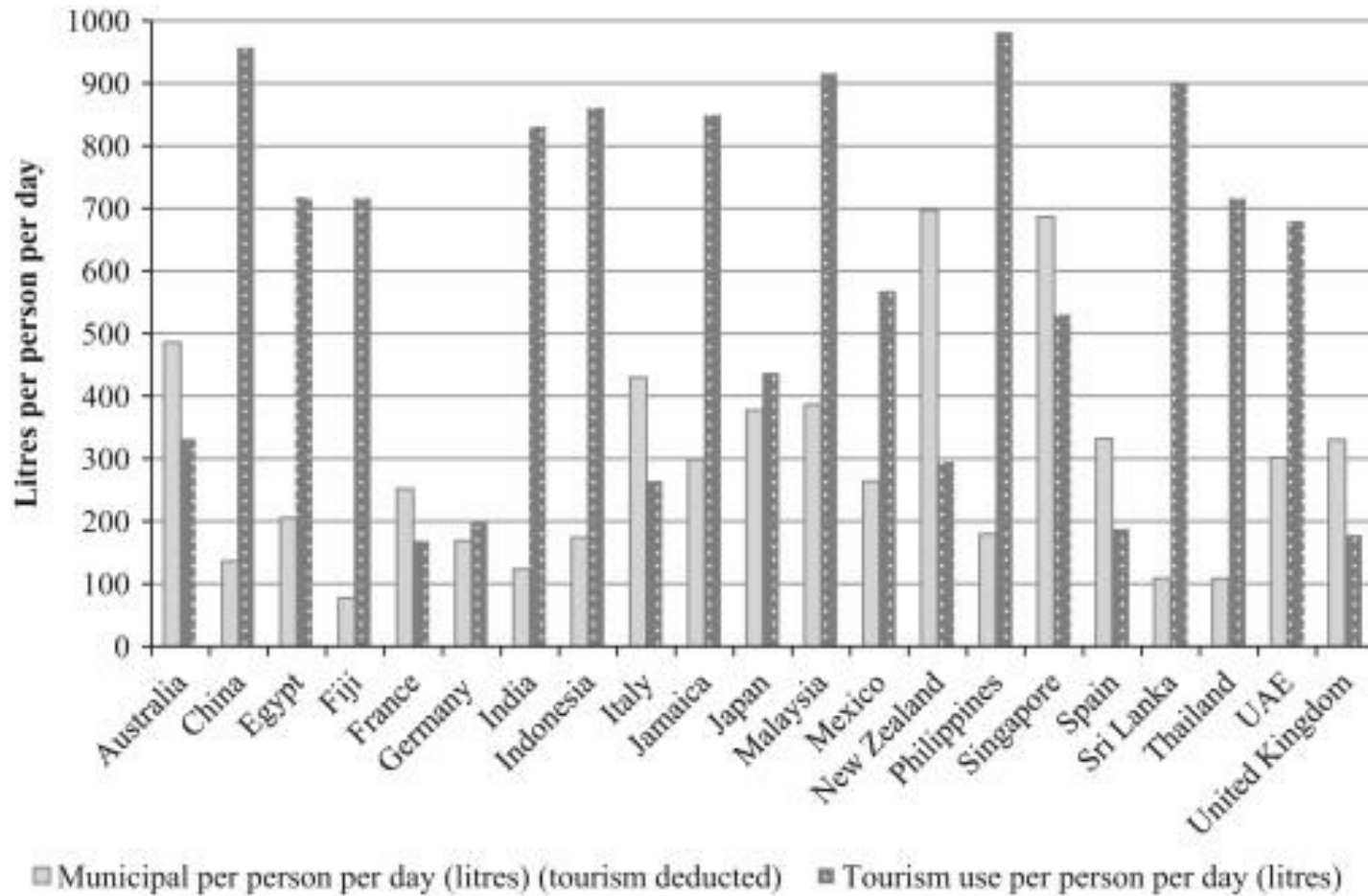


1.1 kg of solid waste /day & tourist



Source: Goessling et al. 2012, World Bank 2012

Water consumption



Source: Becken, Susanne (2014) Water equity – Contrasting tourism water use with that of the local community. Water Resources and Industry 7-8 (2014) 9–22.

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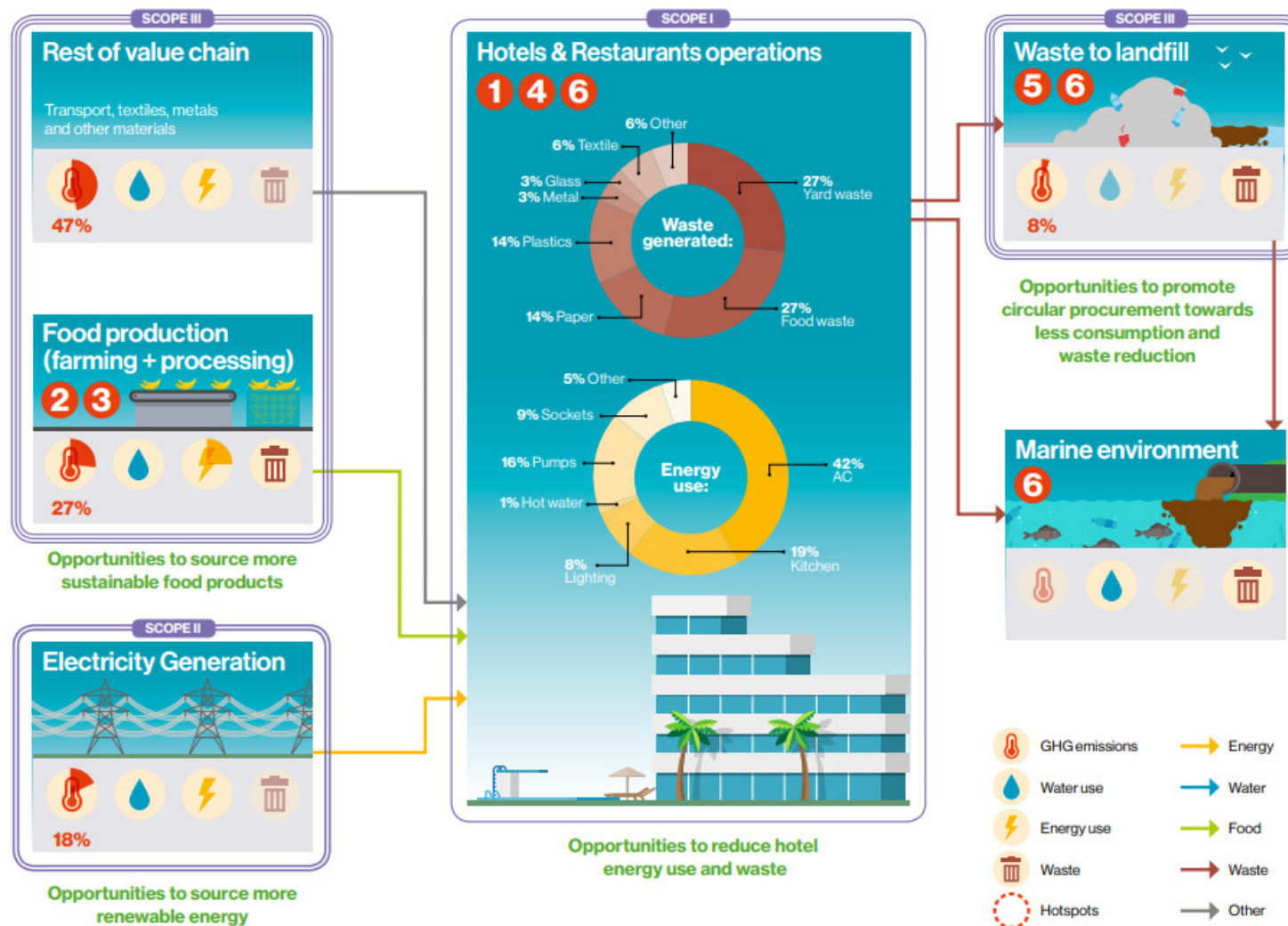
UNWTO & KPIs

Climate: CO₂ und Co

Environmental: overcrowding, resources limitation of water and energy

Social: seasonality, culture commodification, Disneyland effect

Scope analysis



Policy context and implementation

The research has indicated that tourism's consumption of key resources - energy, water, land and materials (e.g. fossil fuels, minerals, metals, biomass) - is increasing commensurately with growth of tourism arrivals in the Philippines as is its generation of solid waste, sewa. According to IPCC, the Philippines are among the five countries most impacted by climate change. Strong action by both the tourism sector and the government is

required to reduce the country's contribution to climate change and to build resilience to climate impacts.

Climate change policy in the Philippines is institutionally well organised through the activities of the Climate Change Commission. The importance of tourism in relation to climate adaptation is clearly defined, but its role in climate mitigation is not directly recognised. The Intended Nationally Determined

Contribution of the Philippines under the UNFCCC Paris Agreement sets out a reduction goal of circa 70% by 2030 relative to its business-as-usual scenario of 2000-2030, conditional on receiving external support. Reductions in GHG emissions will come from the energy, transport, waste, forestry and industry sectors. Tourism and food (agriculture) are not mentioned, even though the latter represents approximately

29% of national GHG emissions.

Tourism can play an important major role in climate change mitigation, not least by engaging more directly with its value chain partners. This includes reductions in energy use related emissions, but also reductions from the agriculture, food and beverage, and waste sectors. ■

Sector	Tourism	Climate change	Energy	Environment	Food & Agriculture
Responsible body	Department of Tourism	Climate Change Commission (CCC)	Department of Energy	Department of Environment and Natural Resources	Food and Drug Administration Department of Agriculture
Mandate	Development and promotion of the tourism industry	Preparation and co-ordination of climate change policies	All Government activities related to energy	Conservation, management, development, and proper use of the country's environment and natural resources	Ensure the safety and quality of food and health products Agricultural development, framework, investments
Key policy	The Tourism Act of 2009 National Tourism Development Plan (2016-2022) Investing in a competitive and inclusive tourism.	Climate Change Act (2009 and 2012) Philippine Green Building Code (2015) National Framework Strategy on Climate Change (NFSOC) (2010) • RE capacity to double from 4,500 MW to 9,000 MW • energy conservation programs	Power Development Program Power Sector Restructuring Utilities privatization (proposed) Renewable Energy Act (2008) • Feed in tariffs • Renewable energy equipment free of import fees and capped tax Energy Efficiency and Conservation Act (Filed 1988, approved 2019) Standardize energy efficiency and conservation measures by regulating the use of energy efficient technologies in buildings.	Ecological Solid Waste Management Act (2000) Clean Water Act Clean Air Act Guidelines on Ecotourism Planning and Management in Protected Areas	The Food and Drug Administration Act (2009) Food Safety Act of 2013 Zero Food waste bill (in progress) • mandatory donations of some types of food by restaurants and supermarkets guidelines for collection • National Anti-food waste Scheme (Department of Social Welfare and Development)
Regulation and permitting	Department of Tourism Accreditation is needed to operate hotels	All new or refurbished hotels above 10,000 sqm need to achieve the Green Building Code standards		Environmental Compliance Certificate required for hotels (ECC)	Sanitation Code and permitting carried out by local government units (LGU).

Climate: CO₂ und Co

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“Carrying Capacity” is the critical issue for tourism

The idea of “**Carrying Capacity**” is **from ecology** . It is the state where a population of a particular species within a given territory has reached a **maximum of individuals** that may be nourished by the territory’s natural resources.

How to tackle overcrowding and its impact?

Five types of problems associated with tourist overcrowding

1. alienated local residents,
2. a degraded tourist experience,
3. overloaded infrastructure,
4. damage to nature, and
5. threats to culture and heritage.

Some places endure **two or more** of these problems at the same time, but once localities determine their most important issues, they can select the most suitable solutions.

Overcrowding is currently more a matter of sensibility than data. Not everyone will agree when popularity tips into overcrowding. To provide an empirical foundation for destinations and help local leaders assess their situation and identify vulnerabilities, we created a diagnostic based on simple, widely available indicators, including tourist arrivals, social media reviews, seasonality, and pollution.

Creating data to “describe” overtourism

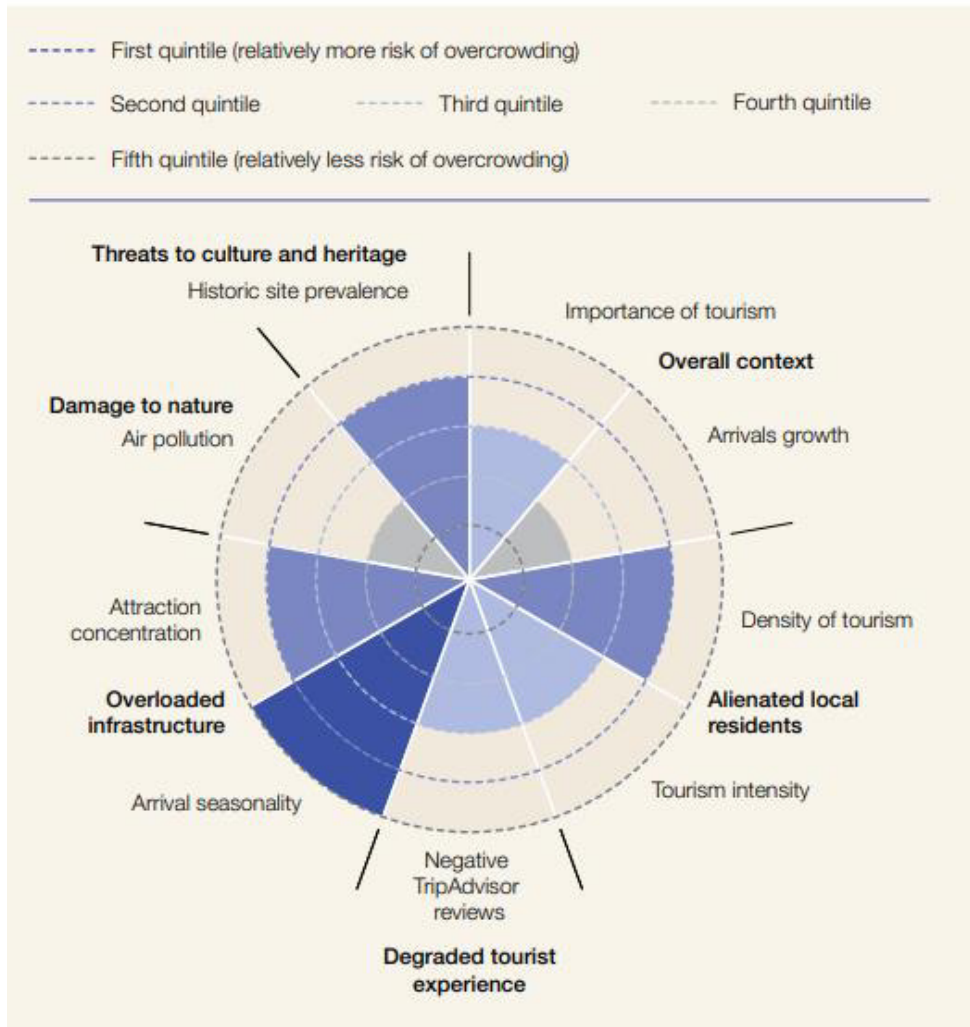
Overall context	Importance of tourism	Tourism share of GDP and employment (%)	Average contribution of direct tourism to GDP (as percent of total) and employment (as percent of total) in 2016, reflecting economic importance of tourism
			Source: World Travel & Tourism Council analysis
	Arrivals growth	Growth in tourist arrivals (% CAGR)	Average annual growth rate in international and domestic arrivals from 2011 to 2016; given data availability, includes only overnight arrivals in paid accommodation
			Source: Oxford Economics
Alienated local residents	Density of tourism	Number of visitors per square kilometer (#)	Calculated as 2016 arrivals divided by the number of square kilometers in the area encompassing TripAdvisor's top 20 attractions for the destination
			Source: Oxford Economics, McKinsey analysis, TripAdvisor.com
	Tourism intensity	Number of visitors per resident (#)	Calculated as 2016 arrivals divided by the population in the destination (using the same definition of each destination as arrivals data)
			Source: Oxford Economics
Degraded tourist experience	Negative TripAdvisor reviews	Share of “poor” or “terrible” reviews among top attractions (%)	Data captured from TripAdvisor's top 10 attractions in the destination as of July 2017, measuring the magnitude of negative sentiment in visitors' experiences
			Source: TripAdvisor.com
Over-loaded infrastructure	Arrival seasonality	Difference in arriving-flight seats between high and low month (ratio)	Calculated as value from month in 2016 with highest number of arriving-flight seats divided by value from month in 2016 with lowest number of arriving seats, representing degree of seasonality (used instead of hotel occupancy given more data availability)
			Source: Diio
	Attraction concentration	Share of reviews limited to top 5 attractions (%)	Data captured from TripAdvisor as of July 2017 and calculated as reviews of top 5 attractions divided by reviews of all attractions to indicate concentration
			Source: TripAdvisor.com
Damage to nature	Air pollution	Annual mean PM10 particulate concentration (micrograms per cubic meter) ¹	Data captured by the World Health Organization on annual mean concentration of PM10 in cities for most recent year with official reporting (typically 2012–14 but varies by destination)
			Source: World Health Organization Global Urban Ambient Air Pollution Database (updated 2016)
Threats to culture and heritage	Historic site prevalence	Share of top 20 TripAdvisor attractions that are historic sites (%)	Data captured from TripAdvisor as of July 2017 on the top 20 attractions for the destination, analyzed to identify historical sites (eg, historic buildings, religious centers) and indicate potential risk to spiritual and physical integrity
			Source: TripAdvisor.com

Benchmarks for cities to assess overcrowding risks

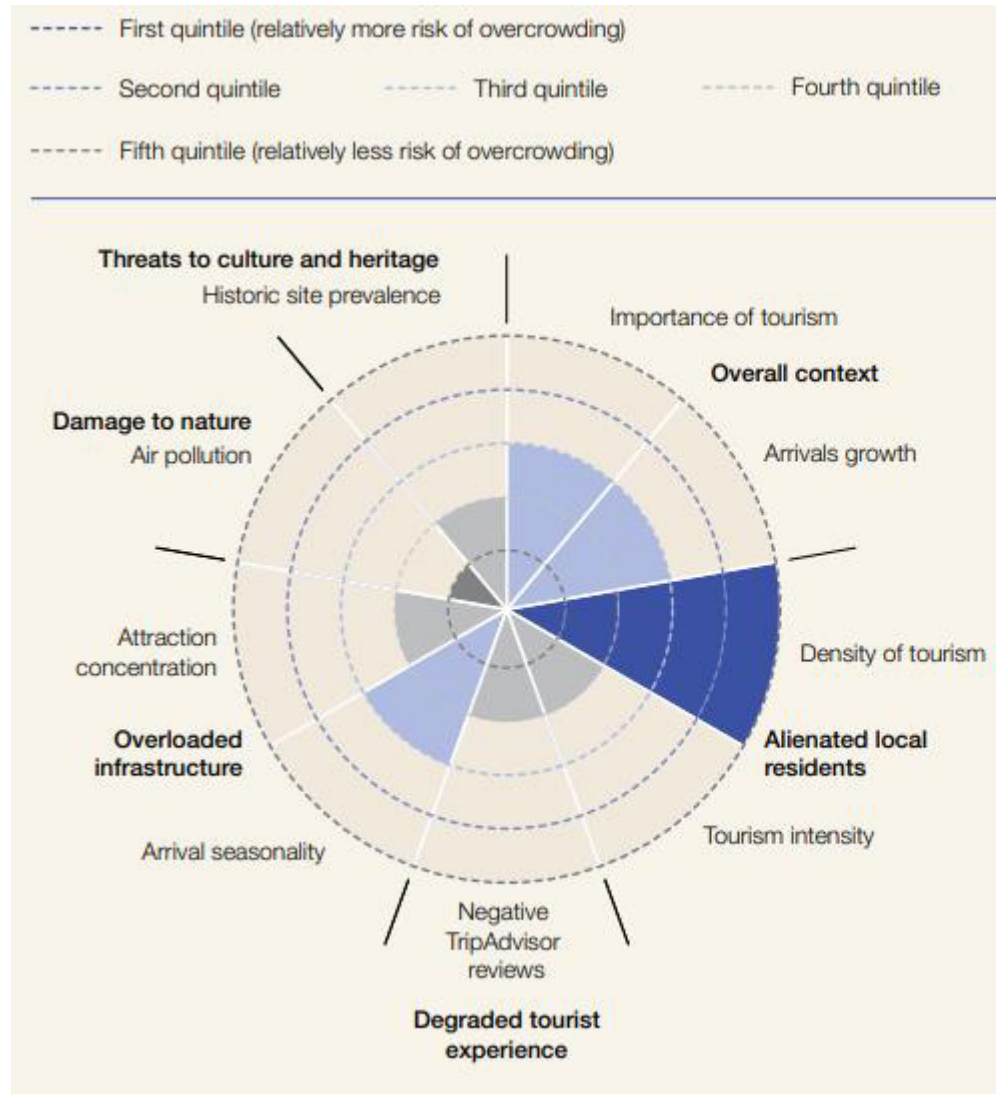
	Top quintile (highest risk)	Second quintile	Third quintile	Fourth quintile	Fifth quintile (lowest risk)
Tourism share of GDP and employment	>8.5%	6.1–8.5%	4.5–6.0%	3.2–4.4%	<3.2%
Growth in tourist arrivals	>7.7%	6.2–7.7%	4.0–6.1%	2.0–3.9%	<2.0%
Number of visitors per square kilometer	>930,000	475,001–930,000	200,001–475,000	75,000–200,000	<75,000
Number of visitors per resident	>5.3	2.8–5.3	1.8–2.7	1.0–1.7	<1.0
Share of “poor” or “terrible” reviews among top attractions	>2.8%	2.0–2.8%	1.5–1.9%	1.1–1.4%	<1.1%
Difference in arriving-flight seats between high and low month	>1.36	1.29–1.36	1.19–1.28	1.14–1.18	<1.13
Share of reviews limited to top 5 attractions	>36%	33–36%	29–32%	22–28%	<22%
Annual mean PM10 concentration	>74.9	43.1–74.9	26.8–43.0	16.6–26.7	<16.5
Share of top 20 TripAdvisor attractions that are historic sites	>45%	31–45%	21–30%	7–20%	<7%

Source: WTTC, McKinsey, “COPING WITH SUCCESS MANAGING OVERCROWDING IN TOURISM DESTINATIONS” 2017

Example: analysis of the tourism intensity in Barcelona



Example: analysis of the tourism intensity in New York



Source: WTTC, McKinsey, "COPING WITH SUCCESS MANAGING OVERCROWDING IN TOURISM DESTINATIONS" 2017

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Other organisations

Websites

UNWTO Academy

<https://www.unwto.org/UNWTO-academy>

One Planet Network

<https://www.oneplanetnetwork.org/initiative/transforming-tourism-value-chains-developing-countries-and-small-island-developing-states>

The Travel Foundation

<https://www.thetravelfoundation.org.uk/about-us/>

Global Sustainable Tourism Council

<https://www.gstcouncil.org/>



Sustainable Tourism PROGRAMME Committed to drive the change

In 2017, the UNWTO network:

Grew in membership to involve 142 organizations (governments, private sector, academia and civil society) working together to implement sustainable tourism activities with an emphasis on:

1. climate change;
2. waste management;
3. local sourcing;
4. sustainable land use;
5. biodiversity protection; and
6. decent employment.

Muscat Declaration December 2016 calls upon signatories to chart a common course of action as to managing cultural tourism in a responsible and sustainable way:

1. strengthen the **synergies between tourism and culture** and advance the contribution of cultural tourism to the 2030 Agenda for Sustainable Development and the 17 SDGs
2. enhance the role of tourism and culture in **peace building**
3. promote responsible and sustainable tourism **management of cultural heritage**
4. encourage a creative and innovative approach for **sustainable urban development** through cultural tourism
5. explore links between **culture and nature** in sustainable tourism

Activities in tourism to respond to key challenges

1. **Climate and Environment Action:** raising awareness of the impacts of climate change on the sector as well as minimising the sector's contribution to it.
2. **Destination Stewardship:** promoting best practice in planning and management, with a focus on public, private and community partnership, to ensure that growth benefits all and to tackle problems associated with overcrowding of destinations.
3. **Future of Work:** ensuring that the sector is ahead of the curve in the face of changing structures of employment and technological developments and that the workforce of the future is fully aware of and skilled to take up the opportunities offered by Travel & Tourism.
4. **Illegal Trade in Wildlife:** promoting industry action to support global efforts to tackle the illegal trade in wildlife. Tourism has a unique role to play by providing economic opportunities for communities and an economic rationale for the protection of endangered species.
5. **Human Trafficking:** raising awareness of how Travel & Tourism companies can prevent Human Trafficking and providing a forum for Travel & Tourism collective action.
6. **Sustainability Reporting:** encouraging and supporting Travel & Tourism companies to measure, monitor and report their Environmental, Social and Governance activities.

KPIs: indicators of sustainable development for tourism destinations, a guidebook

E.g. Effects of Tourism on Communities

Components of the issue	Indicators
Community attitudes to tourism (including community agreement and coherence on tourism, perceptions and acceptance of tourism)	<ul style="list-style-type: none">• See > Local satisfaction with tourism p. 56;• Existence of a community tourism plan;• Frequency of community meetings and attendance rates (% of eligible who participate);• Frequency of tourism plan updates (see section on planning and management issues);• Level of awareness of local values (% aware, %supporting);• % who are proud of their community and culture.
Social benefits associated with tourism	<ul style="list-style-type: none">• Number of social services available to the community (% which are attributable to tourism) > Baseline Indicator;• % who believes that tourism has helped bring new services or infrastructure. > Baseline Indicator;• Number (%) participating in community traditional crafts, skills, customs;• % of vernacular architecture preserved.
General impacts on community life	<ul style="list-style-type: none">• Number of tourists per day, per week etc; number per sq km (see > Controlling Use Intensity) See also the specific issue of Access p. 65);• Ratio of tourists to locals (average and peak day) > Baseline Indicator.• % locals participating in community events;

	<ul style="list-style-type: none"> Ratio of tourists to locals at events or ceremonies; Perception of impact on the community using the resident questionnaire – with reference to specific events or ceremonies (see Questionnaire, Annex C 6); % of local community who agree that their local culture, its integrity and authenticity are being retained.
Changes to resident lifestyles, (cultural impact, cultural change, community lifestyle, values and customs, traditional occupations)	<ul style="list-style-type: none"> % of residents changing from traditional occupation to tourism over previous year(s); men and women; Number or % of residents continuing with local dress, customs, language, music, cuisine, religion and cultural practices. (e.g. change in number of local residents participating in traditional events); Increase/decrease in cultural activities or traditional events (e.g. % of locals attending ceremonies).
	<ul style="list-style-type: none"> Number of tourists attending events and % of total; Value of tourist contribution to local culture (amount obtained from gate, amount of donations); % of locals who find new recreational opportunities associated with tourism (local questionnaire See Annex C 6).
Housing issues	<ul style="list-style-type: none"> % of housing affordable for residents; Mode and average distance of travel to work or school; Number of new housing starts and % for local residents Note: prices of other goods can also rise or fall (see also the ➤ Economic Benefits p. 128); Note: Availability and access to some other services (e.g. health, water, sanitation) can also change, positively or negatively with social effects –see specific sections.
Community demographics	<ul style="list-style-type: none"> Number of residents who have left the community in the past year; Number of immigrants (temporary or new residents) taking tourism jobs in the past year; Net migration into/out of community (sort by age of immigrants and out-migrants).

The tourism topic for a seminar paper:

Ideas for sustainable tourism:
How to tackle **xxx**

Take **one** of the outlined **challenges**,
present and analyse **best practices** (min. 5 different cases)
using one scope (business, destination or country)