

CONFERENCE

“Measuring Sustainability in Tourism - Opportunities and Limitations.”



R & D project on behalf of the German Environment Agency (UBA) with financial support from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

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Executive Summary

The central issue of the international conference “Measuring Sustainability in Tourism – Opportunities and Limitations” was the availability of data and the identification of key indicators that monitor development towards more sustainable tourism according to SDG 12 (Develop and implement tools to promote sustainable tourism which creates jobs, promotes local culture and products).

On the first day of the conference, the international context was presented of which the pilot project is a part which examines this issue in relation to Germany, and which provided the background to the conference. Speakers from the UNWTO, the UNEP and the EEA presented the approaches being taken by international and European specialist institutions in order to be able to measure sustainable development in tourism. International examples of the collection and use of the relevant data from Germany, South Tirol, Slovenia, Austria and the European project network NECSTouR showed practical efforts to implement the approach in the different countries. The first day ended with a sustainable evening network event. In five workshops on the second day of the conference, conference participants had the opportunity to discuss with each other and with the workshop moderators their recommendations, ideas and questions regarding the use of the data available at different levels, the use of data for destination management and certification processes, the measurement of social aspects of sustainability in tourism, solution strategies for cross-border emission measurements, and the inclusion of demand-side indicators from market research.

The conference and the workshops showed that so far, it is an ongoing challenge to provide an adequate answer to the following questions raised by the conference:

- What is the status quo of measuring sustainability in German tourism in comparison to other sectors?
- How can empirical data collection be improved, also considering the SDGs?
- How do data collection needs and data usage fit together? How can data be prepared for use in practice and in politics?
- What are the key future drivers for sustainable or non-sustainable tourism development and how can they be reflected by the data?

Nevertheless, there are a variety of approaches, from the international level to many national efforts to make sustainability measurable in tourism.

It became clear that in addition to the use of traditionally collected data by state institutions, it will be necessary to examine and investigate to what extent private data ("big data") will be available, usable and meaningful for monitoring. These questions need to be clarified through further research.

In summary, it can be stated that individual countries have established approaches that make it possible - at least in the future - to make statements about the sustainability of tourism development at the national, destination or regional level, even if this is not yet sufficient for an international comparison. More research and data collection has to be carried out.

1 Background

In recent years, the German and international tourism industries have shown an increased commitment to implementing sustainability concepts and measures. Nevertheless, there is no holistic and empirical overview of sustainability in tourism in proportion to the whole tourism sector, either in Germany or in other countries. Due to a lack of criteria, data and methodical approaches for data collection, a quantitative assessment of sustainable tourism development is not possible. Yet this information is relevant on a political level, as it would demonstrate the sector's progress toward sustainability and the potential need for political intervention in order to promote sustainable tourism.

In addition, a quantitative assessment is relevant for the implementation of the Sustainable Development Goals (SDGs) of the United Nations in tourism in general and objective 12b in particular.

Hence, the German research project *"Enhancement of sustainable tourism: determining the share of sustainable tourism in value generation in Germany and strengthening cooperation with and between important stakeholders"* focuses on developing a concept and a method for collecting empirical information about sustainability in tourism in the form of an extended Tourism Satellite Account. On this basis, comprehensive nationwide data will be collected in order to evaluate the sustainability of German tourism.

As a recognized pilot study of the UN World Tourism Organization within the framework of its global initiative "Measuring the Sustainability of Tourism (MST)", international best practice examples for the data-based assessment of the sustainability of tourism were identified and conclusions were reached regarding fields of action.

The conference programme presented current efforts to quantify sustainability in tourism. The following key questions were discussed:

- In comparison with other countries, what is the status quo of measuring sustainability in German tourism?
- How can empirical data collection be improved, also taking into account the SDGs?
- How do data collection needs and data usage fit together? How can data be prepared for use in practice and in politics?
- What are the key future drivers for sustainable or non-sustainable tourism development and how can they be reflected by the data?

The conference addressed a broad circle of about 100 international and national experts from the fields of science, practical experience, politics and administration.



About 100 participants attended the international conference "Measuring Sustainability in Tourism – Opportunities and Limitations"

2 Day 1

2.1 Opening remarks

The conference began with opening remarks by the **German Federal Minister of Environment, Mrs. Svenja Schulze**.

Mrs. Schulze pointed out the dynamic development of tourism in recent decades, which has created many positive economic effects. However, this also went hand in hand with ecological as well as socio-cultural impacts that need to be carefully monitored in the future. She campaigned for a shift in tourism towards a more environmentally and climate-friendly industry and made it clear that the longer decision-makers wait, the more expensive it will become to implement the necessary measures. However, the effects of the measures need to be quantified and monitored over time. Therefore, it is necessary to find adequate measurement standards that are capable of capturing the overall sustainability situation in tourism. Minister Schulze encouraged all participants to identify important fields of action, to discuss how sustainable tourism can be implemented in reality, and how it can become transparent and comparable for decision- and policy-makers.



Mrs. Svenja Schulze – German Federal Minister of the Environment, Nature Conservation and Nuclear Safety

2.2 Measuring sustainability in tourism – the international context and the German pilot project

The first conference block focused on international classifications and contexts of sustainability in tourism. **Mr. Manuel Butler-Halter**, Executive Director of the **UN World Tourism Organization (UNWTO)** placed the measurement of the impact of tourism in the context of international sustainable development as a whole, and explained the role of UNWTO in providing a global and UN-recognized statistical framework for measuring sustainability in tourism by 2020. The UNWTO initiative, “*Measuring the sustainability of tourism*” (MST), will provide standard definitions, classifications and terms for data collection in all three sustainability dimensions so that it can be applied in all countries throughout the world, using similar methods, approaches and sustainability contexts.



Mr. Manuel Butler-Halter – Executive Director of the UN World Tourism Organization (UNWTO)

Mr. Butler's presentation can be downloaded here: **01_Butler.pdf**

Mrs. Elisa Tonda, Head of the Consumption and Production Unit of the **UN Environment Programme (UNEP)**, provided an empirical perspective on tourism and the Sustainable Development Goals (SDG). She illustrated the need for further information and reporting mechanisms of the ecological impact induced by tourism from a global perspective, as well as on an individual level. Mrs. Tonda presented several UNEP projects focusing on transforming the tourism value chain in tourism businesses, in particular through low carbon & resource-efficient business operations and responsible procurement activities. She concluded that multiple un-harmonized reporting mechanisms still exist in tourism, that businesses are concerned about data confidentiality, that best-practices business-cases are not well documented and reported, that sustainability reporting needs standards and regulations, and that measurement can lead to better business strategies and practices.



Mrs. Elisa Tonda – Head of the Consumption and Production Unit, UNEP – Economy Division

Mrs. Tonda's presentation can be downloaded here: [02_Tonda.pdf](#)

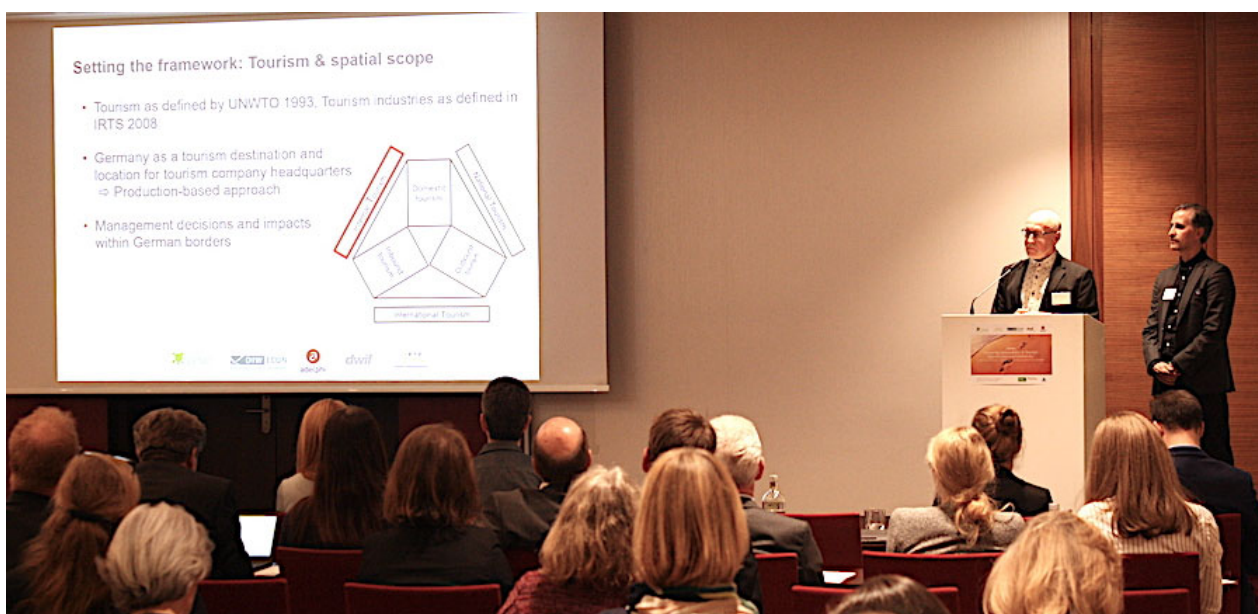
Mr. Jaume Fons-Esteve from the **European Environment Agency (EEA)** / European Topic Centre, introduced recent activities by the EEA that aim to provide a comprehensive picture of tourism in the sense of monitoring and providing information about pressures and impact, as well as about sustainability trends in European industrial sectors. In a recent EEA-study, tourism is framed as a land and sea-dependent socio-economic sector, with land having multiple values for tourism (functional/operational and attractiveness). Tourism is regarded as a driving force that determines pressures and impact, as well as changes to land acquisition and land use. The EEA presents a set of indicators that reflect these causal links of tourism and also uses different non-traditional data sources such as big data or open data, particularly for local spatial considerations. Mr. Fons-Esteve pointed out that there is a need to collect data and develop methodologies in order to isolate the contribution made by tourism to environmental pressures deriving from waste production, water consumption, land acquisition, and air and noise pollution by different forms of transport (taken from the available European statistics). Also, until now, the environmental aspects of tourism have only rarely been inventoried by the respective institutions that are responsible for the sector at national level in member countries. In addition, there are only a small number of cases where strategies have been adopted for monitoring the environmental performance and impacts of tourist flows, despite the aim of many European governments to further invest in attracting more tourists in certain destinations. Also, statistical data needs to be further downscaled to the local levels. New tools such as big data and new data from Copernicus (European satellites) can be used for this purpose.



Mr. Jaume Fons-Esteve – European Environment Agency (EEA) / European Topic Centre

Mr. Fons-Esteve's presentation can be downloaded here: [03_Fons-Esteve.pdf](#)

Prof. Dr. Wolfgang Strasdas and **Martin Balaš** from **Eberswalde University for Sustainable Development**, presented the first preliminary results of a German research project that is a pilot study of the UNWTO initiative, MST “Measuring the Sustainability of Tourism”. The goal is to develop a national evidence-based system in order to provide information on sustainability developments and priority fields of action in tourism. A set of suitable indicators was identified and selected that can also be linked to overall national sustainability targets and benchmarks. It was concluded that in particular, data on economic effects and aspects of natural resource consumption can be produced; data on socio-cultural effects, impact on biodiversity and highly localized impact are still not available on national scales and require further research. However, the system will be able to measure sustainability performances of the German tourism industry over time; it will provide benchmarks for tourism companies and destinations, present the compliance of tourism with political goals, and facilitate comparisons with other sectors or households.



Mr. Prof. Dr. Wolfgang Strasdas & Martin Balas – Eberswalde University for Sustainable Development

The presentation can be downloaded here: [04_Strasdas-Balas.pdf](#)

In a short, **moderated panel discussion**, the speakers summarized their impressions of the first block:

- The effects of tourism activities need to be quantified and observed over time.
- It is necessary to find adequate measurement standards and classifications that are capable of capturing the overall sustainability situation in tourism and that link the already existing approaches and methodologies.
- Data confidentiality needs to increase, and measures from the individual level (business/demand) through to the national and global level need to be taken into account.
- There already are many good practices and business cases in place, but these are not well documented or reported.
- There are various causal links of tourism that need to be identified when dealing with data collection.
- Often, data collection at national or international level does not provide sufficient information for local and regional decision-makers. Statistical data needs to be downscaled to the local levels, for example by using new tools such as big data and open data.
- Data on economic effects and on aspects of natural resource consumption are generally available. However, there is still a lack of data relating to socio-cultural effects, impact on biodiversity and highly localized impact. Here, further research is needed.



Panel discussion summarizing the first presentations of the conference.

2.3 From data collection to data usage – international examples

Mrs. Franziska Neumann from **DIW Econ** presented aims, conceptual backgrounds and the applicability of indicators and national accounts. She pointed out that since tourism is not an industry that is reflected in official statistics, but rather a cross-sectional industry, tourism-specific data needs to include information from several different industries. The TSA Tourism Satellite Account is an internationally accepted standard for the economic measurement of tourism, and it can be used as a tool for relating environmental and social aspects of tourism by referring them to economic data. Mrs. Neumann proposed the establishment of a *Tourism Sustainability Satellite Account TSSA*, which combines economic data from the TSA with environmental flows from the System of Environmental-Economic Accounts (SEEA) and Employment Statistics. This approach provides possibilities for a clear and consistent interpretation of tourism activities, players, flows and conditions; it presents results in a macroeconomic and macrosocial context and gives reference points for social, environmental and economic policy designs. However, due to the complexity of sustainability in tourism, a single accounting framework is not able to capture all important aspects at present. Therefore, a number of supplementary indicators can enhance the informative value of the proposed TSSA system.



Mrs. Franziska Neumann -DIW Econ

The presentation can be downloaded here: [05_Neumann.pdf](#)

Mrs. Greta Erschbamer from The Center for Advanced Studies, **Eurac Research**, gave detailed insights into the applied sustainability monitoring of **South Tyrol** as an official tourism destination by the UNWTO Tourism Observatories. The *International Network of Sustainable Tourism Observatories (INSTO)* focuses on monitoring the use of resources and the impact of tourism on various destinations. The data provided is intended for integration into sustainability decisions, policies, strategies and management processes. She presented the topical areas studied in South Tyrol and explained which sustainability indicators it had been possible to collect so far. She concluded that data-collection in destinations relies on accessibility, quality and the geographical scale. Also, since many topics cover different disciplines, it is seen as a challenge to find suitable approaches that this interdisciplinary

nature. The INSTO network provides the framework for important exchange with other regions with regard to measurement techniques, tools and methods, and the membership also expresses the commitment of tourism destinations to sustainable development.



Mrs. Greta Erschbamer – Center for Advanced Studies, Eurac Research

The presentation can be downloaded here: [06_Erschbamer.pdf](#)

Mrs. Tina Zakonjšek from the **Factory of Sustainable Tourism Good Place** and in behalf of the **Slovenian Tourist Board** presented the national sustainability program for tourism destinations and businesses in **Slovenia**. She stated that the program was developed as part of its new tourism strategy and philosophy. The goal is to encourage tourism businesses and destinations to make their operations more sustainable. With this aim in mind, a national certification system – the *Green Scheme of Slovenian Tourism* – was developed. It combines several existing approaches such as the European Tourism Indicators System (ETIS), the international Green Destination Scheme and the national tourism strategy. Each participating actor is required to collect data and develop a sustainability action plan; certified partners will then be promoted on the basis of their actions and products. Mrs. Zakonjšek explained that even though many sustainability aspects are measured, further data evaluations and interpretations are necessary in order to improve data usage. Also, data items need to be presented in relation to each other and placed in several contexts to enable a useful interpretation of the data. Therefore, it is not the quantity of data collected but rather the use of relevant data that is of key relevance to decision making and the implementation of concrete measures.



Mrs. Tina Zakonjšek - Factory of Sustainable Tourism Good Place

The presentation can be downloaded here: [07_Zakonjsek.pdf](#)

Mr. Jürgen Weiß, from **Statistics Austria**, presented current developments in **Austria**, where a new tourism masterplan has been developed which includes sustainability indicators to measure the success of tourism development. He pointed out that tourism politics in Austria aims to get away from “counting” arrivals and overnight stays towards a more holistic perspective, including the environmental and socio-economical effects of tourism. Several indicators were developed and discussed in a multi-stakeholder process. Key indicators were chosen using quality criteria such as significance, timeliness, measurability, continuity, quality and cost efficiency. However, the indicator set was reduced to mainly economic indicators, including only one indicator for ecological aspects and one for social sustainability. Mr. Weiß concluded that even though there is a necessity for overall sustainability indicators, a political selection was made due to obstacles such as additional costs, data gaps, complexities of measurements and interpretations.



Mr. Jürgen Weiß – Statistics Austria

The presentation can be downloaded here: [08_Weiss.pdf](#)

Mrs. Marta Domper, Project Officer of **NECSTouR, the Network of European Regions for a Sustainable and Competitive Tourism**, presented several examples of the network's activities with European destinations that are engaged in sustainability measurements. The EU-project "S3P" aims to create a platform with access to several data that are made available for investment decisions by the tourism industry. The region of Andalusia created the "Tourism of Tomorrow Lab" which includes a system of sustainability indicators, enables dialogue between users and producers, supports SMEs, is fostering capacity building, and functions as a hub for EU funded projects. As an autonomous province, Andalusia uses indicators of this platform for building initial and desirable scenarios after the tourism planning process, for continuous monitoring and as a planning framework for strategic decision-making. The indicators reflect a key theme that in turn is part of a broader tourism key area used for ongoing destination evaluation. A traffic light system signals whether indicators are in line with desired goals/outcomes. The system has been adjusted in a European Interreg project (MITOMED+) for Maritime and Coastal areas, creating an open platform as a knowledge support tool with several sustainability indicators. The platform is free and can also be used for all types of destinations. From several experiences in Andalusia, Mrs. Domper concluded that indicators need to take into account the territorial dimension, be continuous and allow benchmarking. Also, strong cooperation with other sectors is necessary in order to gather the data needed. Overall, official statistics need to be in line with policy objectives so that valuable information is created.



Mrs. Marta Domper – NECSTouR, the Network of European Regions for a Sustainable and Competitive Tourism

The presentation can be downloaded here: **09_Domper.pdf**

A second **moderated panel discussion** summed up the main outcomes of the presented statements:

- National Accounting approaches can provide valuable data for national tourism-specific economic, ecological and partly socio-economic effects. The Tourism Sustainability Satellite Account can be a good tool for relating aspects of environmental and social aspects of tourism by referring them to economic data.
- At the regional level, additional information on smaller spatial scales is needed. Initiatives such as the INSTO-network by the UNWTO, European networks such as NECSTourR or independent national sustainability programs support data collection but are often not complimentary to each other.
- Sustainability data should be a guiding tool for tourism politics. Indicators need to reflect that need and be as specific as possible.
- National Sustainability programs should also include specific indicators to monitor the progress of the sustainable development of tourism.
- Sustainability indicators in tourism are not easy to obtain. There are still (mostly financial) obstacles that cause a suspension of important indicators.
- Social-cultural indicators in particular are frequently not included in indicator sets. There is a need to integrate these aspects in sustainability measurements.
- New data sources need to be taken into account and could be of high value, especially on local and regional scales.



Panel discussion summarizing the second round of presentations of the conference.

3 Day 2

On the second day of the conference, five workshops were conducted, focusing on different aspects of sustainability measurements in tourism.

3.1 Workshop 1: Scales of sustainability data collection: from the global to the local tourism level

The first workshop was led by **Raúl Hernández-Martín**, Head of the Chair in **Tourism, CajaCanarias-Ashotel-University of La Laguna**, and dealt with different scales of data collection in tourism. During the presentation, it was pointed out that tourism never affects a whole country or an entire destination. For example in Spain, there are almost no tourists in relation to the entire area of the country; only 1% of the municipalities host 63% of tourists. Therefore, only 1% of municipalities are facing issues of overtourism.

A three-dimensional matrix (cube) was presented as a tool to gain an “integrated destination perspective”. According to the Tourism Satellite Account (TSA), there are 3 approaches to research tourism sustainability: 1) industry, 2) tourists, 3) behaviour. Mr. Hernández-Martín argues that on the local scale, all focus groups/stakeholders come together: industry, tourists, locals and the environment. Furthermore, only focusing on the destination doesn't provide a complete picture of the sustainability of tourism. Therefore it is recommended that the issues of the country of origin also be analysed.



The workshop came to the following conclusions:

- There was agreement on the relevance of distinguishing two different issues: the measurement of the sustainability of tourism on the global scale and on the local scale.
- There was agreement on the difficulties of approaching the measurement of the sustainability of tourism on the local scale.
- There was agreement on the necessity of clarifying several conceptual issues. If issues are clarified such as the concept of local tourism destinations, there will be development in measuring

tourism sustainability. There is a need for a common language regarding sustainability issues on the local scale, and for international standards developed by UNWTO in this field.

- Identifying the object of analysis for the measurement of the sustainability of tourism is not a straightforward issue. Using municipalities as a starting point was considered a reasonable way of facing the problem. Nevertheless, addressing tourism sustainability issues on the municipal scale has the disadvantage that tourism is often concentrated in a small part of tourism municipalities.
- Perceptions of stakeholders are an important dimension when it comes to measuring sustainability, as traditional quantitative indicators do not properly reflect the issue under analysis and may hide the real problems faced by a destination.
- There is a need for a common set of quantitative sustainability indicators for all destinations, but there is also a need for indicators for each segment of tourism (nature, urban, beach, etc.) and even for specific sustainability indicators in order to address the particular problems of certain destinations.
- Measuring the sustainability of tourism is a complex task. Nevertheless, we have to make methodological choices and conduct case studies to improve, the methodologies after they have been revised.

3.2 Workshop 2: Usage of sustainable tourism indicators for destination management, certification processes and tourism policies

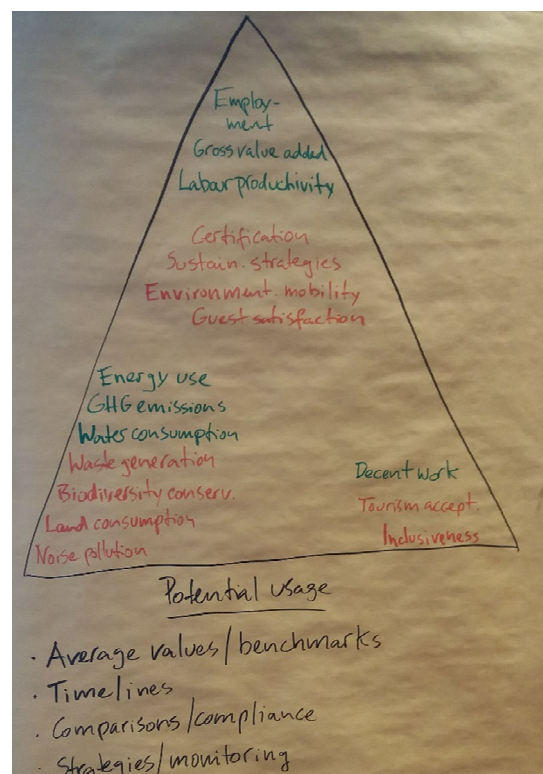
Based on the indicators developed for the German research project on measuring the sustainability of tourism, which was presented during the first day of the conference, subgroups were formed by **Prof. Wolfgang Strasdas** from **Eberswalde University of Sustainable Development** to discuss the criteria, indicators and data sources from different perspectives following the guiding questions:

1. Why is this relevant?
2. Opportunities: What do we know? What works or could work?
3. Limitations: Knowledge gaps, technical/financial challenges, political resistance?
4. Recommended action? By whom?

Group: Destination Management

Main discussion

With regard to the sustainable development of tourism destinations, a central issue was the question of responsibilities. DMOs do not necessarily have the expertise or the mandate to take the lead when implementing policies or measures concerning sustainability. Also, it is necessary to know what to do with the data before collecting them. The data need to be put in a specific context to make sure that the outcome can actually be interpreted. Just seeing progress is not enough; there need to be clearly set goals. A central authority, typically a DMO, should manage the process and guide destinations to becoming more sustainable. Therefore, they need to be “given homework”. Simply collecting data is not enough.



Relevance

- Destinations need action-related data
- Data have to be put in a context, that is there needs to be a certain framework that allows for a target-oriented analysis of the data in order to evaluate the output.

Limitations

- DMOs cannot measure indicators such as energy consumption or the amount of waste.
- How to make sure that the outcome is tourism related? Sometimes it is not possible to separate tourism-related activities from the non-tourism ones.
- Who is responsible for collecting data?
- Destinations need to choose which data they need from the businesses in order to keep the process manageable.
- Certain tourism impacts, such as crowding and associated levels of tourism acceptance, may be highly localized, that is they occur only in certain neighborhoods or on only a few peak days.
- Data from different destinations with different conditions may not be directly comparable, especially between rural and urban destinations.

Opportunities

- Regional data could be put into other contexts → Key question: What does the data output mean?
- Data can be powerful when put in the right context.
- Expectations from the national system: Transfer of knowledge, interpretation of data
- Engagement in sustainability and associated data collection needs to be a business case.

Actions

- Allocate specific and clearly defined responsibilities to each stakeholder
- Training for DMOs and businesses
- Generate comparable data for similar destination types
- Establish standards for data and their collection, such as tourism acceptance
- Identify political responsibilities

Group: Certification Systems

Main discussions

The group discussions revolved around the functions of certification. It was pointed out that certification systems could fill legal loopholes. If reporting certain data is required by law, these data will not be collected. Certification systems could thus provide policymakers with relevant information to address urgent issues. Furthermore, they can confront businesses with topics they may not have dealt with before. Measuring is an important aspect of credible certification because “you cannot manage what you don’t measure”.

Relevance and opportunities

- Support the sustainable management of destinations where the legal framework regarding certain tourism impact is weak or incomplete
- Avoid greenwashing through verification
- Provide benchmarks of ‘what is sustainable’ and report on successes
- Measure and improve company performance over time by providing comparable data

Limitations

- Regular data collection is necessary in order to generate comparable data.
- Certification systems are extremely diverse regarding their criteria and data collection and thus do not generate coherent data.
- The lack of benchmarks for non-certified companies makes it impossible to judge whether certified companies are actually more sustainable than non-certified ones.
- Some certification systems evaluate soft aspects of sustainability that are difficult to measure.

Recommendations

- Legal frameworks (government regulation) are necessary in order to create standards for certification so that they can be an effective lobby group for sustainability.
- A multi-stakeholder approach and the formation of a working group/network are desirable in order to build a bridge between the tourism industry and government (to be established by consumer organisations, for example)

Group: Tourism Policies

- The lack of coordination and responsibilities is standing in the way of a sustainable development of the tourism industry. Different ministries often pursue different interests. Local governments often do not act if there is no legal regulation. However, governments are typically not willing to set regulations that could be in conflict with the interests of the tourism industry. This includes the obligation to report certain data (e.g. electricity consumption) that might be useful for judging the industry's sustainability performance. It was also cautioned that data collection only makes sense if they are actually used for policy purposes ("How long are we going to measure and measure before action will start?")

Limitations

- Unclear responsibilities and lack of coordination between sectorial policies (different countries face similar problems in this respect). Nevertheless, countries are different and it may therefore be impossible to develop fit-for-all solutions.
-)
- Sustainability (and thus sustainability data) is still not of real interest.
- Possible resistance from the private sector: as long as indicators do not contradict the economic interests of the industry it is fine, but...

Actions

- Integration of sustainability indicators into the German Tourism Strategy:
- Establishment of a minimum baseline for sustainability performance on the national level. Destinations committed to sustainable development could then position themselves by surpassing minimum requirements.
- For data generation, a combined bottom-up and top-down approach might be helpful
- Apart from DMOs, NGOs and academia need more access to data. Costs should be covered by national statistics agencies.

3.3 Workshop 3: 2030 Agenda for Sustainable Development: a framework towards transforming tourism? A focus on social components

To begin, **Laura Jaeger** from **Tourism Watch – Brot für die Welt** shed light on the sector's role in contributing to the 2030 Agenda and each of its 17 Sustainable Development Goals. The fact that tourism is mentioned four times in the Agenda is an acknowledgement of the importance of the sector on one hand, but an obligation to transform the sector on the other. While the Agenda itself provides a good framework for fostering a socially just and rights-based approach in tourism, the tourism-related indicators in the Agenda are unduly focussed on measuring quantitative growth. They are not suited to measuring how far tourism is contributing to sustainable development, i.e. local wellbeing, decent work etc.

The following discussion revealed that there is no globally accepted definition of sustainable tourism. In consequence, there is a lack of a global indicator set to measure tourism's contribution to sustainable development – in particular with regards to social sustainability. It was agreed that it is difficult to find adequate indicators to measure the social dimension of sustainable development and to identify measurable causal relationship between tourism development and its social effects. In order to fill this gap, a two-way approach is needed: on one hand, the UNWTO should foster research in this area and provide a strong global frame of reference – with strong involvement of all stakeholder groups, including civil society organisations, grass roots movements and representatives of those directly affected by tourism. On the other, a bottom-up approach is needed at local level, as the effects of tourism may vary on the ground (e.g. in rural vs. urban settings; high vs. low tourism density etc.). Furthermore, local stakeholders are different everywhere. Thus, particular emphasis should be placed on including all stakeholders and in particular vulnerable groups (such as indigenous peoples, children, low income tenants etc.) when defining and applying indicators to measure the effects tourism has on the local population, workforce etc. These jointly developed and monitored indicators can provide solid grounds for participatory, evidence-based decision- and policy-making.

3.4 Workshop 4: How to measure tourism-related greenhouse gas emissions – the challenge of transboundary allocation

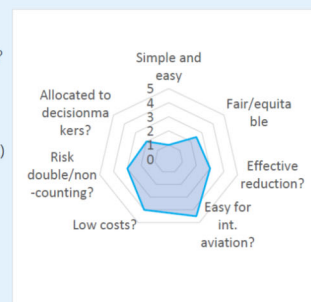
The workshop run by **Dr. Paul Peeters** from **Breda University of Applied Sciences** focussed on the measurement of transboundary tourism emissions. Four different approaches and seven criteria for evaluating the different approaches were presented, and were applied by the workshop participants. Visualisations of the evaluations showed significant differences between the different approaches. Paul proposed that air transport growing rates totally contradict the goal of reducing CO₂ emissions and complying with the Paris agreement. Compensation is not a solution to the problem because it leads to no reduction of CO₂ emissions by air transport. "Bunker fuels" as a source of emissions, which are tanked at German airports and harbours, are not included in common national CO₂ emission inventories and reduction goals.

Allocation transboundary tourism emissions

- It depends on the goal of the measurement!
- The four measurement & allocation systems:
 1. **National TSSA approach:** all direct national emissions related to all tourism activities within Germany
 2. **International German tourists approach:** all emissions caused by tourists with German nationality all over the world (domestic plus international)
 3. **International German businesses approach:** All emissions caused by Germany-based tourism businesses all over the world (domestic plus international)
 4. **National NDC + bunkers approach:** all NDC-covered tourism-related emissions within Germany plus international bunker fuels tanked at German airports and harbours

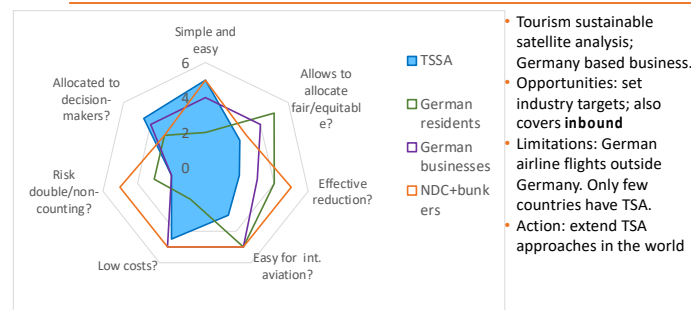
Criteria

- Simple and easy?
 - (1=very difficult; 5=very easy)
- Does it help to allocate in a fair and equitable way?
 - (1=very unequal/unfair; 5=very equal and fair)
- Effective for reduction?
 - (1=very ineffective; 5=very effective)
- Easy implementation international aviation?
 - (1=difficult to implement; 5=easy to implement)
- Low costs?
 - (1=high cost; 5=low cost)
- Risk of double- or non-counting?
 - (1=high risk; 5=low risk)
- Emissions allocated to those with decision power to reduce?
 - (1=not at all; 5=fully)



For the workshop, the group was divided in four subgroups, each assessing one of the four approaches of measuring tourism-related greenhouse gas emissions. The first group looked at the tourism sustainable satellite account method. This method neatly joins existing satellite accounts for tourism, making it relatively easy to implement. It covers both domestic and inbound tourism but ignores airline flights outside the country. Another limitation is the availability of tourism satellite accounts, which is not well-spread among countries in the world. All in all, the group did not value the system very highly with respect to the seven criteria.

TSSA

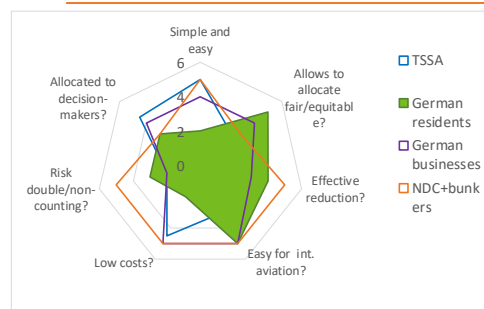


- Tourism sustainable satellite analysis; Germany based business.
- Opportunities: set industry targets; also covers **inbound**
- Limitations: German airline flights outside Germany. Only few countries have TSA.
- Action: extend TSA approaches in the world

The second group took the worldwide tourism activities of German citizens as the system boundary. This means that every kg of CO₂ emitted by Germans during their travel within or outside Germany and for all aspects of tourism (accommodation, activities and transport) are taken into account. The

difficulty is the complexity of achieving this. It would require international accounting rules and an international institute to safeguard them. An interesting opportunity is that it could allow for personal carbon budgets that even could be made tradable.

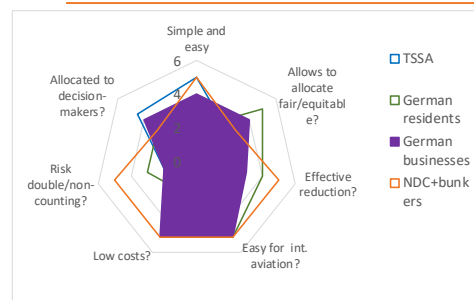
German residents



- German tourists
- Opportunities, Budgets traded
- Limitations: difficult to implement, detailed info, institution, indirect change. Regulation better
- Action: int. institution

The third group studies an approach in which the worldwide tourism activities of any German business is the system boundary. The system is considered relatively easy to implement, includes all international aviation, and would not be too costly to maintain. But limitations are still in scope off the system, specifically for tour operators that typically combine many services and goods into their products.

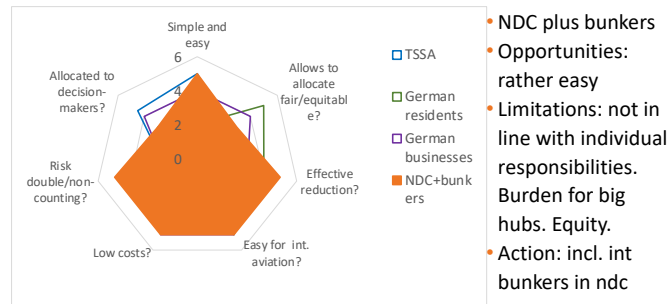
German businesses



- Businesses responsible but countries through legislation
- Opportunities: like it because international corporations are 'carbon enabled'
- Limitations: scopes; complex for tour operators
- Action:

The fourth system is based on the existing accounts of national emissions, but adds international bunker fuels for aviation. The 'national determined contributions' (NDCs) are the emission reduction agreed within UNFCCC based on the 2015 Paris Agreement. Basically, it means that all tourism activities within Germany (accommodation, transport within Germany) are already covered by the Paris Agreement through the NDC's, but that the international air transport emissions currently not covered become part of the NDCs for all outbound flights, both for Germans leaving the country and foreigners returning home. Issues might be that big hubs in a country disadvantage that country, even though many air travellers will only transfer at the hub. On the other hand, becoming a hub is always a national decision, so it seems fair that the nation developing the hub is also responsible for the emissions such a hub causes. A disadvantage might also be that personal responsibility is taken away from the people and shifted to governments. The main measure would be for Germany to simply include international aviation bunker fuel emissions in the goals of the German NDC.

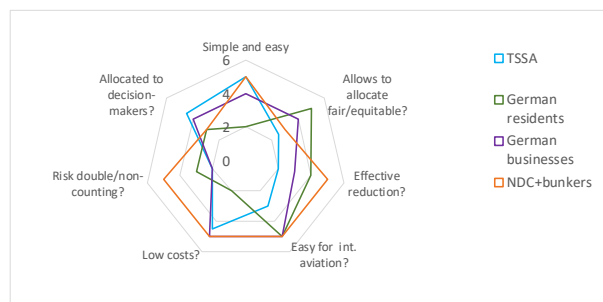
NDC plus bunkers



- NDC plus bunkers
- Opportunities: rather easy
- Limitations: not in line with individual responsibilities. Burden for big hubs. Equity.
- Action: incl. int bunkers in ndc

Comparing all schemes for the seven criteria, it appears that the NDC plus international bunkers system performs best, and covers the largest area. Only two other schemes scored better with regard to equity and allocation to decision-makers.

All schemes



3.5 Workshop 5: Demand-side indicators for sustainable holiday travel: what consumers can tell us

At the beginning of the workshop, **Dirk Schmücker** from **NIT** pointed out that the majority of the global population is aware that we are heading towards an environmental disaster. Therefore, behavioural change on the consumer side needs to be addressed and analysed.

Dirk Schmücker presented recent results of an annual survey of tourists in Germany (Reiseanalyse). In recent years, sustainability aspects have been included in the survey. The following six demand-side indicators were analysed: general attitude, role of sustainability, booked eco label, CO₂ compensation, length of stay, and travelled distance. The results show that the trend towards ecological/social tourism is positive, wealthy and well-educated travellers cover the longest distances (air travel) and the number is increasing, the attitude-behaviour gap is still a main issue, and the numbers of sustainable trips (such as compensation, eco label) are still very low (3-6%). One participant mentioned that the different perceptions in particular would be an interesting field of study. Another recommendation was that consumers should be asked about their perceptions regarding their consumption in other fields, such as food, energy, clothing, etc. Furthermore, informal data and big data could be used to verify the own data, and data should be made accessible for others to continue research. Ratings on platforms such as TripAdvisor could be used through text or sentiment analyses.

The question was raised as to what the industry needs to do in order to close the attitude-behaviour gap. It was suggested that the reasons should be analysed as to why the percentage of organic and fair

trade food has increased in the last years, while demand for sustainable holiday travel did not grow accordingly.

It was pointed out that the supply side needs to act first in order to generate consumer actions. The perception is still widespread that sustainable products are more expensive. Therefore, “good” products should not cost more, which is not always feasible today due to higher production costs in some cases. Making sustainable products the standard could be a way to solve this issue.

The discussion led to the plenum’s discussion of its experience of demand-side studies, with the following statements:

- There is a slowly increasing percentage of CO₂ compensation of tourist trips (currently ranging between 1% and 10%)
- Certified hotels frequently have a higher recommendation rate
- People are booking faster without even reading all of the information, and making the sustainable product a positive surprise could lead to more success.

The following demand-side indicators were proposed during the workshop:

- Comparison of “traditional” results with big data results
- Text/sentiment analyses of ratings on platforms such as TripAdvisor
- Asking consumers about their consumption in other sectors such as food, clothing, etc.
- Analysing the “don’t know” group further
- Deeper analysis of the attitude-behaviour gap: conduct qualitative interviews
- Defining the quality of sustainable products in tourism
- Consumer data are indispensable

To sum up, the group agreed that there is already high acceptance of sustainable products, but the preference to purchase them is still (too) low. This gap needs to be analysed more deeply in the future through research projects. This could also be done through qualitative interviews and using new technologies.