



**UNWTO**

World Tourism Organization

# MEASURING THE SUSTAINABILITY OF TOURISM

## LEARNING FROM PILOTS



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# TABLE OF CONTENTS



<b>INTRODUCTION AND MAIN FINDINGS</b>	<b>4</b>
<b>CASE STUDIES</b>	<b>8</b>
<b>New MST pilots</b>	
Costa Rica	9
Indonesia	12
New Zealand	16
South Africa	20
Spain	24
Uganda	28
Arab countries	32
<b>Existing MST pilots with further developments</b>	
Austria	36
Fiji	40
Italy	44
Mexico	48
Sweden	52

# INTRODUCTION AND MAIN FINDINGS

## WHAT IS MEASURING THE SUSTAINABILITY OF TOURISM (MST)?

Tourism stakeholders are increasingly concerned with the sustainability of the sector, especially in the face of challenges including recovery from the pandemic, the climate emergency and geopolitical conflict. In tourism and beyond, people are also more aware of the ability of tourism to advance – or even reverse – progress towards the United Nations Sustainable Development agenda. Tourism is mentioned explicitly in three of the Sustainable Development Goals (SDGs): SDG 8 on growth and decent work, SDG 12 on sustainable consumption and production, and SDG 14 on sustainable oceans (in targets 8.9, 12.b and 14.7 respectively) – and the World Tourism Organization firmly believes that tourism can play a role in the achievement of all 17 SDGs.

Tourism is a social, cultural and economic phenomenon. It relies on and has an impact on the economy, the natural and built environment, the local population of places visited and on visitors themselves. Owing to this range of impacts and the wide spectrum of stakeholders involved, there is a need for a holistic approach to tourism measurement.

However, the data available on tourism – and the scope of the existing international statistical standards for measuring tourism that underpins this data – is largely focussed on the economic dimension. There is a need to expand the scope of tourism statistics into the social and environmental dimensions, while also rethinking the economic measurement of tourism through the lens of sustainability.

Tourism has an opportunity to redefine how it measures success. In the words of Joseph Stiglitz:

*“What we measure affects what we do and if we measure the wrong thing, we will do the wrong thing”.<sup>1</sup>*

Feasible, relevant, and reliable metrics are increasingly necessary to understand the economic, social and environmental aspects of tourism for sustainable development. These measures need to be produced in a harmonized way across countries and destinations so as to communicate progress effectively, benchmark performance, identify best practices and streamline tourism in sustainable development policy and funding mechanisms.

<sup>1</sup> Stiglitz, J. E. (2018), ‘Beyond GDP’, *Project Syndicate*, published on 3 December 2018, New York, online available at: <https://www.project-syndicate.org> [21-11-2022].



The Measuring the Sustainability of Tourism (MST) programme – led by the World Tourism Organization (UNWTO) in partnership with the United Nations Statistics Division (UNSD) and leading countries, and with the support of the International Labour Organization (ILO) and others – aims to provide an internationally agreed framework to measure the impacts and dependencies of tourism on the economy, society and the environment, both at national and subnational levels.

The Statistical Framework for Measuring the Sustainability of Tourism under development provides the main concepts, definitions, classifications, tables, and accounts to underpin the production of data and indicators that are comparable over time between countries, and to data on other economic sectors.

This guidance tool will support efforts to produce data that is more comparable, credible and integrated to better guide decisions and policy with respect to sustainable tourism, including the Sustainable Development Goals.

## THE VALUE OF MST PILOTS

An important means of advancing the development of the MST Framework is through pilots carried out in countries and subnational destinations. Pilots contribute real-world lessons that test the conceptual direction presented in the framework under development from the perspectives of both policy relevance (how well does the framework respond to real data demands?) and technical feasibility (is it feasible, given existing statistical infrastructures and data sources, to implement the conceptual guidance presented in the framework?).

As the MST framework progresses, it is being fed by these pilot experiences and good practices. This means that lessons and novel or pragmatic solutions encountered on the ground can be used as inputs to fine-tune and further develop certain areas within the Statistical Framework for MST. In this way, pilots also help pave the way for building consensus around key measurement issues.

Pilots are usually implemented in a stepwise and modular approach, whereby different pilots focus on implementing different parts of the MST framework and at different territorial scales, in line with priorities and circumstances. All in all, these experiences show that it is possible to measure in a comparable way the full breadth of elements that comprise the sustainability of tourism within a



single integrated framework. For this reason, MST has been formally supported by the UN as the tool to derive indicators for the global monitoring tourism in the SDGs.

This publication showcases the excellent work conducted by countries and subnational destinations, and can serve as inspiration to encourage other countries and destinations to join the MST international effort.

The following twelve studies in countries and subnational destinations are included in this volume:<sup>2</sup>

- **Seven new pilots:**
  - **Costa Rica:** Estimating the economic contribution of nature-based tourism ;
  - **Indonesia:** Environmental impacts of tourism in marine areas;
  - **New Zealand:** Measuring the contribution of tourism to greenhouse gas emissions;
  - **South Africa:** An experimental method to value nature-based tourism;
  - **Spain, Canary Islands:** Setting the focus on the micro-destination scale;
  - **Uganda:** Integrating biodiversity and tourism accounts; and
  - **Arab countries:** A proposed roadmap for MST.

- **Five existing pilots with further developments:**

- **Austria:** Austria monitors its Tourism Master Plan with MST-based indicators;
- **Fiji:** Advancing the implementation of the roadmap on MST;
- **Italy:** Tourism and road transport emissions;
- **Mexico:** Scaling up the status of MST pilot to a national project; and
- **Sweden:** An experimental method to measure environmental pressures from tourism consumption.

If you are interested in learning more about MST and carrying out an MST pilot, please contact the UNWTO Statistics Department at [sttc@unwto.org](mailto:sttc@unwto.org).

<sup>2</sup> World Tourism Organization (2019), *Experiences from Pilot Studies in Measuring the Sustainability of Tourism – A Synopsis for Policy Makers*, UNWTO, Madrid, online available at: <https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-09/Experiences-from-pilot-studies-in-Measuring-the-Sustainability-of-Tourism.pdf> [23-11-2022].





## INSTITUTIONAL ASPECTS OF THE PILOTS

As in the first volume of this publication from 2020, countries and destinations contributing to the present publication provided technical information on their pilots and also additional information on institutional aspects that surround the pilot via a questionnaire.<sup>3</sup>

Measuring the sustainability of tourism and, thus, being able to inform decision-making and monitor relevant policies is now more relevant than ever. This is an important finding that surfaced from MST pilots: Out of the twelve participating countries and destinations, five reported that this activity has become more important while the remaining seven countries indicated that the priority level remained the same. No country reported a decline in importance.

MST piloting is becoming part of the structural programmes of work in nine out of twelve pilots, which almost doubles the rate compared to the first publication from 2020. At the same time, five are able to update data, which also constitutes important progress.

Regarding funding, in the majority of cases (eight out of twelve), the pilots were financed by the institutions leading them, while the other three were financed by international organizations and one by another national agency. In this context, funding continues to be the

main challenge faced by countries in advancing the implementation of MST. Ten of the twelve respondents reported this to be a challenge, a higher proportion than in 2020.

The lack of methodological guidance and technical skills are the second most reported challenge, cited by six countries. This underlines the need for the finalization of the Statistical Framework for MST. In addition, it reinforces the suitability of a progressive approach whereby lessons on the ground from pilots are progressively incorporated into the MST framework to ensure that it is both technically feasible and policy-relevant. Further, this finding points to the pivotal role that regional and international capacity development and technical cooperation plays in having better data for more sustainable tourism.

Other important challenges faced by pilots are coordination issues and a lack of support or interest. Difficulties in coordination between agencies are, as with funding, a growing challenge. Initiatives such as this publication aim to raise the profile and visibility within the tourism policy community of the MST pilots and their role in advancing a trustworthy measurement system for evidence-based decision-making. These efforts, undertaken by the tourism statistical community, often jointly with other stakeholders, are to be fully shared and communicated to ensure that they are supported at all levels and by all relevant stakeholders.

<sup>3</sup> The results of the questionnaires only represent the 12 MST pilot included in this publication.

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# CASE STUDIES



## NEW MST PILOT

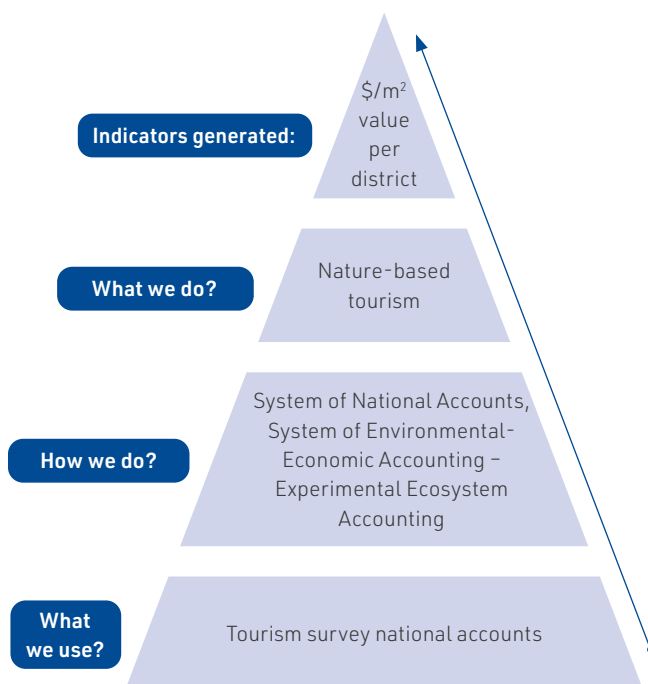
# COSTA RICA

## ESTIMATING THE ECONOMIC CONTRIBUTION OF NATURE-BASED TOURISM



The pilot shows the relevance of ecosystems associated with tourist visitation for the generation of economic value.

One of the main findings is that for the year 2017 the valuation of the ecosystem service of nature-based tourism represented 1.2% of GDP, while for 2018 the value increased to 1.4%



### POLICY AIMS/CONTEXT OF THE PILOT

1. How do we generate wealth (through tourism) without deteriorating the condition of the ecosystem?
2. How do we develop an adequate management of protected wild areas based on economic and visitation data?
3. What opportunities are presented to the tourism sector to maintain a balance between economic growth and healthy ecosystems?

#### Pilot focussed on:

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

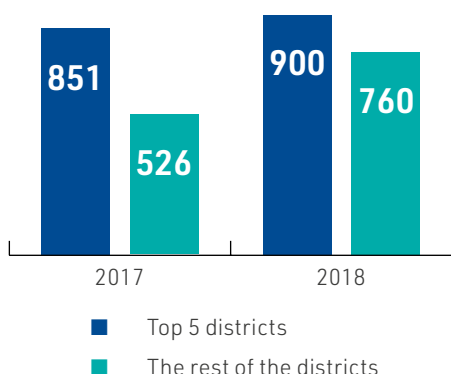
#### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

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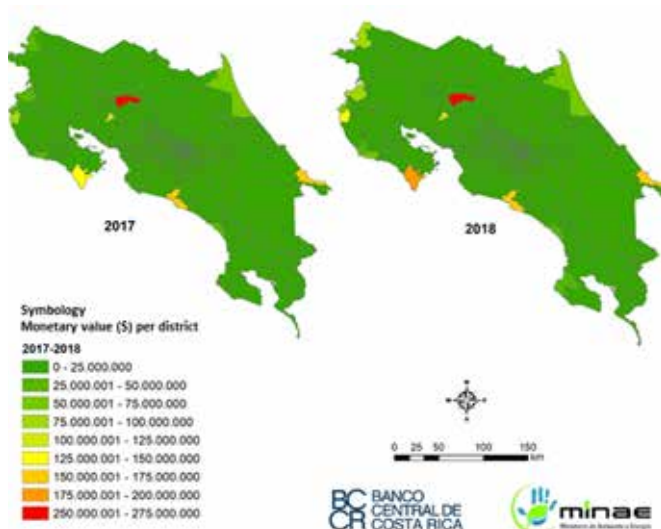
## KEY DATA GENERATED

Valuation of nature-based tourism, 2017 and 2018 (USD million)



Note: Districts represent the minimum spatial accounting unit and are the administrative regions used in Costa Rica. In 2017, the top 5 districts were: La Fortuna, Quepos, Cahuita, Cóbano and Monte Verde. In 2018, the top 5 districts were: La Fortuna, Cóbano, Quepos, Cahuita and Tamarindo.

Heat map – valuation of nature-based tourism, 2017 and 2018 (USD)



## KEY FINDINGS

- Between 2017 and 2018, the total value of the nature-based tourism showed an increase of 21%, moving from USD 1,377 million to 1,660 million.
- In 2017, the valuation of the ecosystem service<sup>4</sup> of nature tourism represented 1.2% of the GDP. The first five districts showed a concentration of 62% of this total value which represents USD 851 million, meaning 0.74% of the GDP. While for 2018 the total value of nature-based tourism increased to 1.4% of GDP, the concentration of value in the five districts is 54% of the total value, representing 0.76% of the GDP.
- 17% increase on overnight stays associated with nature-based tourism for the same period of time.
- For 2017, the analysis shows that the main 10 districts accumulated 70% of overnight stays. 2018 shows a minimal increment, reaching a total of 72% in overnight stays.

## POLICY ACTION

It is planned to present the results in a technical report with the relevant figures on the official website of the Central Bank of Costa Rica (Banco Central de Costa Rica – BCCR), as well as the previous publications of *Environmental Accounts* developed by the BCCR. In addition, the results will be shared with the institutions of the accounts council with the objective of being incorporated into the policies that govern each institution.

<sup>4</sup> Ecosystem services are defined as the contributions of ecosystems to the benefits that are used in economic and other human activities. Please refer to: United Nations et al. (2021), *System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA)*, White cover publication, pre-edited text subject to official editing, online available at: <https://seea.un.org/ecosystem-accounting> [21-11-2022].

## ORGANIZATION

Years the pilot study was carried out in:

2017–2018

Lead institution:

Central Bank of Costa Rica (Banco Central de Costa Rica – BCCR)

Other institutions involved:

Ministry of Environment and Energy (Ministerio de Ambiente y Energía – MINAE) in the geospatial information process

Costa Rican Institute of Tourism (Instituto Costarricense de Turismo – ICT) Tourism Survey

Source of information:

Central Bank of Costa Rica (Banco Central de Costa Rica – BCCR):

<https://www.bccr.fi.cr/en/SitePages/Home.aspx>

### Links to more information:

Banco Central de Costa Rica (n.d.), *Environmental Accounts*, online available at: <https://www.bccr.fi.cr/en/economic-indicators/environmental-accounts> [21-11-2022].



## NEW MST PILOT

# INDONESIA

## ENVIRONMENTAL IMPACTS OF TOURISM IN MARINE AREAS



The study has estimated the generation of solid waste and wastewater of marine tourism and other eight marine clusters (including fisheries; energy and mineral resources; biotechnology industries, among others) in 17 provinces, representing half of the total area of the country. The study also explored the dependencies of marine tourism on natural inputs such as fish, crustacea, sand, stones and other building material. Total solid waste and wastewater from marine tourism flowing into the ocean have also been calculated.

### Percentage of waste generated by marine tourism flowing into the ocean, 2020



## 3.50%

of total solid waste is produced by marine tourism flows to the ocean



## 2.03%

of total wastewater is produced by marine tourism flows untreated to the ocean

### POLICY AIMS/CONTEXT OF THE PILOT

The pilot aimed to answer the following policy questions:

1. How much natural resources are used by marine activities, particularly by marine tourism?
2. How much solid waste and wastewater are produced by marine activities, especially by marine tourism?
3. How well are solid waste and wastewater managed by marine activities, particularly by marine tourism?

#### Pilot focussed on:

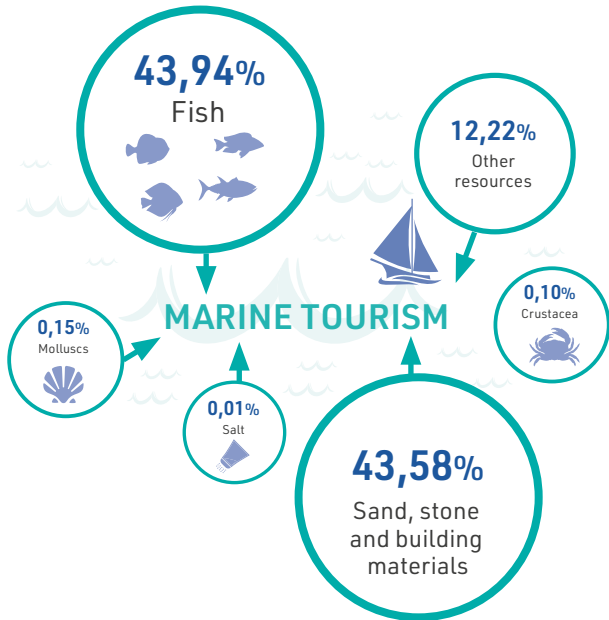
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

#### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

**KEY DATA GENERATED**

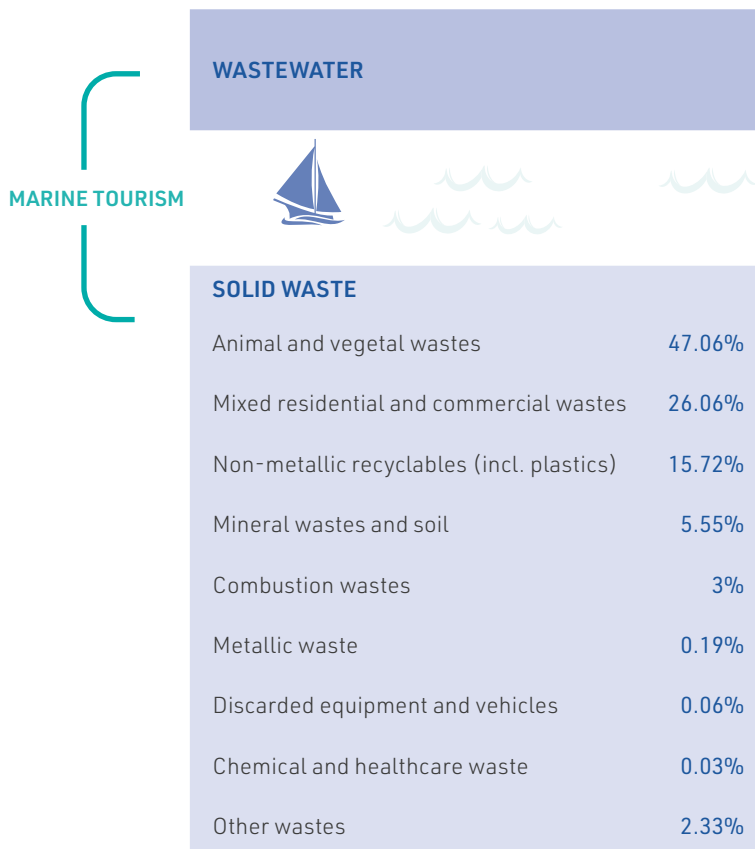
Natural resources used by marine tourism, 2020 (kg)



Solid waste by type of solid waste generated by marine tourism in Indonesia, 2020 (%)

Wastewater	Amount (%)
Animal and vegetal wastes	47.06
Mixed residential and commercial wastes	26.06
Non-metallic recyclables (incl. plastics)	15.72
Mineral wastes and soil	5.55
Combustion wastes	3.00
Other wastes	2.33
Metallic waste	0.19
Discarded equipment and vehicles	0.06
Chemical and healthcare waste	0.03
Radioactive waste	-
<b>Total solid waste</b>	<b>100.00</b>

Type of waste generated by marine tourism, 2020



**TREATMENTS**

97.97%	Septic tanks
2.03%	Back to the ocean
64.44%	Dumped in landfill
12.52%	Recycled and reused
3.05%	Back to the ocean
20%	Other treatments



## KEY FINDINGS

- Marine tourism is the third largest generator of employment among the main marine activities. On average, a marine tourism establishment needs 26 employees to run its production activity.
- Among the nine marine clusters, marine tourism has the second lowest labour productivity (ratio of output to the number of employees) with IDR 52 million per employee, which imply that an employee in marine tourism can earn IDR 4 million by average (around USD 278) per month.
- Of the nine marine clusters, marine tourism is found to have the second lowest proportion of intermediate consumption in output, which signifies efficient use of intermediate consumption compared to other marine clusters.
- Marine tourism is the marine cluster that uses the second fewest natural inputs in its production activity. Quantity of natural inputs used in marine tourism consist of 43.94% fish, 0.10% crustacea, 0.15% mollusc, 12.21% other biotic biotas, 0.01% salt and 43.58% sand, stone and other building materials.
- For marine tourism, 272,44 kg of sand, stones, and other building material are required to generate IDR 1 million gross value added.
- 3,05% of the total solid waste from marine tourism is deposited in the ocean. The remainder of the total solid waste is recycled and reused by other activities (12,52%), dumped in the landfill (64,44%) or treated in other ways (20%).
- 2,03% of the total wastewater from marine tourism flows untreated to the ocean. The remaining of the total wastewater is treated in septic tanks (97,97%).
- In conclusion, findings show that tourism in coastal areas generates jobs, wealth, is resource-efficient and the quantity of waste deposited in the ocean is rather limited.



## POLICY ACTION

The results of this study have been discussed in national and international forums including:

- Indonesia Ocean Account Collaboration Committee (consists of the Ministry of Marine Affairs and Fisheries – MMAF, the Ministry of Finance, the Geospatial Information Agency, the Loka for the National Marine Protected Area);
- PARIS21;
- Conservation International; and
- Ocean for Development Programme with SSB-Statistics Norway, and other ocean accounting-related forums.

In addition, results have fed the Gili Matra Pilot Ocean Account where a number of policy applications were developed, one of which is to provide feedback for the improvement of area zoning in the Gili Matra Marine Protected Area.

Since March 2022, data collection has been expanded to the remaining 17 provinces in Indonesia with the objective to generate national-level data. Data could potentially be used to monitor the National Priorities of the 2022 Government Work Plan, notably those related to tourism and the protection of environment sustainability.

## ORGANIZATION

Year the pilot study was carried out in:  
2021

Lead institution:  
Badan Pusat Statistik – BPS – Statistics Indonesia

Other institutions involved:  
n.a.

Source of information:  
BPS Statistics Indonesia: <https://www.bps.go.id/>

### Links to more information

Badan Pusat Statistik BPS (2021), *Laporan Indepth Study SEEA Ocean Accounts Tahun 2021*, online available at: <https://drive.google.com/file/d/18YKJdVmDe8M3wU84s2hCn7usKJ5WvCQL/view?usp=sharing> [21-11-2022].

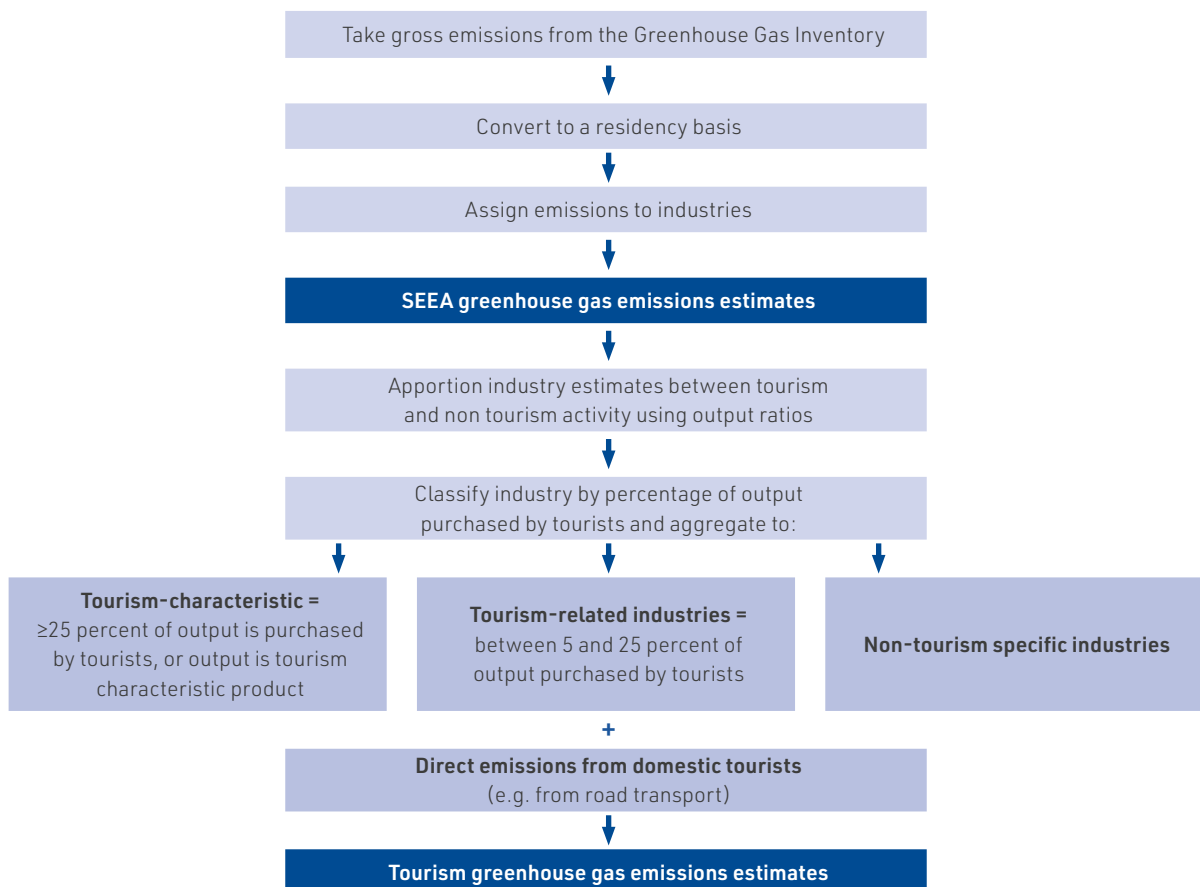
## NEW MST PILOT

# NEW ZEALAND MEASURING THE CONTRIBUTION OF TOURISM TO GHG EMISSIONS

This MST pilot served to quantify the greenhouse gas emissions generated by tourism. It found that, since the pandemic, the top contributor to tourism-related emissions corresponds to domestic tourism, i.e., from

residents using vehicles for tourist activity. The findings help to highlight opportunities that tourism offer for mitigating climate change.

## Tourism Emissions measurement approach from Statistics New Zealand (Stats NZ)





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### POLICY AIMS/CONTEXT OF THE PILOT

Given the significance of tourism to New Zealand’s economy:

1. What is its associated carbon footprint?
2. What is its carbon intensity and what opportunities are there for reducing emissions from tourism?
3. How can environmental accounting enable us to understand how emissions from tourism are generated?
4. What could be the economic and employment effects in tourism as it seeks to decarbonize?
5. In what tourism-characteristic or tourism-related industries could targeted policies or technology improvements have the greatest effect?

#### Pilot focussed on:

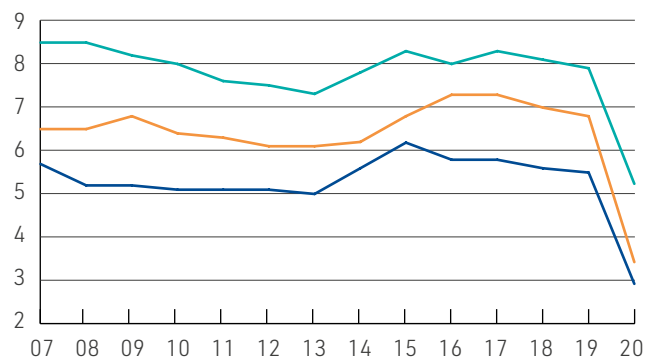
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

#### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

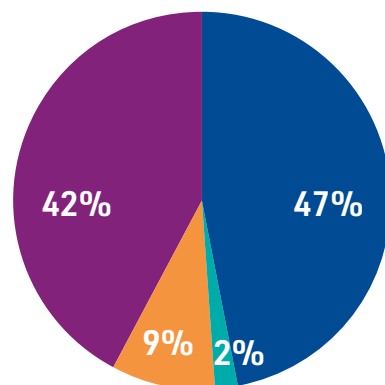
### KEY DATA GENERATED

Percentage contribution of tourism to CO<sub>2</sub>-e emissions, employment, and GDP, 2007–2020



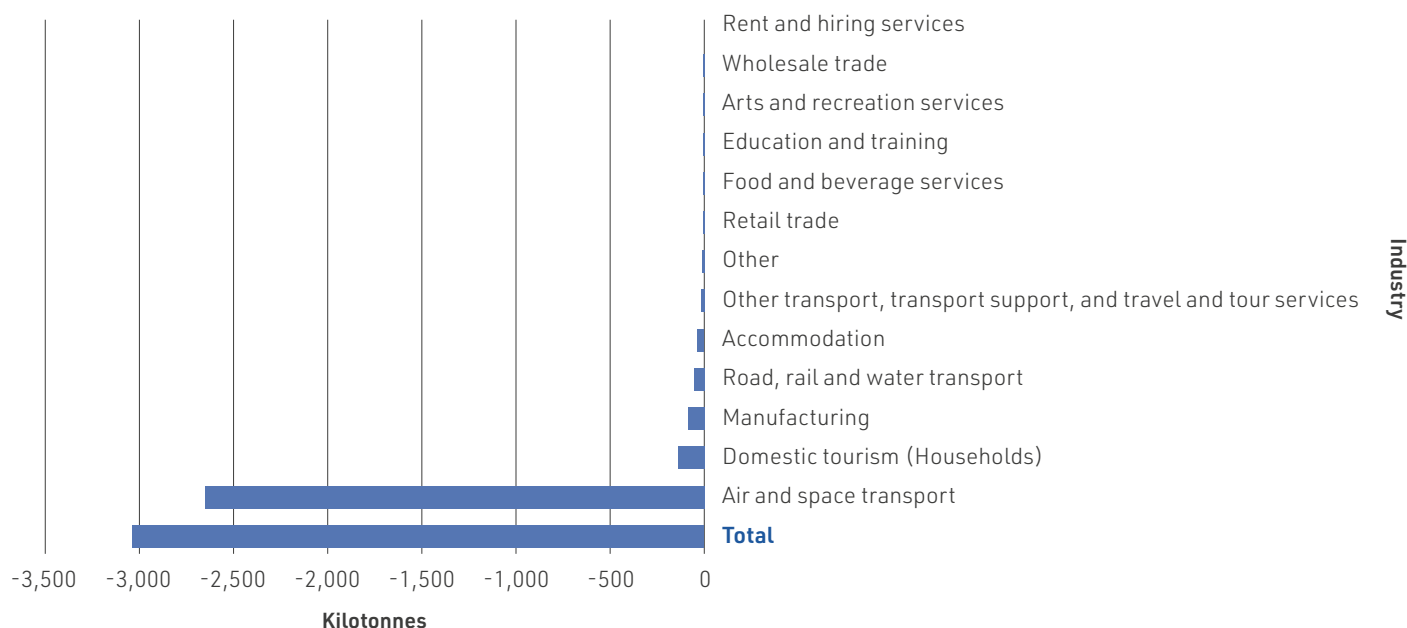
- Direct tourism value added as a percentage of total industry contribution to GDP
- Number of people directly employed in tourism as a percentage of total employment
- Tourism contribution to emissions – carbon dioxide equivalents (%) (SEEA basis)

New Zealand tourism greenhouse gas emissions, by tourism industries and by households engaging in domestic tourism, 2020



- Tourism characteristic industries
- Domestic tourism (households)
- All non-tourism related industries
- Tourism-related industries

### Changes in tourism CO<sub>2</sub>-e emissions, by industry, 2019–2020



CO<sub>2</sub>-e \_ carbon dioxide equivalent. Air and space transport industry includes only air transport.

## KEY FINDINGS

Emissions from tourism, tourism's contribution to GDP and employment from tourism – all decreased sharply in 2020 due to New Zealand's COVID-19 travel restrictions.

Tourism accounted for 3.4% of emissions in 2020, on a System of Environmental Economic-accounting (SEEA<sup>5</sup>) and Tourism Satellite Account<sup>6</sup> basis. In 2019, prior to the implementation of pandemic-related travel restrictions, tourism accounted for 6.8% of emissions. In the year ended March 2020, tourism contributed 2.9% to GDP, and 5.2% to employment. In comparison, in the year ended March 2019 tourism contributed to 5.5% to GDP, and 7.9% to employment.

The top contributors to tourism-related emissions in 2020 were:

- Household use of own vehicles for domestic tourism, 42% (1,124 kilotonnes (kt));
- Air and space transport, 35% (949 kt);
- Road, rail, and water transport, 8.0% (214 kt); and
- Manufacturing, 5.6 % (150 kt).

Comparing 2020 with 2019, tourism-related emissions decreased 3,030 kt (53%). The largest change in emissions was in air and space transport, down 2,645 kt (74%) due to decreases in international and domestic aviation related to COVID-19 border and domestic travel restrictions.

5 United Nations et. al (2014), *System of Environmental-Economic Accounting 2012 – Central Framework*, online available at: [https://seea.un.org/sites/seea.un.org/files/seea\\_cf\\_final\\_en.pdf](https://seea.un.org/sites/seea.un.org/files/seea_cf_final_en.pdf) [22-11-2022].

6 United Nations; Commission of the European Communities, Eurostat; World Tourism Organization; and Organisation for Economic Co-operation and Development (2010), *Tourism Satellite Account: Recommended Methodological Framework 2008*, online available at: <https://www.e-unwto.org/doi/epdf/10.18111/9789211615210> [22-11-2022].

The other large movements in tourism-related emissions for 2020 (compared with 2019) were:

- Households use of own vehicle for domestic tourism, down 148 kt (12%);
- Manufacturing, down 89 kt (37%); and
- Road, rail, and water transport, down 62 kt (22%).

During 2020, tourism was affected by national and regional lockdowns, but advertising campaigns encouraged New Zealanders to travel domestically as restrictions eased. Despite this, during 2020, there were 72,285 job losses in direct tourism employment and a NZD 7.7 billion drop in direct tourism value added.

In 2020, households engaging in domestic tourism accounted for 42% of tourism emissions due to the use of own vehicles for transportation. In 2019, prior to COVID-19 impacts, this accounted for 22% of its emissions. This shift reflects the dramatic drop in emissions from air transport while household's own vehicle use for domestic tourism emissions fell relatively less.

The consumption-based emissions estimates, which are only available until 2019, showed that tourism accounted for 12,005 kt in 2019. Of this, domestic tourists accounted for 59% and international tourists 41% of total tourism consumption-based emissions, and, across tourist types, direct emissions were 2,004 kt while indirect emissions (e.g., those occurring throughout the supply chain) amounted to 10,001 kt.

## POLICY ACTION

The results were presented and discussed with tourism industry representatives and used in [discussion papers](#)<sup>7</sup> by economic consultants on the role of tourism in the transition to the low emissions economy, as well as

reported in media. Tourism industry representatives discussed how Stats NZ estimates provided a starting baseline for understanding the carbon footprint of tourism.

Analytical work sought to understand the [carbon footprint of tourism for Auckland](#),<sup>8</sup> to which this work has contributed. The tourism emissions data are also reported on the Ministry of Business, Innovation and Employment's [Sustainable Tourism Explorer](#)<sup>9</sup>.

## ORGANIZATION

Year the pilot study was carried out in:  
2020

Lead institution:  
Stats NZ

Other institution(s) involved:  
n/a

Source of information:  
Stats NZ: <https://www.stats.govt.nz/>

## Links to more information

Stats NZ (2022), *Greenhouse gas emissions (industry and household): Year ended 2020*, online available at: <https://www.stats.govt.nz/information-releases/greenhouse-gas-emissions-industry-and-household-year-ended-2020/> [22-11-2022].

Stats NZ (2021), *Greenhouse gas emissions (consumption-based): Year ended 2019 (provisional)*, online available at: <https://www.stats.govt.nz/information-releases/greenhouse-gas-emissions-consumption-based-year-ended-2019-provisional/> [22-11-2022].

Stats NZ (2020), *Environmental-economic accounts: Sources and methods (third edition)*, online available at: <https://www.stats.govt.nz/methods/environmental-economic-accounts-sources-and-methods> [22-11-2022].

7 New Zealand Institute of Economic Research (2021), *Tourism recovery – without stepping on the gas – NZIER Insight 95*, online available at: <https://www.nzier.org.nz/publications/tourism-recovery-without-stepping-on-the-gas-nzier-insight-95> [22-11-2022].

8 Becken, S. and Higham, J. (2021), *The carbon footprint of Auckland tourism. Auckland Unlimited Report*, Auckland, online available at: <https://knowledgeauckland.org.nz/publications/the-carbon-footprint-of-auckland-tourism/> [22-11-2022].

9 Ministry of Business, Innovation and Employment (n.d.), 'Sustainable Tourism Explorer', online available at: <https://teic.mbie.govt.nz/ste/> [22-11-2022].

NEW MST PILOT

# SOUTH AFRICA AN EXPERIMENTAL METHOD TO VALUE NATURE-BASED TOURISM

https://www.e-unwto.org/doi/book/10.18111/9789284424061 - Wednesday, June 15, 2022 12:51 AM - IP Address: 62.97.100.84



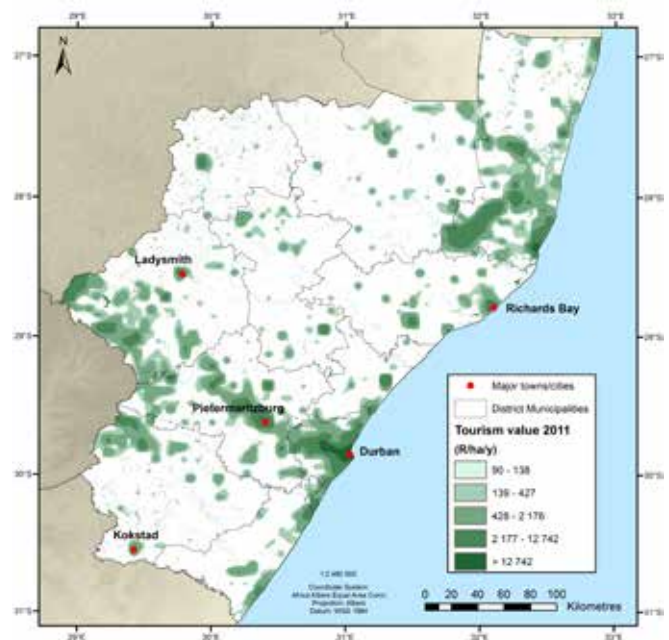
Nature-based tourism makes up a large proportion of the tourism economy in South Africa.

This MST pilot estimated the contribution of nature-based tourism to overall tourism in KwaZulu-Natal and highlighted the areas that contribute most to this value, as well as the change in value over time.

KwaZulu-Natal, a leading tourism destination both domestically and internationally, has a high diversity of ecosystem types and supports a wealth of biodiversity.

This study showed that tourism associated with natural ecosystems, especially savannas and grasslands, accounted for 64% (ZAR 1.3 billion) of the total inland attraction-based tourism value in 2005 and 57% (ZAR 1.8 billion) in 2011 (both expressed in 2010 rands).

Nature-based tourism value across KwaZulu-Natal, 2011



Note: Data spatially disaggregated, based on the distribution of geo-referenced photos uploaded to Flickr.

## POLICY AIMS/CONTEXT OF THE PILOT

Nature-based tourism was one of a suite of ecosystem services that were quantified, mapped and valued for the province of KwaZulu-Natal for the period 2005 to 2011. KwaZulu-Natal, a leading tourism destination, both domestically and internationally, has a high diversity of ecosystem types and supports a wealth of biodiversity. The province includes representation of freshwater ecosystems and estuaries, and four major terrestrial biomes, namely grassland, savanna, forest and the Indian Ocean coastal belt. The study estimated the contribution of nature-based tourism to overall tourism in KwaZulu-Natal and highlighted the areas that contribute most to this value, as well as the change in value over time.

The aim of the study is to better inform conservation and development policies.

### Pilot focused on:

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focused on this spatial level:

- National
- Subnational region
- Municipality or location

## KEY DATA GENERATED

### Distribution of nature-based tourism value across the biomes within KwaZulu-Natal for 2005 and 2011, annual flows

BIOME	Nature-based tourism value			
	(ZAR 2010 million)		(%)	
	2005	2011	2005	2011
Grassland	147.68	216.90	33	34
Indian Ocean coastal belt	84.84	99.88	19	16
Savanna	152.60	223.24	34	35
Forests	34.02	52.22	8	8
Freshwater ecosystems	9.04	14.10	2	2
Estuaries	19.87	30.59	4	5
<b>Total</b>	<b>448.04</b>	<b>636.92</b>		

### Ecosystem monetary asset account for nature-based tourism, 2005–2011 (ZAR 2010 million)

	Freshwater ecosystems	Grassland	Indian Ocean coastal belt	Savanna	Forests	Estuaries	Cultivated	Total
Opening stock (2005)	146.45	2,392.19	1,374.27	2,471.94	551.04	321.87	1,373.55	8,631.31
Additions	81.92	1,121.28	243.68	1,144.27	294.93	173.66	1,249.17	4,308.90
Reductions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net change	81.92	1,121.28	243.68	1,144.27	294.93	173.66	1,249.17	4,308.90
<b>Closing stock (2011)</b>	<b>228.37</b>	<b>3,513.48</b>	<b>1,617.95</b>	<b>3,616.21</b>	<b>845.97</b>	<b>495.53</b>	<b>2,622.72</b>	<b>12,940.22</b>
Net change 2011/2005 (%)	55.9%	46.9%	17.7%	46.3%	53.5%	54.0%	0.0%	49.9%

Note: Values are net present value in ZAR 2010 million.



## KEY FINDINGS

Nature-based tourism is an important component of the overall tourism sector in the KwaZulu-Natal province. It encompasses all tourist activities related to nature: on land, along the coast and on inland waters. Activities include visits to protected areas and game reserves, outdoor activities such as hiking, cycling or boating, and beach holidays. This study used a combination of tourism data (including from the Tourism Satellite Account), patterns of geotagged photographs uploaded to the Internet and spatial data on land cover and land ownership to estimate ecosystem contribution of different ecosystem types to nature-based tourism value in 2005 and 2011 in KwaZulu-Natal:

- Savanna and grassland biomes are the largest biomes in KwaZulu-Natal (and South Africa) and home to many protected areas and iconic species. This is reflected in the strong contribution of these biomes to nature-based tourism value.
- The asset value of natural ecosystems in KwaZulu-Natal in terms of nature-based tourism was estimated to be ZAR 8.6 billion in 2005 and ZAR 12.9 billion in 2011.
- Between 2005 and 2011 the numbers of inbound tourists decreased, resulting in the proportion of

domestic tourists increasing significantly from 12% to 36%. This was likely due to the global economic recession.

- The spread of nature-based tourism value was not evenly distributed across different municipalities. This could inform local economic development strategies and municipal spatial development frameworks.

The study recommends the production of nationally consistent, fine scale tourism statistics on visitor activities, as well as statistics for major paying natural attractions.

## POLICY ACTION

The results of this pilot study have been presented to policymakers in the national Department of Forestry, Fisheries and the Environment, and to the African community of practice on natural capital accounting as part of a course on monetary valuation of ecosystem services. South Africa is exploring a range of ways to quantify the contribution of biodiversity and ecosystems to tourism, including through a satellite accounting approach. The policy applications will be further explored as part of taking forward the National Natural Capital Accounting Strategy.





## ORGANIZATION

Years the pilot study was carried out in:

2019–2020, but the accounting period is 2005 to 2011

Lead institution:

Anchor Environmental Consultants (Anchor)

Other institutions involved:

This report was commissioned by the United Nations Environment Programme (UNEP) as part of the EU-funded *Natural Capital Accounting and Valuation of Ecosystem Services* (NCAVES) project (2017 to 2021), in which South Africa was one of five pilot countries. The NCAVES project was led globally by United Nations Statistics Division (UNSD) and UNEP, and in South Africa by the Statistics South Africa (Stats SA) and South African National Biodiversity Institute (SANBI).

UNEP commissioned Anchor Environmental Consultants (Anchor).

Focal point:

Anchor Environmental Consultants.

## Links to more information

Turpie, J.K.; Letley, G.; Schmidt, K.; Weiss, J.; O'Farrell and Jewitt, D. (2021), *Towards a method for accounting for ecosystem services and asset value: Pilot accounts for KwaZulu-Natal, South Africa, 2005–2011*, NCAVES project report, online available at:

<https://seea.un.org/content/knowledge-base> and <https://seea.un.org/content/towards-method-accounting-ecosystem-services-and-asset-value-pilot-accounts-kwazulu-natal> [22-11-2022].

NEW MST PILOT

# SPAIN

## CANARY ISLANDS: PUTTING THE FOCUS ON MICRO-DESTINATIONS

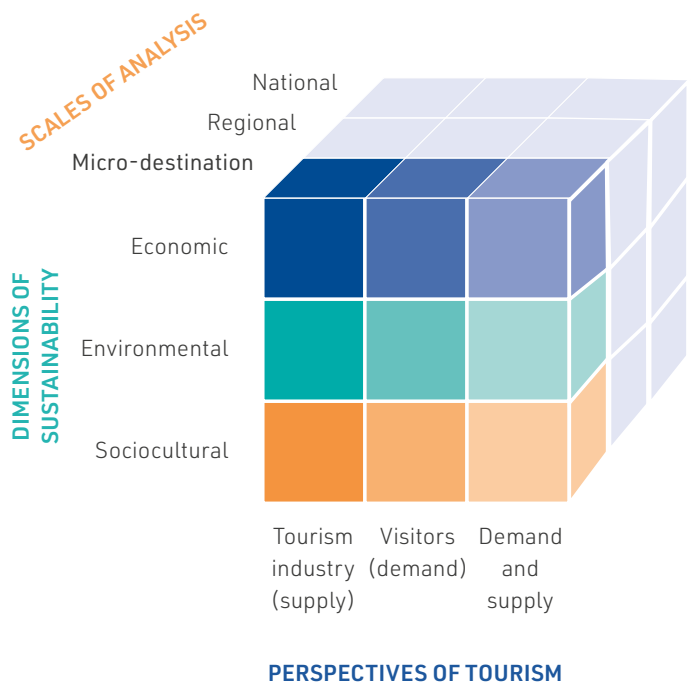


Most of the sustainability issues related to tourism development are located in certain small areas of a country. Therefore, data generated at a local level are required to manage destinations and to analyse local impacts and pressures on the environment and society, including on the resident population.

With the help of supply-side criteria, 47 micro-destinations were identified and geographically delimited in the Canary Islands, Spain. These micro-destinations consist of inframunicipal areas with a high concentration of tourism establishments. Micro-destinations cover around 90% of overnight stays in hotels and apartments in the region but only represent 1.6% of the territory.

Focussing on these areas can provide an enhanced perspective of sustainability challenges, given that tourism sustainability issues tend to be concentrated there.

Approaches to measuring the sustainability of tourism



## POLICY AIMS/CONTEXT OF THE PILOT

Large tourism regions are commonly the result of a territorial specialization, with areas showing different stages of the tourism life cycle, different tourism products, different prices and quality, different profiles of tourists, and specific sustainability issues. However, administrative boundaries of regions or municipalities are often not an appropriate starting point to analyse sustainability at the local scale. In high-density tourism destinations, several differentiated tourism areas occupy a single municipality; tourism areas may – and often do – extend beyond municipal boundaries, or tourism destinations may not occupy the whole of the municipal area. As such, a new level of analysis is often required: the micro-destination. To improve the quality of public and private data-driven decision-making, boundaries of inframunicipal tourism areas have been identified, and official statistical data are being provided.

### Pilot focused on:

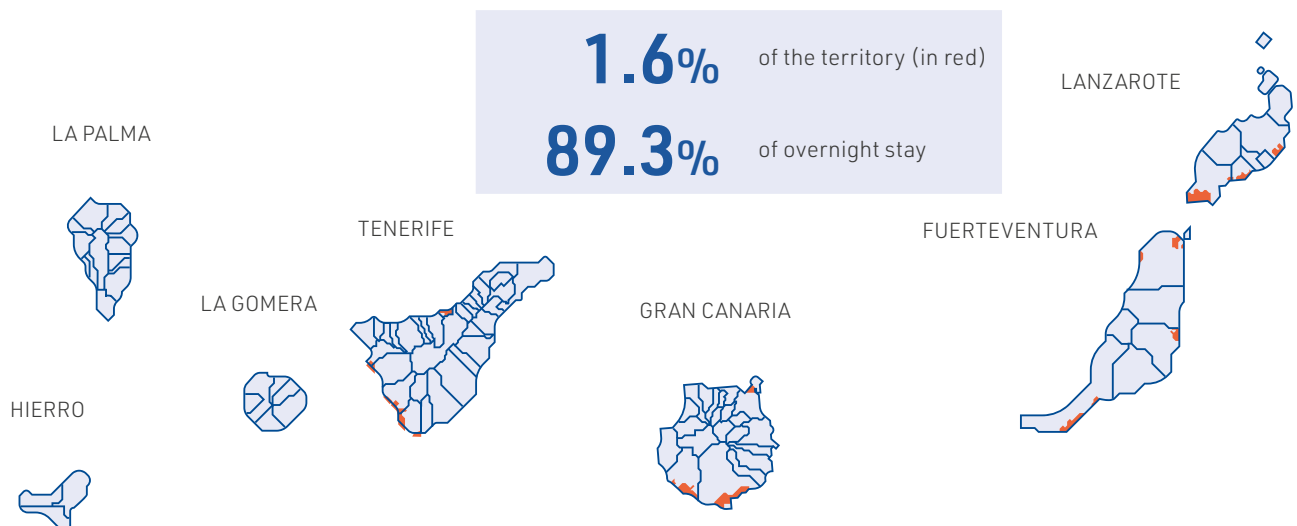
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focused on this spatial level:

- National
- Subnational region
- Municipality or location

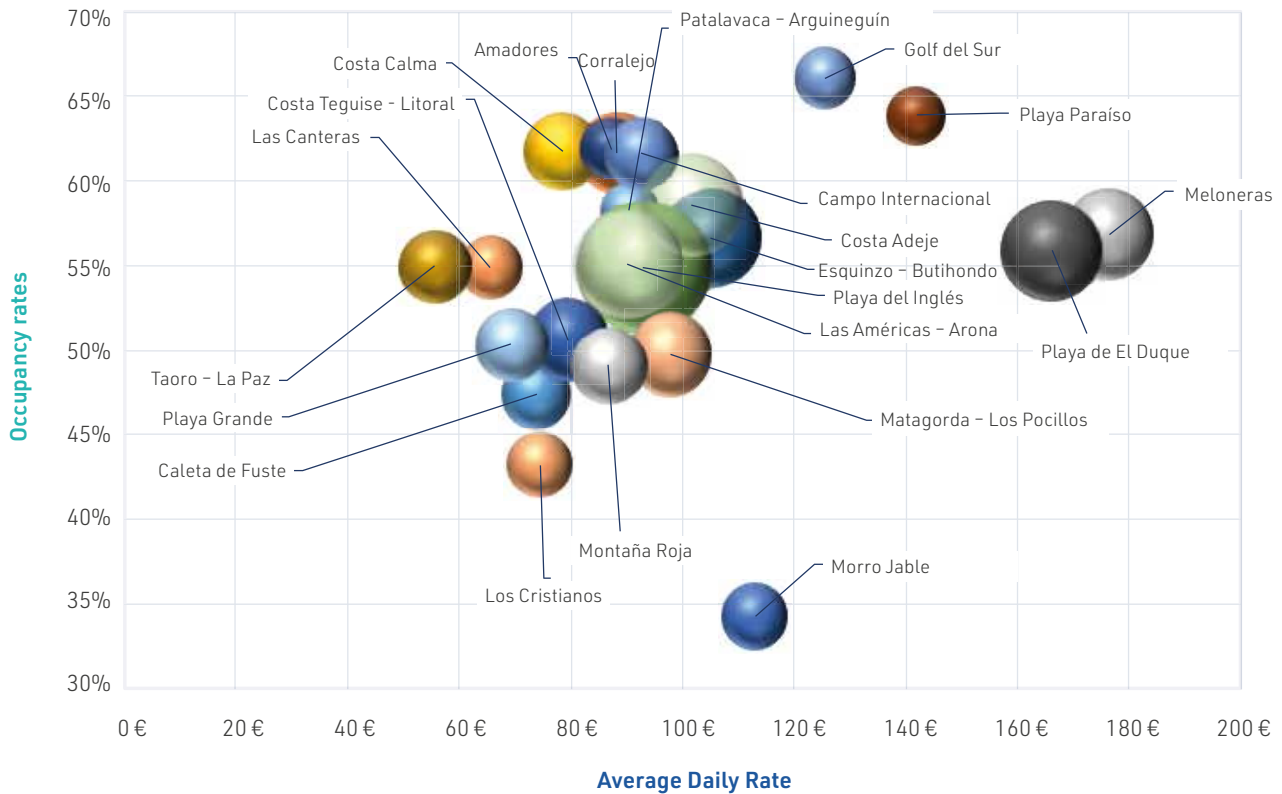
## KEY DATA GENERATED

### Map of tourism micro-destinations on the Canary Islands, Spain



Source: Institute of Statistics of the Canary Islands.

Average Daily Rates (ADR) vs. Occupancy rates for 25 main micro-destinations, 2021



Note: The area of the bubbles represents the number of stays in tourism accommodation.

Source: Institute of Statistics of the Canary Islands.

### KEY FINDINGS

The Institute of Statistics of the Canary Islands has published the annual *Survey of Tourism Data* at the micro-destination scale from 2009 to 2021 for 16 different indicators related to the tourism supply side (including accommodation of both hotels and apartments):

- Country of residence of guests;
- Region of residence (for Spanish guests);
- Employment;
- Total accommodation income;
- Occupancy rates (by room and by bed-places);
- Average daily rates (ADR); and
- Revenue per available room (RevPAR).
- Number of establishments open;
- Rooms;
- Bed-places;
- Guests;
- Overnight stays;
- Average length of stay;

In 2021, 47 micro-destinations with an aggregated extension of only 118 km<sup>2</sup> received 35.9 million visitors in hotels and apartments, which accounted for 89.3% of the Canary Islands total. These figures represent a drop of 58.3% compared to the previous year due to the COVID-19 pandemic. A closer look at the territory shows that this

decrease in nights spent in tourism accommodation ranged from -92.8% in “Costa Teguisse-interior” (Lanzarote) to -29.0% in “Golf del Sur” (Tenerife). Moreover, in 2021, average daily rates (ADR) of hotels and apartments ranged from around EUR 170 in the two most luxurious micro-destinations to less than EUR 50 in the most affordable ones.

In addition to the supply-side approach, the identification of micro-destinations provides a framework for the development of experimental data and/or research results from the demand-side and from an environmental point of view. Demand-side experimental data at this scale are being obtained from the extensive expenditure survey carried out at Canary Island airports, from which micro-destinations are now being identified. Data regarding perceptions on environmental issues at micro-destinations will be obtained by the end of 2022. Moreover, there are also research projects underway on other social and environmental data (e.g., water consumption or waste production) at the micro-destination scale of analysis using non-traditional statistical sources. The use of big data is expected to bring an augmented perspective on sustainability issues, particularly on profiles and behaviour of visitors and carrying capacity.

## POLICY ACTION

Data on profiles and tourist behaviour at the micro-destination scale are already being used for decision-making in several fields. In the case of urban planning, having an enhanced overview of tourist behaviour in the territory allows for more effective policies. Additionally, destination management organizations now have a powerful tool for action, particularly for marketing purposes. The private sector is also benefiting from the territorial segmentation to better understand the differences in tourist profiles in the territory and to develop better targeted commercial strategies. Private investment decisions can also benefit from the information on tourism expenditure by items and the characteristics of the demand in specific areas. Finally, public tourism infrastructures can be better distributed with the help of micro-destination data on the territorial distribution of tourism.

## ORGANIZATION

Years the pilot study was carried out in:  
2012–2022

Lead institutions:

Institute of Statistics of the Canary Islands – ISTAC);  
and  
Chair in Tourism of the University of La Laguna – ULL,  
Spain

Other institutions involved:

n.a.

Source of information:

Instituto Canario de Estadísticas:  
<http://www.gobiernodecanarias.org/istac/>

## Links to more information

### Cartography:

Instituto Canario de Estadística (2015), *Infraestructura Estadística, Entidades y núcleos turísticos, Cuaderno cartográfico*, online available at:  
[http://www.gobiernodecanarias.org/istac/descargas/C00065A/cuaderno\\_cartografico\\_A4\\_Web.pdf](http://www.gobiernodecanarias.org/istac/descargas/C00065A/cuaderno_cartografico_A4_Web.pdf) [21-11-2022].

### Data:

Instituto Canario de Estadística (n.d.), ‘Encuestas de Alojamiento Turístico’, online available at  
<http://www.gobiernodecanarias.org/istac/estadisticas/sectorservicios/hosteleriayturismo/oferta/C00065A.html> [21-11-2022].

### Methodology:

Hernández-Martín, R. et al. (2016), ‘Identifying micro-destinations and providing statistical information: A pilot study in the Canary Islands’, *Current Issues in Tourism*, volume 19(8), pp. 771–790, DOI:  
<https://doi.org/10.1080/13683500.2014.916657>.

NEW MST PILOT

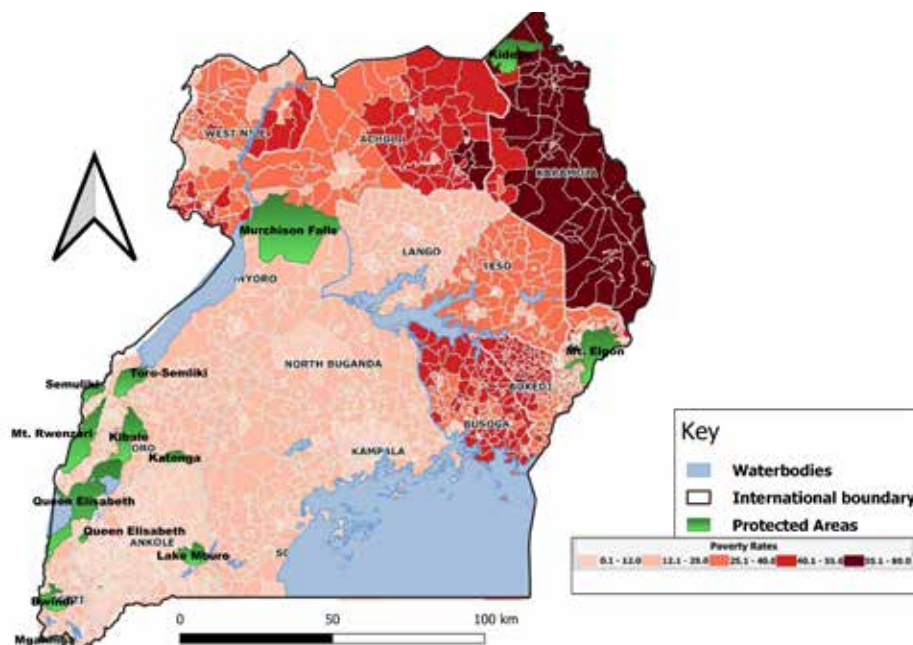
# UGANDA INTEGRATING BIODIVERSITY AND TOURISM ACCOUNTS



Integrated biodiversity and tourism accounts were compiled for 12 protected areas in Uganda. They reveal that overall trends in the ecosystems and species underpinning the wildlife-watching tourism sector are good. The number of visits to these areas and the

expenditure associated with them rose substantially between 2011 and 2019. This highlights the importance of investing in wildlife as a catalyst for local and national development and poverty alleviation. Particularly for Uganda’s recovery following the COVID-19 crisis.

Poverty incidence rates by district, 2016–2017



Source: Uganda Bureau of Statistics – UBOS.

## POLICY AIMS/CONTEXT OF THE PILOT

Uganda's Green Growth Development Strategy targets the tourism and wildlife sector for development, aiming to quadruple the value of inbound tourism by 2030. Wildlife-watching tourism also has the potential to deliver improved local livelihoods and incomes – key goals of the National Development Plan. The integrated set of biodiversity and tourism accounts compiled for 12 protected areas aims to support these key development instruments by answering the following policy questions:

- What are the trends in biodiversity that support tourism activities?
- What is the value of tourism expenditure?
- How can the case be made to increase investment in the wildlife-watching tourism industry?

- How can we make better use of wildlife resources to increase foreign exchange earnings?
- How can we better manage biodiversity to support job creation and poverty alleviation?

### Pilot focussed on:

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

## KEY DATA GENERATED

# TOURISM STATISTICS 2019

(associated with visits to 12 protected areas)

## 323,322

visits to national parks

## USD 10.4 million

total park entrance revenues

## USD 35.2 million

expenditure on gorilla tracking and other wildlife watching activities organised by the Uganda Wildlife Authority

## USD 29.6 million

expenditure by inbound tourists on hotels, meals, shopping, travel and other related services



## KEY FINDINGS

Uganda's protected areas are home to mountain gorillas, chimpanzees, lions, elephants, buffalos and other animal and plant species that are at the heart of wildlife-watching tourism. *Biodiversity and Tourism Accounts*<sup>10</sup> provide an integrated set of accounts on ecosystem extent, species, ecosystem services and economic activity for the wildlife-watching tourism sector. They reveal the magnitude and range of economic activity underpinned by Uganda's natural ecosystems and iconic species in 12 protected areas.

The accounts reveal that a vast majority of the protected areas remain natural ecosystems, typically at least 98% in 2017. They also show that there are growing numbers of elephants and buffalos in Murchison Falls and Queen Elizabeth National Parks, although the lion populations have declined. Kidepo Valley National Park contains a similar complement of species, but with the number of lions increasing in recent years. Increases in elephant and buffalo numbers are also observed in recent years in Kibale National Park, which also contains populations of chimpanzees and other primates of interest to wildlife watchers. The population of the mountain gorillas in Bwindi Impenetrable National Park shows steady increases in recent years, and an important population of mountain gorillas also exists in Mgahinga National Park.

Maintaining natural ecosystems in good condition and healthy populations of species for tourists to visit has the potential to attract more visitors and encourage them to stay longer in Uganda. Indeed, the accounts show a substantial increase in tourism visits from 209,806 in 2011 to 323,322 in 2019 across the 12 protected areas. Tourist

expenditure associated with these visits increased from USD 24.8 million in 2012 to USD 75.1 million in 2019.

In 2019, expenditure on recreational activities provided by Uganda Wildlife Authority (UWA) comprised USD 35.2 million (dominated by revenue associated with gorilla tracking), as well as park entrance fees amounting to USD 10.4 million. As an indicator of export revenues associated with visits to protected areas, total additional expenditure by inbound tourists (e.g., hotels, meals or souvenirs) comprised USD 29.6 million in 2019.

There is great potential to develop international wildlife-watching tourism in Uganda, through investment in marketing, access and infrastructure, with good returns for the government and local businesses. Alongside Queen Elizabeth and Murchison Falls National Parks, which have long been major tourist attractions, Kidepo Valley, the Rwenzori Mountains and Mount Elgon offer significant advantages due to their size and the natural ecosystems and species they host. Investments in these areas could help local people too. Data on poverty incidence and labour indicate that developing tourism activity around Kidepo Valley and Mount Elgon National Parks could deliver livelihood opportunities and poverty alleviation where it is most needed. Strategic investment in wildlife-watching tourism can be pivotal to growth in the sector overall. The accounts provide key information to best plan this.

10 National Environment Management Authority (2021), *Biodiversity and Tourism Accounts for Uganda*, NEMA, Kampala, ISBN: 978-9970-881-22-2.



## POLICY ACTION

Boosting tourism is a key national development and post-COVID-19 recovery goal for Uganda; at the heart of this will be investment in conserving and enhancing natural ecosystems and species in protected areas and reducing human-wildlife conflict. This investment could be combined with investments in innovative tourism packages and facilities, especially in less-visited destinations. Tourism growth has the potential to create more jobs and opportunities for local people and accelerate Uganda's sustainable socioeconomic transformation.

The findings from the accounts were presented to policymakers at a high-level stakeholder meeting on the use of natural capital accounts in Kampala, Uganda, in May 2021. This meeting convened representatives from across the government to discuss how best to use accounts to inform development planning. The information in the accounts has also been summarized in a policy brief and informed a green growth options paper. As part of the project, a series of workshops were also run; they led to a roadmap for institutionalizing the accounts in Uganda. The findings from the biodiversity and tourism accounts form part of the National Tourism Satellite Accounts.

## ORGANIZATION

Years the pilot study was carried out in:  
2018 to 2021

Lead institution:  
National Environmental Management Authority  
(NEMA), Uganda

Other institutions involved:

Uganda Bureau of Statistics – UBoS  
National Planning Authority – NPA  
Ministry of Tourism, Wildlife and Antiquities – MTWA  
Uganda Wildlife Authority – UWA  
United Nations Environment Programme – World  
Conservation Monitoring Centre – UNEP-WCMC  
Institute for Development of Environmental-  
Economic Accounting – IDEEA Group  
International Institute for Environment and  
Development – IIED  
UK Government Darwin Initiative

Source of information:

National Environment Management Authority:  
<https://www.nema.go.ug/>

### Links to more information

#### Project news story:

UN Environment Programme (2022), *Helping Uganda account for nature*, online available at: <https://www.unep-wcmc.org/en/news/helping-uganda-account-for-nature> [22-11-2022].

#### Access to the accounts:

United Nations Environment Programme (2021), *Reports on Uganda's Natural Capital Accounts*, online available at: [https://resources.unep-wcmc.org/products/WCMC\\_RT159](https://resources.unep-wcmc.org/products/WCMC_RT159) [22-11-2022].

#### Other project outputs:

United Nations Environment Programme (2021), *Integrating Natural Capital Into Sustainable Development Decision-Making In Uganda*, online available at: [https://resources.unep-wcmc.org/products/WCMC\\_PR004](https://resources.unep-wcmc.org/products/WCMC_PR004) [22-11-2022].

NEW MST PILOT

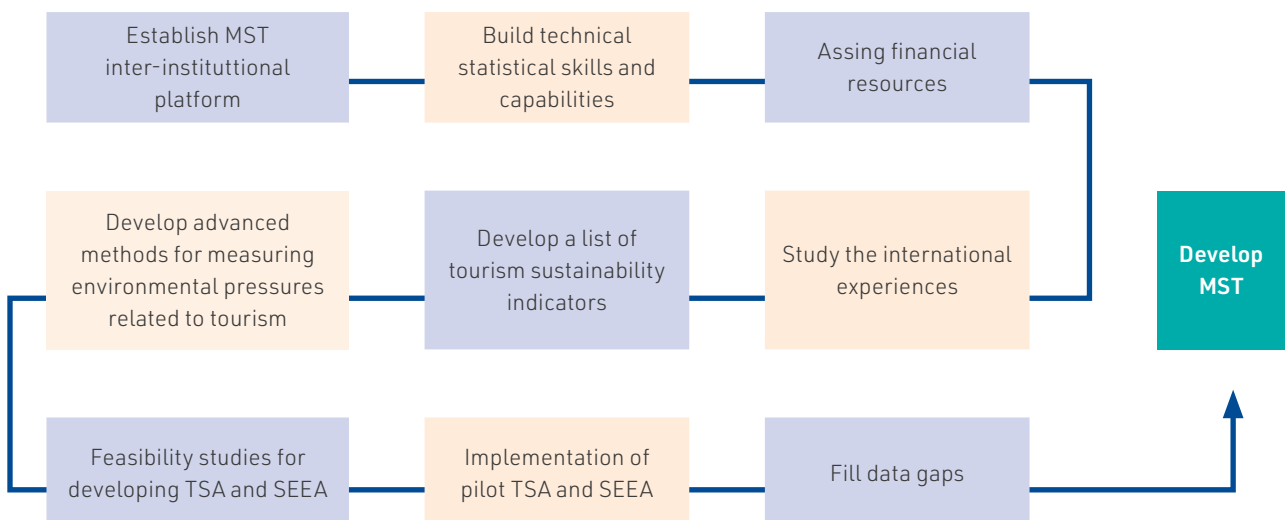
# ARAB COUNTRIES A PROPOSED ROADMAP FOR MST

Tourism is one of the main drivers of economic development in the Arab region. Arab countries have remarkable prospects for further growth in international tourism markets interested in their unique natural, cultural and heritage attractions.

Desirable tourism development and growth can only be achieved when sustainability takes precedence. One of the most significant challenges to achieving the sustainability

of tourism in Arab countries is the complexity of measuring the level of sustainability and its progress in their tourism destinations. Findings from an assessment on the readiness to implement the Statistical Framework for MST conclude that Arab countries should follow a gradual approach; and – for this – a roadmap for implementing the Statistical Framework for MST is proposed.

**Proposed roadmap for developing MST in Arab countries**





## POLICY AIMS/CONTEXT OF THE PILOT

In recent years, the need for managing tourism development in a sustainable and responsible manner has become more critical, and the need for statistical data to track the long-term sustainability of tourism is an even more pressing issue. Tourism leaders should look for statistical answers to issues like:

- Is tourism putting a strain on the destination's natural resources?
- How much does tourism add to greenhouse gas emissions compared to other sectors?
- Is tourism respectful of the host communities' sociocultural authenticity?
- And is it genuinely providing stakeholders with feasible and long-term socioeconomic benefits?

This MST pilot aims to understand the current situation of measuring the sustainability of tourism among Arab countries by assessing their readiness to implement the under-development Statistical Framework for MST. More specifically, the work presented here is designed to find answers to five major questions:

1. What is the awareness level of the importance of sustainable tourism development among tourism stakeholders?
2. What is the knowledge level of Tourism Satellite Accounts (TSA) and the System of Environmental-Economic Accounting (SEEA) as a basis for measuring tourism sustainability in Arab countries?

3. What is the current implementation state of these standard accounting tools to monitor tourism sustainability's economic and environmental aspects?

4. What is the current situation of actions taken by Arab countries for achieving tourism sustainability?

5. What are the available datasets in Arab countries with reference to the development of the MST?

### Pilot focussed on:

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

## KEY DATA GENERATED

A structured questionnaire was used to collect the below data from 12 Arab countries (Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Mauritania, Morocco, Oman, Kingdom of Saudi Arabia, Tunisia and the United Arab Emirates). Government officials, national tourism administrations and national statistical offices in the Arab countries were invited to participate in the survey with the assistance of the Department of Transport and Tourism of the League of Arab States and Arab Tourism Organizations.

The availability of datasets relevant for MST in Arab countries

	ALG	BH	EG	IQ	JO	KW	MR	MA	OM	SA	TN	UAE
<b>Dataset 1: Tourism Demand Indicators</b>												
Number of international visitors	A	A	A	NA	A	A	A	A	A	A	A	A
Number of domestic visitors	A	A	NA	NA	A	NA	NA	A	NA	A	A	NA
Demographic characteristics of visitors	A	A	A	NA	A	A	A	A	A	A	A	A
Average length of stay	A	A	A	NA	A	A	A	A	A	A	A	A
Average expenditure per visitor	NA	A	A	NA	A	NA	A	A	A	A	A	A
Tourism expenditure by products	A	A	A	NA	NA	NA	NA	NA	A	A	A	NA
Visitors to archaeological sites and nature reserves	A	NA	A	NA	A	NA	A	A	A	NA	A	NA
Tourism flows seasonality	A	A	A	NA	A	A	A	A	A	A	A	A
Spatial distribution of tourism demand indicators	A	A	NA	NA	A	NA	A	A	NA	A	A	A
<b>Dataset 2: Tourism Industries and Employment Indicators</b>												
Number of Tourism establishments by industries	A	A	A	NA	A	NA	A	A	A	A	A	NA
Tourism establishments by size (small - medium - large)	A	A	A	NA	A	NA	A	A	A	A	A	NA
Tourism establishments by ownership (local - foreign - joint)	A	NA	A	NA	A	NA	A	A	A	A	A	NA
Tourism employment by gender	A	A	A	NA	A	NA	NA	NA	NA	A	A	NA
Tourism employment by age groups	A	NA	A	NA	A	NA	NA	NA	NA	A	NA	NA
Tourism employment by type of work (full-time, part-time)	NA	NA	NA	NA	A	NA	NA	NA	NA	NA	NA	NA
Decent Work Indicators in Tourism	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spatial distribution of tourism industries and employment indicators	NA	A	NA	NA	NA	NA	A	NA	NA	A	NA	NA
<b>Dataset 3: Social Indicators</b>												
Visitor satisfaction	A	NA	A	NA	NA	NA	A	A	NA	A	A	A
Perception and attitude of communities towards tourism	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Dataset 4: Environmental Indicators</b>												
Water use in tourism industries	NA	NA	NA	NA	NA	NA	A	NA	NA	NA	NA	NA
Energy use in tourism industries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Energy use from renewable resources	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GHG emissions from tourism industries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wastewater from tourism industries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Solid waste from tourism industries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monetary indicators for environmental impacts	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: A: Available | NA: Not available

Algeria (ALG), Bahrain (BH), Egypt (EG), Iraq (IQ), Jordan (JO), Kuwait (KW), Mauritania (MR), Morocco (MA), Oman (OM), Saudi Arabia (SA), Tunisia (TN), and United Arab Emirates (UAE).

## KEY FINDINGS

Formulating a tourism sustainability policy is relatively simple but putting it into practice in a meaningful way is far more complex, especially when dealing with monitoring its progress through the measurement of tourism sustainability. As reported by the surveyed countries, the findings empirically revealed that there is a high level of awareness about the importance of sustainable tourism among tourism stakeholders as a tool for development in Arab countries. However, only a few countries have developed TSA for measuring the economic impacts of tourism, and no country reported having compiled SEEA tables so far. The assessment of datasets required for developing MST indicated a considerable gap in data availability, especially for social and environmental measures related to tourism.

## POLICY ACTION

Considering the current situation of the statistical measurement of tourism sustainability in Arab countries, it is suggested that Arab countries should follow a modular approach to develop MST. In this regard, a roadmap for implementing the MST in Arab countries is proposed, including ten phases:

1. Establish an MST interinstitutional platform;
2. Build technical statistical skills and capacities;
3. Assign financial resources;
4. Study the MST international experiences;
5. Develop a list of tourism sustainability indicators in line with circumstances and policy priorities;
6. Apply MST guidance for measuring environmental pressures related to tourism;
7. Feasibility studies for developing TSA and SEEA;
8. Implementation of TSA and SEEA;
9. Fill basic data gaps; and
10. Implement the Statistical Framework for MST through a modular approach in line with circumstances and policy priorities.

Moreover, Arab countries need to take immediate actions focussing on specific areas related to measuring and monitoring tourism impacts such as: climate change actions, strengthening pro-poor tourism initiatives, prevention of negative social impacts, inclusion of disadvantaged groups in the tourism sector, human resources planning and working conditions, and resilience, security and risk management.

## ORGANIZATION

Year the pilot study was carried out in:  
2022

Lead institution:  
Ahmad Muhammad Ragab – Faculty of Tourism and Hotels, Minia University, Egypt

Other institution(s) involved:  
n.a.

Source of information:  
Faculty of Tourism and Hotels, Minia University, Egypt:  
<https://www.minia.edu.eg/Tourism/EHome.aspx>

## Links to more information

Ragab, A. (2022), 'Measuring the Sustainability of Tourism (MST) in Arab Countries: Readiness Assessment', *Minia Journal of Tourism and Hospitality Research MJTHR*, volumen 13(1), pp. 46–76, DOI: 10.21608/mjthr.2022.121429.1028.

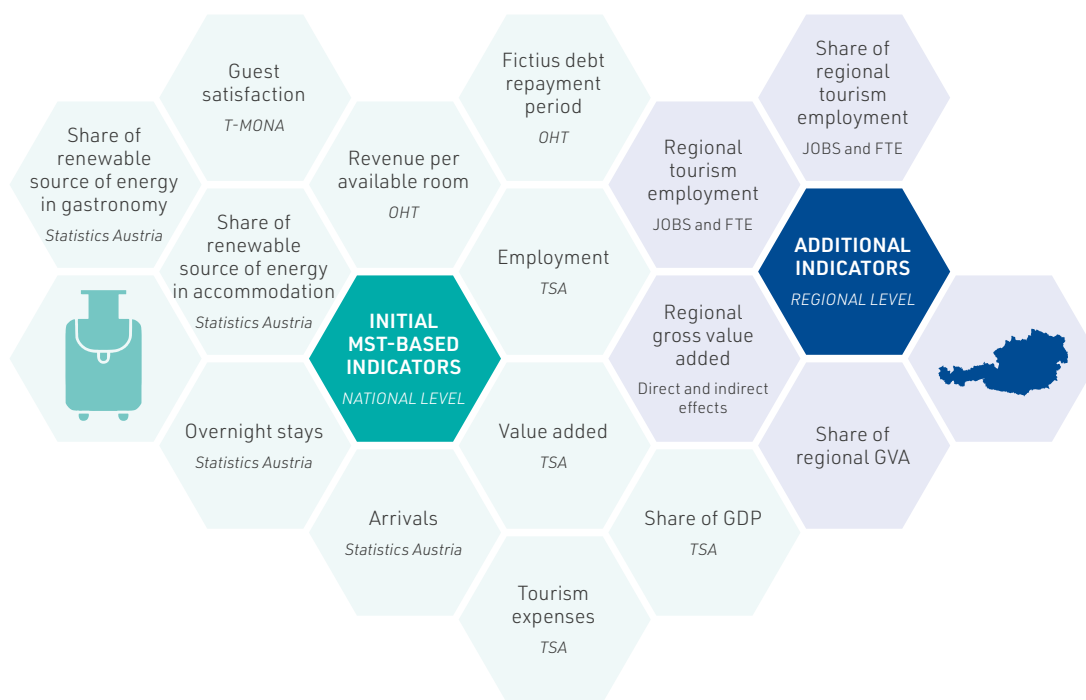
EXISTING MST PILOT WITH FURTHER DEVELOPMENTS

# AUSTRIA MONITORS ITS TOURISM MASTER PLAN WITH MST-BASED INDICATORS

The development of Austrian tourism is examined holistically and regularly through the MST-based indicators identified to monitor the implementation of the *Master Plan for Tourism*. This Master Plan, developed in 2018/2019, focusses on the economic, socio-cultural and ecological dimensions of tourism, according to the definition of sustainable tourism<sup>11</sup>.

Considering the importance of the subnational perspective for the sustainability of tourism, Austria has expanded its MST pilot study through the development of regional Tourism Satellite Accounts for eight provinces. The results are used by the Austrian Parliament to develop concrete policy actions in tourism.

MST-based indicators to monitor the Master Plan for Tourism



11 Definition of *sustainable tourism* can be found in: World Tourism Organization and United Nations Environment Programme (2005), *Making Tourism more Sustainable – A Guide for Policy Makers*, UNWTO, Madrid, online available at: <https://www.e-unwto.org/doi/book/10.18111/9789284408214> [23-11-2022].

## POLICY AIMS/CONTEXT OF THE PILOT

Initially developed to monitor the implementation of the Tourism Master Plan in Austria, the yearly release of MST-based indicators has proven to be even more relevant for developing smart tourism policies to inform and tackle the repercussions of COVID-19 in the tourism sector.

Furthermore, against the background of the war in Ukraine, the use of energy in general and the share of renewable energy in particular has become more relevant and certainly more relevant for the hotel, restaurant and transport industries of the tourism sector. For monitoring the developments in this respect, the MST-based indicators have become increasingly important.

### Pilot focused on:

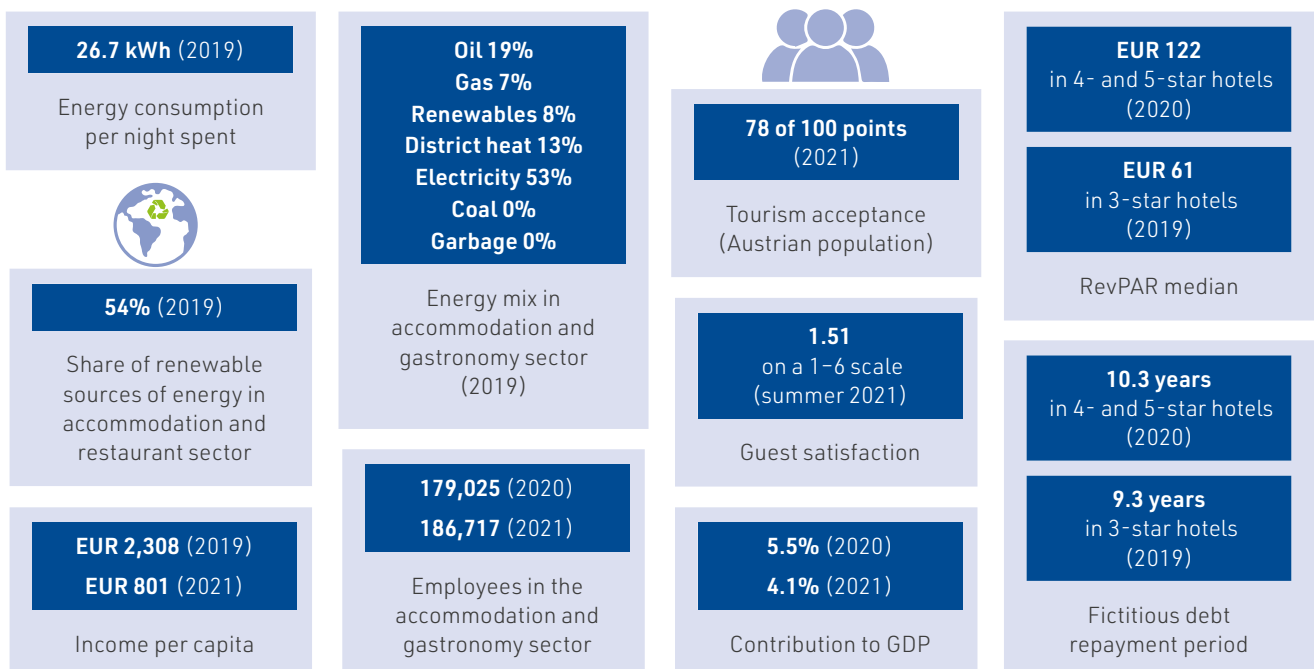
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focused on this spatial level:

- National
- Subnational region
- Municipality or location

## KEY DATA GENERATED

### Key performance indicators in the tourism industry in Austria





## KEY FINDINGS

The **economic contribution** (direct and indirect) of tourism in Austria accounted for EUR 17 billion in 2020 (down 43.7% compared to 2019), generating 4.3% of GDP (compared to 7.6% in 2019). Meanwhile, in 2021 the volume of the sector was estimated to decrease by a further 2.5% to around EUR 16.6 billion and contributing 4.1% to the overall economy.

According to the regional Tourism Satellite Accounts developed in eight Austrian federal provinces, subnational direct and indirect gross value added of tourism (including business trips) ranged between EUR 0.61 billion in Burgenland and EUR 5.91 billion in Tyrol in 2018. The direct and indirect contributions to the respective gross regional product (GRP) were, thus, between 2.6% in Upper Austria and 16.9% in Tyrol. Accordingly, the share of total regional employment attributable to tourism varies between 3.2% (Upper Austria) and 16.3% (Tyrol). Data show that more was spent by non-resident than by resident guests in Tyrol, Salzburg and Vienna. In Burgenland, Styria, Lower and Upper Austria, the spending of resident guests exceeded that of non-resident guests; in Carinthia the ratio was rather balanced.

Considering the **environmental aspect**, in 2019 the tourism industry had a share of 1.3% related to the total Austrian final energy consumption. In the accommodation and restaurant industries, electricity continued to account

for more than half of the energy consumption in the accommodation and restaurant industries (53%) while oil products and natural gas covered a quarter of the energy demand (26%). The share of renewable energy sources in accommodation and restaurant amounted to 54%, five percentage points more than two years before (2017).

To assess the **social impact** of tourism in Austria, in 2021 the tourism perception of the resident population was surveyed for the second time (the first survey took place in January 2020, before the outbreak of COVID-19). The calculation of the tourism perception index is based on the personal opinion about tourism in Austria, and the effects of tourism mainly on economy, labour force market, agriculture and environment. The tourism perception index positively amounted to 78 points on a scale from 0 to 100, the same result as before the COVID-19 crisis.

## POLICY ACTION

The MST-based indicators related to the measurement of the economic, social and ecological dimensions of tourism that serve to monitor the implementation of Austria's Master Plan for Tourism are being published in the annually updated *Tourism Report*<sup>12</sup> commissioned by the Federal Ministry of Labour and Economy (Bundesministerium für Arbeit und Wirtschaft – BMAW) and are elaborated mainly by Statistics Austria and the Austrian Institute for Economic Research.

12 Bundesministerium für Arbeit und Wirtschaft (2022), *Tourismusbericht 2021, in German, BMAW, Vienna*, online available at: [https://info.bml.gv.at/dam/jcr:4f2a9070-b90e-4320-aafb-fc35a043736a/Tourismusbericht\\_2021\\_barrierefrei.pdf](https://info.bml.gv.at/dam/jcr:4f2a9070-b90e-4320-aafb-fc35a043736a/Tourismusbericht_2021_barrierefrei.pdf) [23-11-2022].





The *Tourism Report* is discussed in the Tourism Committee of the Austrian Parliament which consists of all political parties represented in the parliament and other key tourism policy stakeholders. The *Tourism Report* serves as an important basis for policy actions related to tourism, e.g., for granting subsidies or adjusting measures in order to reach the envisaged goals related to the sustainability of tourism. Furthermore, tourism professionals and all those interested in tourism will find in the report an overview of the past years' developments, as well as an outlook on the potentials of the near future.

## ORGANIZATION

Years the pilot study was carried out in:

- 2016 (pilot study);
- 2018/19 (Masterplan for Tourism); and
- *Tourism Reports* 2019, 2020 and 2021.

Lead institutions:

Statistics Austria (<https://www.statistik.at/en/>)

Other institutions involved:

Bundesministerium für Arbeit und Wirtschaft – BMAW (Federal Ministry for Labour and Economy) Austrian Institute of Economic Research (Wifo); and Main stakeholders of the Austrian tourism industry.

Source of information:

Statistics Austria: <https://www.statistik.at/en>

## Links to more information:

Federal Ministry for Sustainability and Tourism (2019), *Masterplan for Tourism*, Vienna, online available at:

<https://info.bml.gv.at/en> and [https://info.bml.gv.at/dam/jcr:885af4cc-c3bf-4960-9ee8-be930e6010f5/PLAN%20T%20-%20MASTER%20PLAN%20FOR%20TOURISM\\_Print\\_barrierefrei.pdf](https://info.bml.gv.at/dam/jcr:885af4cc-c3bf-4960-9ee8-be930e6010f5/PLAN%20T%20-%20MASTER%20PLAN%20FOR%20TOURISM_Print_barrierefrei.pdf) [21-11-2022].

Bundesministerium für Landwirtschaft, Regionen und Tourismus (2021), *Tourismus Österreich 2020*, online available at:

<https://www.bml.gv.at> [21-11-2022].

Bundesministerium für Arbeit und Wirtschaft (2021),

*Tourismusbericht 2020*, in German, BMAW, Vienna, online available at: [https://info.bml.gv.at/dam/jcr:14cd00a1-2ae0-41ef-ba13-cb171710357b/Tourismusbericht%202020\\_bf.pdf](https://info.bml.gv.at/dam/jcr:14cd00a1-2ae0-41ef-ba13-cb171710357b/Tourismusbericht%202020_bf.pdf) [23-11-2022].

Bundesministerium für Arbeit und Wirtschaft (2022),

*Tourismusbericht 2021*, in German, BMAW, Vienna, online available at: [https://info.bml.gv.at/dam/jcr:4f2a9070-b90e-4320-aafb-fc35a043736a/Tourismusbericht\\_2021\\_barrierefrei.pdf](https://info.bml.gv.at/dam/jcr:4f2a9070-b90e-4320-aafb-fc35a043736a/Tourismusbericht_2021_barrierefrei.pdf) [23-11-2022].

Österreichisches Institut für Wirtschaftsforschung – Statistik Austria

(2022), *Auswirkungen von COVID-19 auf die österreichische Tourismus- und Freizeitwirtschaft im Jahr 2021 (Impact of COVID-19 on the Austrian Tourism and Leisure Industry in 2021)*, Vienna, online available at: [https://www.wifo.ac.at/jart/prj3/wifo/resources/person\\_dokument/person\\_dokument.jart?publikationsid=69629&mime\\_type=application/pdf](https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=69629&mime_type=application/pdf) [21-11-2022].

Statistics Austria (n.d.), 'Tourism', online available at:

<https://www.statistik.at/en/statistics/tourism-and-transport/tourism> [21-11-2022].

EXISTING MST PILOT WITH FURTHER DEVELOPMENTS

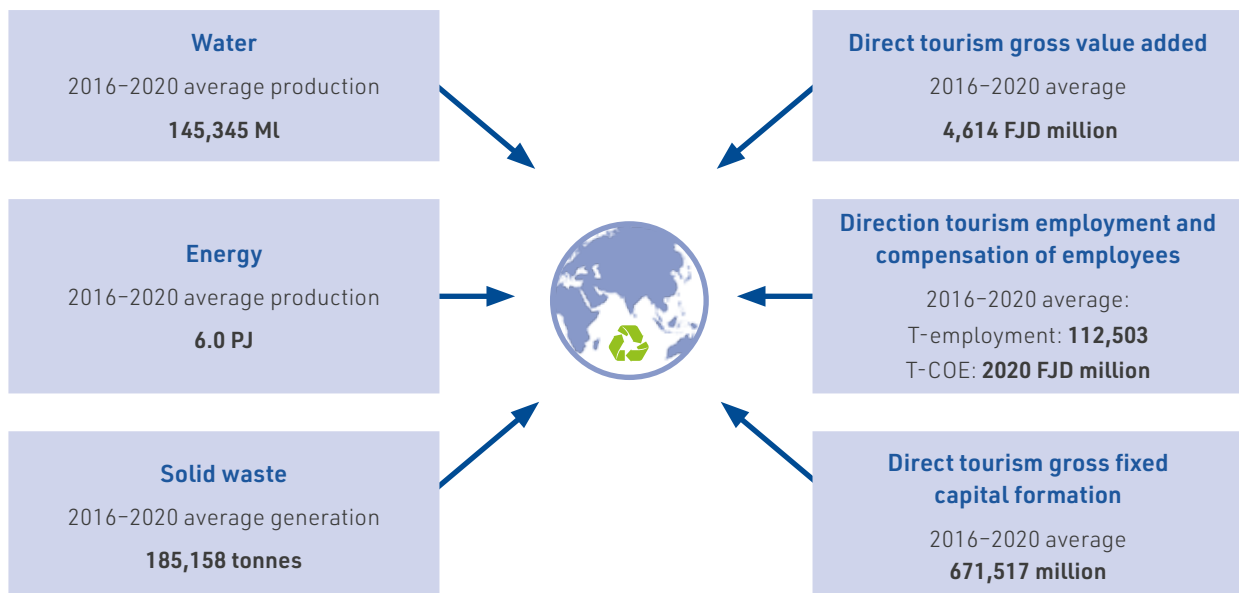
# FIJI ADVANCING THE IMPLEMENTATION OF THE ROADMAP ON MST



Fiji is a significant tourism destination and, in turn, tourism contributes much to Fiji’s economic structure and growth. At the same time, Fiji also recognizes that continued growth in this sector must be balanced with the broader social and environmental context within which tourism activity takes place.

The roadmap for Measuring the Sustainability of Tourism developed in 2016 is being gradually implemented. New developments refer to the compilation of key economic indicators to help inform on the sustainability of tourism in Fiji.

Key environmental and economic indicators, 2016–2020 (averages)



## POLICY AIMS/CONTEXT OF THE PILOT

The pilot, undertaken in conjunction with the *Pacific Sustainable Tourism Policy Framework*, is designed to measure the impact of tourism on the environment and on the economy. It also seeks to develop the statistical infrastructure that addresses the measurement of sustainable tourism as part of the Green Growth Framework of Fiji, the *Pacific Sustainable Tourism Policy Framework* and its tourism statistics strategy. Furthermore, specific policy questions such as the impact of tourism on the environment in terms of greenhouse gas emissions can be answered by this pilot.

### Pilot focussed on:

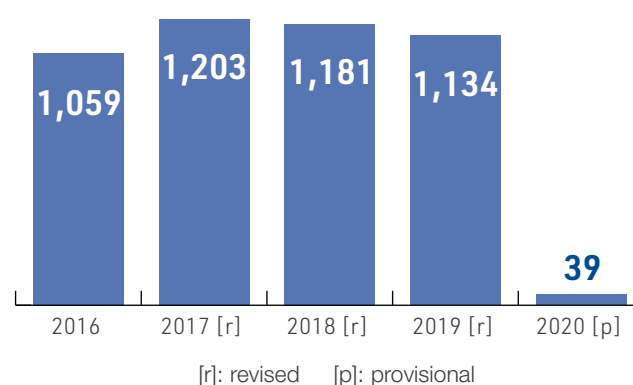
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

### Pilot focussed on this spatial level:

- National
- Subnational region
- Municipality or location

## KEY DATA GENERATED

### Direct tourism gross value added (FJD million)



### Key environmental and economic indicators, yearly data, 2016–2020

	Years				
	2016	2017	2018	2019	2020
<b>Tourism macro economic aggregates</b>					
TGVA (FJD × 1000)	1,059	1,203	1,181	1,134	39
Direct tourism employment	27,387	27,913	28,365	28,839	n.a.
TCOE (FJD × 1000)	460,291	495,869	517,857	546,348	n.a.
TGFCF (FJD × 1000)	177	125	182	187	n.a.
<b>SEEA Environmental Accounts</b>					
Water generated (mega litres)	142,006	145,910	144,410	156,788	161,775
Waste generated (tonnes)	172,241	178,904	186,614	191,811	183,304
Energy production (petajoules)	5.9	6.5	6.2	6.1	5.3

TGVA: tourism gross value added.

TCOE: tourism compensation of employees.

TGFCF: tourism gross fixed capital formation.



## KEY FINDINGS

From an economic sustainability perspective, the pilot generated the following macro-economic aggregates on tourism:

- Average tourism contribution to GDP for the period 2016–2020 stood at 10.2% which equates to FJD 4,614 million. 2020 showed a drastic decline as a result of impacts of COVID-19.
- Total tourism gross value added (TGVA) was at its highest in the year 2017 at FJD 1,203 million. A decline in TGVA was apparent in years 2018–2020 as a result of lower value-added generation from passenger air transport.
- Total tourism employment showed an increasing trend in the years 2016 to 2019. An average 112,503 staff were directly employed by the tourism industries of the economy. Employment numbers on average increased by 1.7% for the period. As a result, tourism compensation of employees (TCOE) also recorded an average growth of 5.9% which equates to FJD 2,020 million.
- Investment in terms of tourism gross fixed capital formation (TGFCF) for period 2016–2019 stood at an

annual average of FJD 167 million which is equal to an average growth of 6.4% for the same period.

From an environmental sustainability perspective, the pilot has identified key indicators from the Fiji Environmental Economic Accounts that are relevant for tourism and will serve as a basis for disaggregating to identify the tourism industries:

- The total water available for distribution in Fiji in years 2016–2020 was 145,345 million litres. There was an increase of 2.8% on average each year. An average of 6.0 petajoules of energy was generated by Energy Fiji Limited and the households for the period 2016–2022, on average, there was a decline of 2.2% for the same period.
- Total waste generated in Fiji for years 2016–2020 on average was 185,158 tonnes. On average there was an increase of 1.6% for the same period.

A next step of the pilot will be to link these findings to the specific tourism industries which will be useful for analysing the supply side environmental effects of tourism.



## POLICY ACTION

The above-mentioned data compiled on tourism activity, as well as SEEA Environmental Accounts for Water, Energy and Solid Waste were presented in a form of statistical releases to the stakeholders (development partners, academia and research organisations and the private sector) via email and the Fiji Bureau of Statistics website update. Data was also submitted upon request from data users in the form of templates, questionnaires, emails and discussions. The stakeholders then updated their data bases and any further queries were attended in a timely manner.

The pilot also serves as an input for the future set of sustainable tourism indicators that will be established by the Pacific Tourism Organization (SPTO) for reporting and monitoring purposes.

## ORGANIZATION

Years the pilot study was carried out in:

The pilot started in 2016 and reports data to 2020.

Lead institution:

Fiji Bureau of Statistics

Other institutions involved:

United Nations Economic and Social Commission for Asia and the Pacific – UNESCAP

World Tourism Organization – UNWTO

Source of information:

Fiji Bureau of Statistics: <https://www.statsfiji.gov.fj/>

## Links to more information

Fiji Bureau of Statistics (n.d.), 'Satellite Accounts', online available at: <https://www.statsfiji.gov.fj/statistics/economic-statistics/national-accounts-gdp-2.html> [21-11-2022].

## EXISTING MST PILOT WITH FURTHER DEVELOPMENTS

# ITALY

## DOMESTIC TOURISM AND ROAD TRANSPORT EMISSIONS

https://www.e-univto.org/doi/book/10.18111/9789284424061 - Wednesday, June 21, 2023 12:21:51 AM - IP Address: 62.97.100.84



Tourism is of great importance for European economies, and environmental protection is a key factor for its future. Indeed, the environment is one of the main attractions of tourism.

The objective of this MST pilot study is to estimate the level of emissions (in terms of the primary air pollutants) produced by residents travelling by road transport for tourism purposes in Italy in the period 2015–2019 at both national and subnational levels.

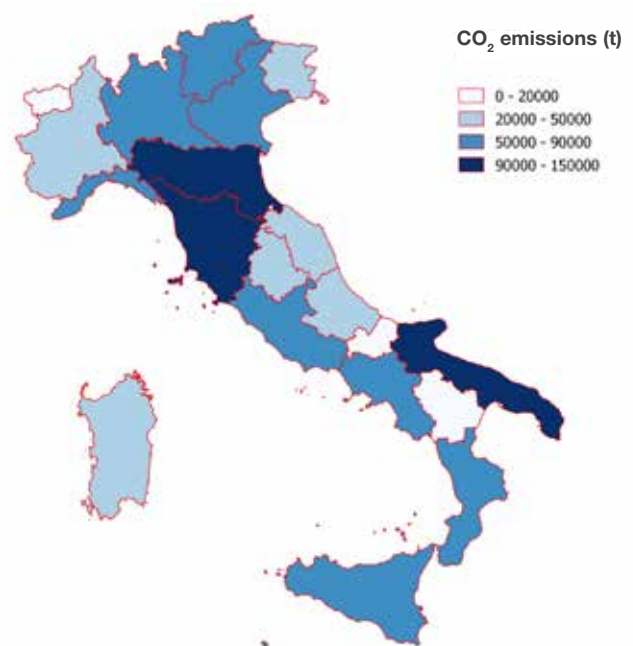
The air pollutants analysed are:

- carbon-monoxide (CO);
- volatile organic compounds (VOCs);
- nitrogen-oxides (NOX);
- fine particulate matter (PM2.5); and
- carbon-dioxide (CO<sub>2</sub>).

The study found that, among the various means of private road transport used to make tourist trips in Italy, cars

contribute predominantly to all emissions of pollutants, with values ranging from 70% of PM2.5 to 95% of VOC in 2019.

**CO<sub>2</sub> emissions from domestic tourism trips distributed by destination region, 2019 (tonnes)**



Source: Istituto Superiore per la Protezione e la Ricerca Ambientale – ISPRA (Italian Institute for Environmental Protection and Research)

### POLICY AIMS/CONTEXT OF THE PILOT

1. How to increase the statistical information on tourism and the environment through the integration of official statistics with environmental monitoring data?
2. How many emissions (tonnes) were produced by domestic tourism trips in Italy, carried out by road transport, in terms of the main air pollutants?
3. Which and how many (tonnes) are the main emissions of air pollutants by type of road transport?

**Pilot focussed on:**

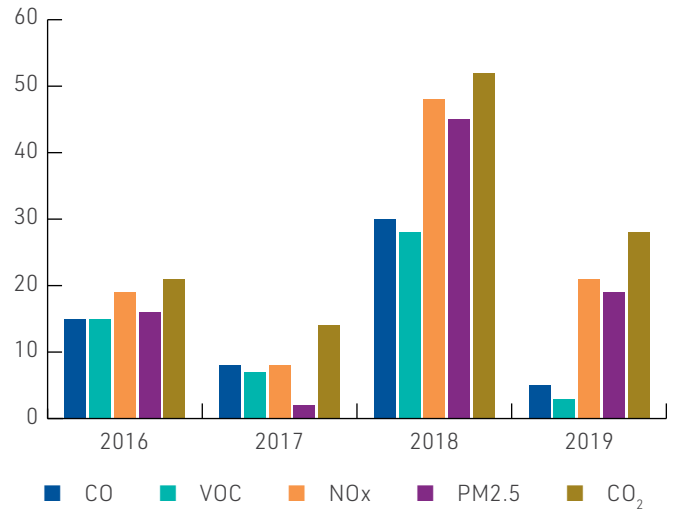
- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

**Pilot focussed on this spatial level:**

- National
- Subnational region
- Municipality or location

### KEY DATA GENERATED

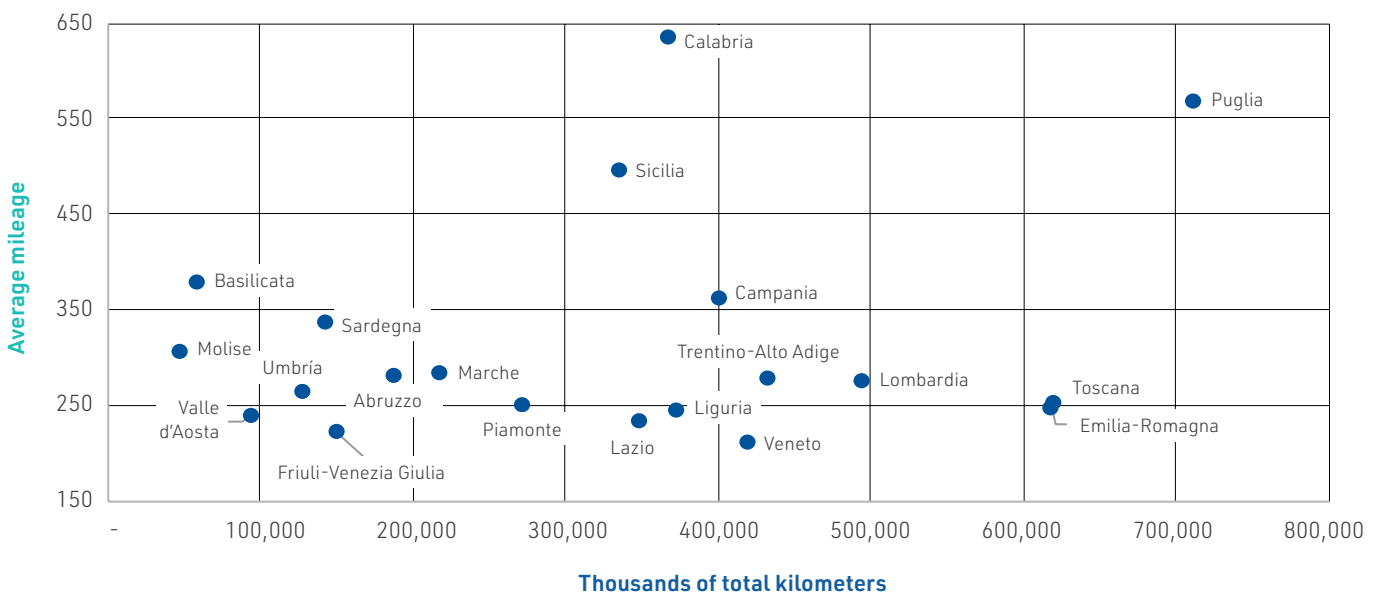
**Growth of each air pollutant from domestic trips by road transport, 2016–2019 (%)**



Note: 2015 is considered as base year.

Source: Italian Institute for Environmental Protection and Research – Istituto Superiore per la Protezione e la Ricerca Ambientale ISPRA.

### Kilometers travelled and average mileage to travel to the region of destination, 2019



Source: Istituto Superiore per la Protezione e la Ricerca Ambientale – ISPRA (Italian Institute for Environmental Protection and Research) elaboration on data from Istituto Nazionale di Statistica – Istat (Italian National Institute of Statistics).



## KEY FINDINGS

When travelling for tourism, several factors determine the choice of the main means of transport to reach the destination:

- Distance from the region of origin;
- Presence of airport or railway infrastructures,
- Price of the means of transport;
- Number and composition of the travel group (group of people leaving together); and, last but not least,
- Versatility that the means of transport offers, allowing different degrees of flexibility in travelling to the destination.

Based on these considerations, among the different means of transport (air, train, waterway, private vehicles motorized, coach/bus), most residents prefer the car as their main means of transport, chosen for more than seven out of ten personal trips made in Italy and, among all private road means of transport (rental cars, private cars, motorhomes/caravans, motorbikes/scooters and others), the private car is used for nine out of ten trips.

The car is the vehicle that contributes predominantly to all emissions of pollutants, with values that vary in 2019,

between 70.8% of PM2.5 and 94.9% of VOCs. Compared to other means of transport, the greatest contribution to atmospheric pollutants is from campers, caravans and vans which mainly affect PM2.5 (26.2%) and NOx (18.6%) emissions.

Emissions vary constantly from year to year. However in fact, the starting year (2015) records the minimum value for all pollutants. In 2016 there is a general growth followed by a reduction in the following year; and 2018 recorded the maximum levels for all emissions by far. This also corresponds to the year with the highest number of domestic trips by road transport. CO<sub>2</sub> is the emission with the greatest growth in all the years considered, increasing by 51.6% in 2018 compared to 2015, and closing the period with a growth of 27.5%. The pollutants with the most modest increase, on the other hand, are CO and VOC (with exception of 2017), which show increases of 29.5% and 27.8% respectively in 2018, with a further increase in 2019 of the 5% for CO and 2.6% for VOC.





## POLICY ACTION

These indicators have no direct regulatory references but do fill an evident information gap in terms of the environmental effects of tourism and they are fully in line with the policy ambition of the Glasgow Declaration on Climate Action in Tourism presented at COP26 in November 2021.

While there was no specific report addressed to policymakers, all the indicators related to tourism and environment are included in the *ISPRA Environmental Data Yearbook*<sup>13</sup> and in its related reports presented to policymakers.

## ORGANIZATION

Year the pilot study was carried out in:  
2021

Lead institution(s):

Istituto Superiore per la Protezione e la Ricerca Ambientale – ISPRA (Italian Institute for Environmental Protection and Research)  
Istituto Nazionale di Statistica – Istat (Italian National Institute of Statistics)

Focal point:

ISPRA (Italian Institute for Environmental Protection and Research):

<https://www.isprambiente.gov.it/en/istitute>

## Links to more information

Fact sheet indicator “Road Transport Emissions for Tourist Purposes”:

Italian Institute for Environmental Protection and Research (n.d.)

“Emissioni del trasporto stradale per finalita' turistiche” online available at: [https://annuario.isprambiente.it/sys\\_ind/995](https://annuario.isprambiente.it/sys_ind/995) [21-11-2022].

The methodological process preparatory to the population of the indicator is available at the following publication:

Betta, L.; Dattilo, B.; di Bella, E.; Finocchiaro, G. and Iaccarino, S. (2021), ‘Tourism and Road Transport Emissions in Italy’, *Sustainability*, volume 13 (22), 12712, DOI: <https://doi.org/10.3390/su132212712>.

<sup>13</sup> Istituto Superiore per la Protezione e la Ricerca Ambientale – ISPRA (n.d.), ‘Annuario dei dati ambientali’, online available at: [https://annuario.isprambiente.it/sys\\_ind/macro/28](https://annuario.isprambiente.it/sys_ind/macro/28) (Italian version only) [21-11-2022].

EXISTING MST PILOT WITH FURTHER DEVELOPMENTS

# MEXICO SCALING UP THE STATUS OF THE MST PILOT TO A NATIONAL PROJECT

To ensure the continuity of the MST pilot in Mexico, a process of institutionalization of the project is underway, with the aim of achieving continuity, consistency, timeliness and – above all – usefulness of the results. Under the leadership of the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía – INEGI) and the national tourism administration, a wide range of institutions have been engaged, such as the National Environmental Administration, the Specialized Commission for Biodiversity, the Specialized Commission for Forests, the Specialized Commission for Protected Natural Areas, the National Finance Administration, and the Central Bank.

Main institutions engaged:



https://www.e-unwto.org/doi/book/10.18111/9789284424061 - Wednesday, June 21, 2023 12:21:51 AM - IP Address: 62.97.100.84



**POLICY OBJECTIVE/PILOT CONTEXT**

**How to scale up the sustainable tourism measurement beyond a pilot project?**

The aim of the pilot is to respond to the information needs of national and international institutions drawing on intelligence from interinstitutional and interdisciplinary research such as MST in natural protected areas, which can be incorporated into projects or statistical programmes with greater demand and integration of recurrent information – in this case Ecosystem Accounting. In the case of Mexico, the existence of the National System of Statistical and Geographic Information provides the infrastructure for the development of the project.

**Pilot focussed on:**

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

**Pilot focussed on this spatial level:**

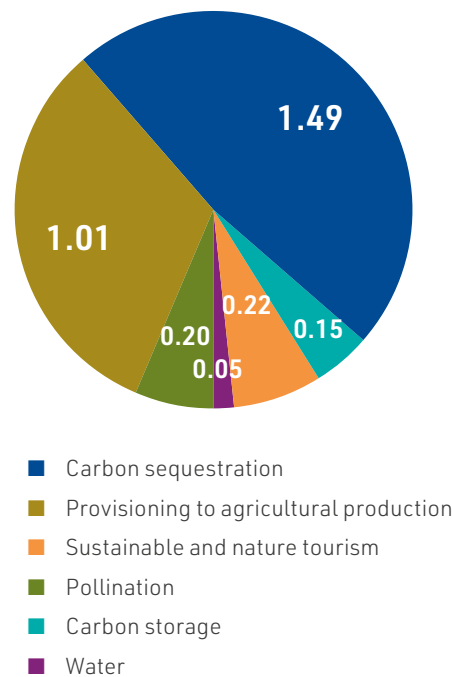
- National
- Subnational region
- Municipality or location

The nature tourism economy refers to the wealth generated in sites with a tourism orientation, where the protection of the environmental border is regulated, so that the environmental impact is null or minimal and tourism economic activity can take place. An example is the visits to protected natural areas.

**Comparing the economic value tourism to other ecosystem services**

An approximation to the economic value of ecosystem services (ES), 2013 (%)

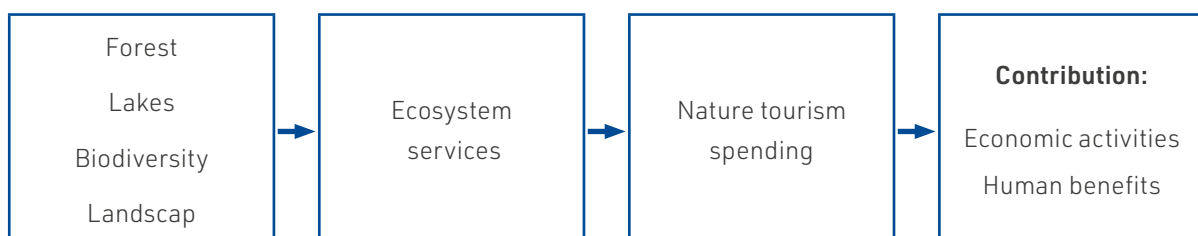
The value of ES in 2013 amounted 506.6 billion of pesos, which is equivalent to **3.11% of GDP**.



Note: The value of ES in 2013 amounted MXN 506.6 billion, which is equivalent to 3.11% of GDP.

Source: INEGI (n.d.), 'Cuentas de los ecosistemas de México', online available at: [https://www.inegi.org.mx/investigacion/cem/\[22-11-2022\]](https://www.inegi.org.mx/investigacion/cem/[22-11-2022]).

**Ecosystem services to nature tourism**



## KEY FINDINGS

The Mexico MST pilot seeks to review the feasibility of measuring tourism under a scheme of regulation of economic activity that generates low environmental impact, such as tourism in natural protected areas. In order to give continuity to the MST pilot and ensure that its results are used as input for public policy and decision-making, the promotion of sustainable tourism should be highlighted while continuing to promote the protection of natural areas and archaeological sites among other sites of interest through public policies based on high quality, relevant, accurate and timely information.

To institutionalize MST, INEGI takes advantage of the existence of interinstitutional groups in charge of addressing the development of methodologies, technical standards and guidelines, and where other institutions of the environmental and economic sector participate, such as the Interagency Group on Ecosystem Accounting. The Ecosystem Accounting project was carried out in Mexico within the framework of the Natural Capital Accounting and Valuation of Ecosystem Services Project (NCAVES), together with the United Nations, the European Union and other institutions, making use of available information and technical capacities, and – above all – of institutional agreements. As a result, the first sequence of ecosystem accounts was generated, including provisioning services (e.g., wood, water, food, etc.), regulating services (e.g., ambient air and climate and filtration, among others), and also – as a very important and fundamental part – the measurement of nature tourism. Findings confirm that it is possible to link the work of MST with the Ecosystem Accounting and that the work of the Ecosystem Accounting can feed the MST project.

In this sense, INEGI is making efforts to ensure that this linkage takes place within the framework of the National System of Statistical and Geographic Information,

designed exclusively to coordinate all the information generated in the country's institutions, with the intention of guaranteeing the recurrence, relevance and timeliness required. This not only provides the possibility of discussing cross-cutting issues, but also (i) to work in a coordinated manner and (ii) to make agreements, so that this project, within the framework of the Ecosystem Accounting, can endure beyond the change in the administrations.

Finally, INEGI is putting at the center of the discussion the issue of linking one project to another in the measurement of nature tourism in the framework of MST and Ecosystem Accounting, which becomes a competitive advantage for data producers. This has been made possible by leveraging statistical and geographic expertise within INEGI, which allows detailed data to be displayed at a spatial level, in addition to generating new statistics.

## POLICY ACTION

The results of the Mexican Ecosystem Accounting (Cuentas de los ecosistemas de México CEM) were published in October 2021 on INEGI's research site, including a report of results and a press release, as well as Excel tables with the complete results, which include the value of the cultural service of nature tourism. In December 2021, a High-Level National Forum was held with various representatives of the economic, social and environmental sectors with the intention of presenting the main findings and results of the project, as a starting point for the institutionalization and development of the CEM – and consequently of MST as well.

It should be noted that this work contributes to monitoring the priority to “Promote sustainable tourism in the national territory” included in the *Tourism Sector Program 2020–2024*.<sup>14</sup> It also contributes to indicators A.1.1 and

14 Gobierno de México (2020), *Programa sectorial de turismo 2020–2024*, online available at: <https://www.gob.mx/sectur> [22-11-2022].

A.2.1 of the post-2020 Global Biodiversity Framework monitoring,<sup>15</sup> and eight other potential indicators therein.

In the case of the SDGs, it follows up on target 8.9 and indicators 6.6.1 and 15.1.1, with the potential to contribute at least another five indicators.

Potential uses of the information in public policies include:

- The Mexico Reborn Sustainable Strategy of the national tourism administration;
- Payment for environmental services;
- Implementation of the National Strategy for the Conservation and Sustainable Use of Pollinators;
- The National Soil Strategy for Sustainable Agriculture; and
- The National Biodiversity Strategy.

## ORGANIZATION

Years the pilot study was carried out in:  
2017–2021

Lead institution:

National Institute of Statistics and Geography  
(Instituto Nacional de Estadística y Geografía – INEGI)

Other institution(s) involved:

Cuentas de los ecosistemas de México – CEM  
(Mexican Ecosystem Accounting Interagency Group)  
Secretaría de Turismo – SECTUR (Ministry of Tourism)

Comisión Nacional de Áreas Naturales Protegidas – CONANP (National Commission on Natural Protected Areas)

Secretaría de Medio Ambiente y Recursos Naturales – SEMARNAT (Ministry of Environment)

United Nations Development Programme – UNDP  
Convention on Biological Diversity – CBD

Source of information:

Instituto Nacional de Estadística y Geografía – INEGI (National Institute of Statistics and Geography):  
<https://www.inegi.org.mx/>

### Links to more information

Instituto Nacional de Estadística y Geografía (n.d.), 'Cuentas de los ecosistemas de México', INEGI, online available at:  
<https://www.inegi.org.mx/investigacion/cem/> [22-11-2022].

Instituto Nacional de Estadística y Geografía (n.d.), *Sistema de Cuentas Nacionales de México. Cuentas de los ecosistemas de México, Años 2002 a 2018*, INEGI, online available at:  
[https://www.inegi.org.mx/contenidos/temas/economia/investigacion/cem/tabulados//CEM\\_33.xlsx](https://www.inegi.org.mx/contenidos/temas/economia/investigacion/cem/tabulados//CEM_33.xlsx) [22-11-2022].



<sup>15</sup> Convention of biological biodiversity (n.d.), 'Development of a monitoring framework for the post-2020 global biodiversity framework', online available at:  
<https://www.cbd.int/nbsap/monitoring.shtml> [22-11-2022].

## EXISTING MST PILOT WITH FURTHER DEVELOPMENTS

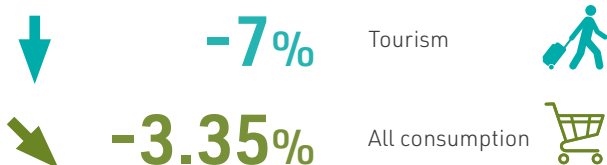
# SWEDEN

## AN EXPERIMENTAL METHOD TO MEASURE ENVIRONMENTAL PRESSURES FROM TOURISM CONSUMPTION

Building upon the Sweden MST pilot initiated in 2018, this MST pilot aims to further develop the method tested to increase the knowledge of the environmental impact of the tourism sector. Undertaken in 2022, it is still based on linking TSA-SEEA combined with an input-output analysis, but also incorporates innovative developments by using the PRINCE (Policy Relevant Indicators for Consumption and Environment) model for better estimates of greenhouse gas emissions from global production chains.



### Change in CO<sub>2</sub> emissions 2015–2019



### POLICY AIMS/CONTEXT OF THE PILOT

Sweden has set itself the ambitious goal of handing over to the next generation “a society in which the major environmental problems in Sweden have been solved”. Significantly, this is to be achieved “without increasing environmental and health problems outside Sweden’s borders”.<sup>16</sup> This so-called *Generational Goal* constitutes the overarching goal of current Swedish environmental policy. Yet, measuring the diverse environmental impacts of a country’s consumption, particularly beyond its borders, is extremely challenging. These impacts may be spread along a myriad of long, complex and very fluid global supply chains.

This study further develops the method tested in a pilot study carried out in Sweden in 2018 and is aimed at increasing knowledge of the environmental impact of tourism industries in terms of measuring their release of greenhouse gas emissions.

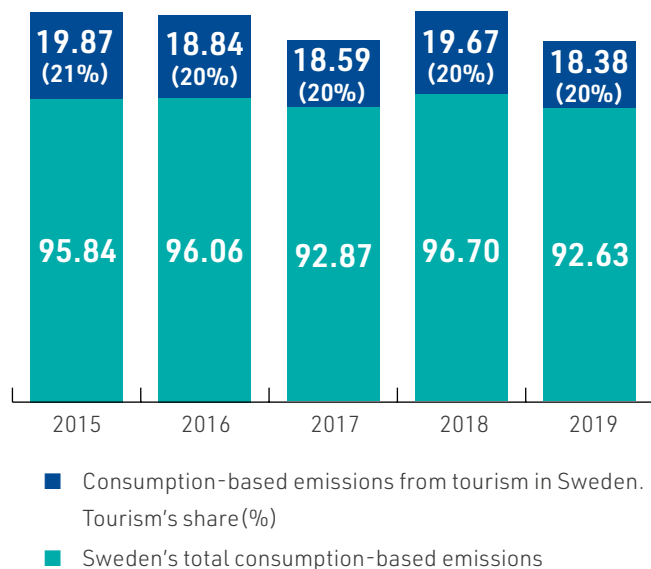
<sup>16</sup> Swedish Environmental Protection Agency (n.d.), ‘The generational goal’, online available at: <https://www.naturvardsverket.se/en/environmental-work/environmental-objectives/the-generational-goal/> [22-11-2022].

**Pilot focussed on:**

- Economic dimension
- Social dimension, including culture and institutions
- Environmental dimension

**Pilot focussed on this spatial level:**

- National
- Subnational region
- Municipality or location

**KEY DATA GENERATED****Greenhouse gas (CO<sub>2</sub>-e) emissions from tourism consumption in Sweden (million tonnes)**

Notes: The indirect emissions occur in the production phase of the consumed products, while the direct emissions occur during the use of the consumed products. In this study, the direct emissions refer to household car driving.

Further, the study concerns tourism within Sweden (internal tourism), including both domestic and inbound tourism. However, Swedes who are tourists abroad are not included.

Emissions abroad refer to emissions that occur outside Sweden's borders as a result of tourism consumption in Sweden.

**KEY FINDINGS**

This study builds on the linking possibilities of the TSA and SEEA combined with an input-output analysis. It has then been further elaborated by using the PRINCE-model, developed within a research project led by Statistics Sweden, which allows for more detailed and accurate data on the input needed throughout the whole value chain of imported goods consumed by visitors in Sweden. The results are not directly comparable to the ones in the study carried out in 2018. This is due to method changes in both the TSA and SEEA and to the fact that the scope of the model calculations has been refined and expanded. It is still a method development project, and thus the results should be interpreted carefully.

The results show that in 2019 greenhouse gas emissions from tourism amounted to 18 million tonnes of carbon-dioxide equivalents, of which roughly over half of the emissions (55%) were generated outside Swedish borders. This is a lower proportion compared to the Swedish economy as a whole, where 63% of the consumption-based emissions were generated from production abroad. During the period 2015–2019, total consumption-based emissions from tourism decreased by 7%. The reduction was mainly due to a decrease in emissions within Swedish production. The indirect emissions (production phase) and direct emissions (use-phase) within Sweden, both showed a falling trend and had an overall decline by 12%. Emissions that were generated abroad because of tourism in Sweden had a more fluctuating development, but, however, showed an overall decline of 3% over the time period examined.

There are still shortcomings in the model in terms of measuring emissions from international aviation which have an effect on the estimated levels of total greenhouse gas emissions in this study. Further research is required to generate more robust data on how the emissions from international tourism transportation can be allocated on/ to a national level.



## POLICY ACTION

The data in this study is the result of a method development project, with exploratory data output, therefore, it should be considered only as an example of data that is possible to generate. No policy measures have been taken to date based on the results.

## ORGANIZATION

Years the pilot study was carried out in:  
2021/2022

Lead institutions:  
Swedish Agency for Economic and Regional Growth;  
and  
Statistics Sweden

Other institutions involved:  
n.a.

Source of information:  
The Swedish Agency for Economic and Regional Growth: [tillvaxtverket.se/english](https://tillvaxtverket.se/english)

## Links to more information

Statistics Sweden (2019), *Environmental pressure from consumption – new official statistics*, online available at: <https://www.scb.se/en/> [22-11-2022].

Statistikmyndigheten – SCB (2018), *The Tourism Satellite Account and the environment – Method development*, Miljöräkenskaper MIR 2018:1, online available at: [https://www.scb.se/contentassets/e5cd0bc363124d99a2c1b3cda18a8117/mi1301\\_2016a01\\_br\\_mi71br1802.pdf](https://www.scb.se/contentassets/e5cd0bc363124d99a2c1b3cda18a8117/mi1301_2016a01_br_mi71br1802.pdf) [22-11-2022].





https://www.e-unwto.org/doi/book/10.18111/9789284424061 - Wednesday, June 21, 2023 12:21:51 AM - IP: Address: 62.97.100.84

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