Statistical Framework for Measuring the Sustainability of Tourism (SF-MST)

Chapter 1 – Introduction

DRAFT

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<tr>
<td>ILO</td>
<td>International Labour Organization</td>
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<td>MST</td>
<td>Measuring the Sustainability of Tourism</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SEEA</td>
<td>System of Environmental-Economic Accounting</td>
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<td>SEEA EEA</td>
<td>System of Environmental-Economic Accounting Experimental Ecosystem Accounting</td>
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<td>SF-MST</td>
<td>Statistical Framework for Measuring the Sustainability of Tourism</td>
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<td>SNA</td>
<td>System of National Accounts</td>
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<td>TSA</td>
<td>Tourism Satellite Account</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNCEEA</td>
<td>United Nations Committee of Experts on Environmental-Economic Accounting</td>
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<td>UNSC</td>
<td>United Nations Statistical Commission</td>
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<td>United Nations Statistics Division</td>
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<td>UNWTO</td>
<td>World Tourism Organization</td>
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<td>WGE-MST</td>
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1. Introduction

1.1 What is the Statistical Framework for Measuring the Sustainability of Tourism?

1.1 Tourism has an impact on the economy, the natural and built environment, the local population at the places visited and the visitors themselves. Owing to this range of positive and negative impacts and the wide spectrum of stakeholders involved, there is a need for a holistic approach to tourism development, management and monitoring. This approach is supported by the World Tourism Organization (UNWTO) in order to formulate and implement national and local tourism policies.

1.2 The Statistical Framework for Measuring the Sustainability of Tourism (SF-MST) is a multipurpose conceptual framework designed to support the recording and presentation of data about the sustainability of tourism covering tourism's economic, environmental and social connections and impacts in a holistic way.

1.3 A statistical framework is a structure for data and statistics that provides common concepts, definitions, classifications and reporting rules. Statistical frameworks are adopted in all areas of official statistics and play the role of transforming source data into well-accepted and authoritative statistics that can be used to support decision making (Figure 1.1). This transformation of raw data into knowledge to support decision making and the point at which tourism’s statistical frameworks, including IRTS, TSA:RMF and SF-MST is further exemplified in Figure 1.2.

Figure 1.1: Using statistical frameworks to link data and policy
1.4 There are significant benefits from using statistical frameworks that the SF-MST seeks to secure including:

- Establishing a foundation for providing a single, coherent and complete picture of the sustainability of tourism and its trends
- Describing a common language for discussing the sustainability of tourism by tourism actors and with other key policy areas such as planning, industry, infrastructure, environment, social affairs, finance and central banks
- Comparing the performance of tourism activities and the impacts of different policies on a consistent basis with other sectors and in different destinations
- Providing a basis for identifying and assessing opportunities to use new and alternative data sources
- Improving co-ordination in data collection and organization, improving the effectiveness of training and capacity building, and improving institutional arrangements for the governance and management of statistics on tourism.

1.5 The importance of developing a common framework to support comparison is very high. It may appear that integration of information for a single group of decision makers is sufficient, for example for local/destination managers, or for national tourism administrators. However, it is clear that decisions by different groups are inter-connected. For example, local and national policy choices influence each other, as do the policy choices of different government departments and agencies. Given this reality, there may be considerable barriers to progress if different stakeholders have information based on varying definitions and measurement boundaries. A holistic statistical approach as described in the SF-MST works to overcome these information barriers and support more engaged and inclusive decision making.

1.6 The general coverage and role of the SF-MST is shown in Figure 1.2. The figure highlights that the SF-MST encompasses measurement of the economic, environmental and social dimensions of tourism and is intended to support application at all spatial scales from the local destination level to the global scale. Further, SF-MST is concerned with what should be the focus of measurement. The topic of how data might be collected and transformed following the concepts and definitions of the SF-MST is described in supporting statistical compilation guidance and the topic of who might use the data and why it might be used should be the subject of ongoing discussions between compilers of statistics and various decision makers and stakeholders – SF-MST is intended to support those discussions.
1.7 Having reliable statistics is essential for policymakers and others to make effective decisions. Only with sufficient and adequate data that generate credible statistics, it is possible to undertake different types of analysis of tourism. This is essential in order to evaluate the different social, economic and environmental aspects of tourism. The science-based and consensus-backed approach of statistical data provides credibility, fosters dialogue and collaboration among different stakeholders, feeds more effective and coherent policy, and promotes transparency and stronger institutions. It also supports a better recognition of tourism’s potential and its risk assessment.

1.8 The importance of SF-MST will become more apparent over time since, while the concepts and definitions can be kept relatively stable, it is likely that (i) data sources will change over time – witness for example the emergence of big data and spatially rich data sets – and (ii) there will be ongoing changes in policy themes, aspirations and targets. Maintaining a statistical framework at the heart of measurement, with periodic refinements to ensure alignment with decision making contexts and wider changes, ensures that data can be linked to policy in meaningful ways and that effective comparisons can be made on an ongoing basis, notwithstanding the ongoing changes in data sources and policy needs.

1.2 SF-MST and current tourism statistics frameworks

1.9 UNWTO has a UN mandate for the collection and dissemination of tourism statistics and the development and implementation of associated international statistical standards. The work dates back as far as 1937 with the first definition of an “international tourist” and extends through more than 80 years. It includes provisional guidelines on tourism statistics released in 1978; initial developments on tourism economic accounts in the 1980s and 1990s; the 1993 Recommendations on Tourism Statistics; and the 2001 Tourism Satellite Account: Recommended Methodological Framework.
1.10 The most recent advances are reflected in the International Recommendations for Tourism Statistics 2008 (IRTS) (UNWTO et al, 2008) and the Tourism Satellite Account: Recommended Methodological Framework 2008 (TSA: RMF) (UNWTO et al, 2010). These comprise the current internationally agreed standards for measuring tourism. The IRTS provides the main concepts, definitions and classifications for measuring visitor flows and characteristics, and for measuring the industries that cater to this demand. A key feature of the TSA: RMF is its reconciliation of the supply (business) and the demand (visitor) sides of tourism activity. By providing a means to demonstrate the differences and connections between these two sides, it becomes possible to present the majority of data on the economic dimension of tourism in a coherent fashion.

1.11 Notwithstanding these significant advances in tourism statistics to support decision making, it is well recognized that a significant gap remains from an official statistics perspective in defining standards with respect to tourism activity that consider economic, environmental and social dimensions as well as differentiations at relevant spatial levels (including local, national and global). This gap was recognized in both the IRTS and the TSA: RMF. With the aim of closing this statistical gap, in 2016 the UNWTO launched the Measuring the Sustainability of Tourism (MST) project.

1.12 A feature in the development of tourism statistics has been the role of international conferences in providing platforms to launch each stage of development. The developments in measuring the sustainability of tourism are no exception, with the profile of work being strongly endorsed at the 6th International Conference on Tourism Statistics held in Manila in June 2017. A key outcome from the conference was the Manila Call to Action, a joint declaration of Ministers, Chief Statisticians and other conference participants. Among a range of actions, the Manila Call to Action explicitly requests the development of the SF-MST, a call that had been endorsed at the 48th session of the United Nations Statistical Commission meeting held in March 2017 and that was reinforced as a key area of work at the UNWTO General Assembly in September 2017.

1.13 The MST programme of work incorporates a number of key components including the development of the SF-MST, the testing of the framework in various countries and locations, and the development of appropriate guidance for implementation, training and capacity development. At one level, the SF-MST itself represents the next step in the development of standards for tourism measurement but it also represents a significant extension in recognizing the wider, non-economic, connections and impacts of tourism. In this regard, the integration of economic, environmental and social dimensions into a single statistical framework should be understood as a landmark development in statistics generally.

1.14 In this context, this chapter provides an overview of the wider context for the measurement of the sustainability of tourism and an introduction to the components of the SF-MST. Section 2 provides a general introduction to the challenge of measuring sustainability and the approaches that have been developed. Section 3 focuses on the definition of sustainable tourism and describes past approaches to measurement. Section 4 provides an overview of

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2 IRTS, 2008 Chapter 1 (UNWTO, 2010) provides a description of the historical development of tourism statistics.
3 <<insert link>>
the SF-MST describing its statistical approach, summarizing the components and outputs, and noting approaches to implementation. Section 5 gives an overview of the other SF-MST chapters.

1.3. Approaches to measuring sustainability

1.15 Most commonly, the development of statistics commences from a well-established and broadly agreed concept that can be the focus for the development of rigorous definitions, classifications and measurement methods. Examples include population growth, unemployment, inflation, economic growth and visitor numbers.

1.16 For the measurement of sustainability, there are generally agreed concepts reflecting the central idea of meeting the needs of the present generations while not compromising the potential for future generations to meet their needs\(^4\). However, while this concept may be generally agreed, converting this concept into a measurable definition for statistical purposes has proved very challenging.

1.17 As reflected in the extensive discussion on the measurement of sustainability from a statistical perspective in the work of the Conference of European Statisticians\(^5\), there is general agreement that measurement should encompass three primary dimensions – economic, environment and social. This scope is needed to recognize the importance of environmental and social factors when considering sustainability, for example concerning climate change and income distribution. Further, it is generally accepted that whether or not a context can be considered sustainable will be dependent on the time horizons being considered, the territorial scale of analysis (e.g. local destinations or countries), the perspective of the analysis (local business, government official, visitors, local communities) and the relative importance placed on different themes across the economic, environmental and social dimensions.

1.18 However, the precise combination of time horizons, territorial scales, perspectives and themes has not been agreed, in large part because the circumstances and priorities will vary significantly from place to place and over time. Consequently, the data and indicators that should be the singular focus of measurement cannot be defined, i.e. a single measure of sustainable tourism is not a meaningful concept that can be applied in different countries and destinations. At the same time, it is possible to provide a consistent and comparable framing for the variety of measures that will need to be incorporated in an assessment of the sustainability of tourism wherever an assessment is undertaken. Describing such a framing is the primary objective of SF-MST.

1.19 The conceptual basis for the framing described in SF-MST reflects a multiple capital approach. The use of a multiple capital approach to underpin the measurement of sustainability has been reflected in a range of work, most notably from a statistical perspective in the Conference of European Statisticians Recommendations on Measuring Sustainable Development\(^6\).

\(^4\) Brundtland, 1987
\(^5\) UNECE, 2014
1.20 **Multiple capital approaches** consider the relationship between (i) the flows of benefits (including monetary and non-monetary benefits) and (ii) the underlying stocks of capital (encompassing produced, natural, human and social capital). The aim with respect to sustainability is to understand whether the flow of benefits can be sustained in the future, in line with the intention inherent in the Brundtland Commission definition of sustainable development.

1.21 There are a range of multiple capital approaches many of which focus on a sub-set of the full range of the four capitals. Usually, multiple capital approaches are implemented using accounting frameworks. Among the set of statistical frameworks, capital-based approaches are evident in the System of National Accounts7 (with a primary focus on economic capital) and the System of Environmental-Economic Accounting8 (with a primary focus on natural capital). A range of thematic accounting frameworks have also been developed covering tourism (e.g. the Tourism Satellite Account has consideration of economic capital), education, health and culture, each having links to stocks of capital to varying degrees.

1.22 At their most comprehensive, multiple capitals approaches are present in frameworks referred to as wealth accounting. Wealth accounting has been the subject of increasing interest, for example in the IHDP-UNU and UNEP work on Inclusive Wealth Accounting910 and the World Bank’s Changing Wealth of Nations (World Bank, 2018).

1.23 The use of accounting frameworks to implement multiple capitals approaches works well since accounting rules provide a sound theoretical framing for recording data on stocks and flows and hence provide a structured and consistent approach to the integration of data across economic, environmental and social dimensions. Clear definitions and measurement boundaries for each of the various stocks and flows can be established which, in turn, supports comparability and encourages understanding of the interlinkages between different themes.

1.24 Multiple capitals approaches do have some limitations. Concerning their scope, work to date has found it can be difficult to fully articulate relevant themes in the social dimension of sustainability into a stocks and flows framing. Consequently, most work on multiple capitals has focused on integrating produced, natural and human capital.

1.25 Further, a common misunderstanding is that the use of a multiple capitals approach and associated accounting frameworks requires a full monetization of all stocks and flows. For example, in the context of the environment, accounting can be understood to require measurement of a total value of the environment in monetary terms. However, this is not the intent or necessary application of multiple capitals approach. Rather, the intent is to place all relevant information in an appropriate context, distinguishing clearly between stocks and flows, whether the data are expressed in monetary or non-monetary terms.

1.26 Data organized in this way is then well suited to supporting assessments of sustainability that are comparable and consistent. This occurs through the creation of an integrated dataset that supports the derivation of sets of indicators that can be used to provide an overall assessment of progress towards sustainability. The use of a multiple capitals approach thus

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9 Tourism Satellite Account: Recommended Methodological Framework 2008
provides a way of consistently framing the discussion of sustainability, and related topics of capacity and resilience while allowing flexibility in the choice of indicators used to summarize performance.

1.27 The use of a multiple capitals approach to support the integration of data aims to avoid some of the challenges that arise from approaching the measurement of sustainability through processes that directly design sets of indicators. There is indeed a vast number of sustainability indicator sets for countries, sub-national regions, destinations and sectors. Positively, indicator sets can raise awareness of sustainable development by encompassing data from the three key dimensions of sustainability – economic, environment and social – and, consequently they can support the setting of expectations and policy targets with respect to individual aspects of sustainable development. Raising awareness and setting expectations is commonly achieved through open and participatory approaches to determining the set of indicators.

1.28 However, the direct selection of themes and indicators by different groups leads to a diversity of indicators that are challenging to compare since different themes will be covered in different indicator sets and, even for the same theme (e.g. energy use) different indicators may be chosen that may be derived using data defined in different ways. Further, within any single set of indicators there is no capacity to describe the interlinkages between the dimensions and they do not provide any particular statement with respect to overall sustainability. Consequently, the task of assessing sustainability in any given context requires the user to develop their own conceptual model of how data from each of the dimensions might be connected, which themes and indicators are the most important and how to interpret the evolution of indicators over time, for example with respect to local constraints and thresholds.

1.29 An extension of the set of indicators approach is to combine a selection of indicators into a composite or weighted index of some type, generally through the initial identification of specific themes relevant to the sustainability context of interest. A well-known example is the UNDP Human Development Index which combines data on life expectancy, education and per capita income. A clear advantage of this approach is that a simple and easy-to-communicate message can be conveyed using a single number.

1.30 However, in the context of sustainability assessment, the interpretation of these measures is challenging as (i) each composite index has its own set of themes and indicators, (ii) the relative importance (or weighting) of each indicator will vary between locations and will be affected by different perspectives on sustainability, and (iii) commonly these indexes tend to smooth out the effects of internal variations present in the component indicators (i.e., the effects of increases in some indicators and decreases in others will tend to average out at the aggregate level). Consequently, while there are many composite indexes that aim to measure, to varying degrees, the various dimensions of sustainability, there has been little wide scale progress in using these indexes in decision making contexts.

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1.4. Advances in understanding sustainable tourism

1.4.1. Defining sustainable tourism

1.31 Sustainable tourism has been a topic of discussion in tourism circles for many decades. The ongoing and building interest in sustainable tourism has been driven by two key factors. First, there was the energizing influence of the 1987 Brundtland Commission report “Our Common Future” and the subsequent 1992 Rio Summit on sustainable development. While the ideas around sustainable development had been under discussion for some time prior, this work and the high-profile engagement placed sustainable development clearly on the political “map”. These ideas have been embraced in the United Nations 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDG).

1.32 The second key factor has been the tremendous growth in tourism activity over the past decades reflecting ongoing increases in household income and the declining relative prices of travel, especially air fares. This growth has established five lines of interest in tourism’s sustainability:
   i. the reality that in contributing a larger share of economic activity in most countries, tourism activity is contributing more to the use of environmental resources and its impact on the natural environment is increasingly significant
   ii. the notion that tourism activity can provide a path by which lower income countries and regions might improve their standard of living and support more sustainable development
   iii. the recognition of the dependence of tourism activity on its environmental and social contexts and the need to keep these underpinning resources in good condition and even contribute to their protection and improvement.
   iv. the understanding that tourism is also good for the visitors themselves (and their origin countries) from a wider social perspective through things like personal wellbeing and relaxation, social cohesion (supporting elderly and other disadvantaged groups to have access to tourism), and building peace and mutual understanding across locations.
   v. the potential for tourism to build a wider appreciation of a country’s reputation and hence serve as an impetus for foreign investment to underpin sustainability more generally.

1.33 The response of UNWTO to these two factors is reflected in a range of contributions to policy and measurement concerning sustainable tourism. These contributions include milestone reports *What Tourism Managers Need to Know* (UNWTO, 1997) and *Making Tourism More Sustainable: A Guide for Policy Makers* (UNEP/UNWTO, 2005); as well as significant UN General Assembly resolutions on sustainable tourism for poverty eradication and environmental protection (e.g. A/RES/69/233 and A/73/274 in 2014 and 2018 respectively).

1.34 A key output from this work has been a definition of sustainable tourism published in 2005 and used since. Using a focus on tourism destinations, the definition makes clear that sustainable tourism is a multi-faceted concept and, depending on one’s perspective, different aspects and areas of focus will be relevant. UNWTO and UNEP define sustainable tourism in the following way

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12 Here we include the development of ‘sustainable tourism’ products and the discussion around the sustainability of tourism more holistically.

13 See for example Wagar (1964); Wenkam (1975); and Cohen (1978).
Sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destinations, including mass tourism and the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability.

Thus, sustainable tourism should:

- Make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural resources and biodiversity.
- Respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance.
- Ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation.

Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary.

Sustainable tourism should also maintain a high level of tourist satisfaction and ensure a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them.¹⁴

1.35 The profile of sustainable tourism was further enhanced with 2017 being declared the United Nations International Year of Sustainable Tourism for Development (IY2017). The discussion around IY2017 recognized that tourism has the potential to contribute, directly or indirectly, to all of the 17 SDGs. In particular, targets relating to sustainable tourism are explicitly referenced in SDG 8 on decent work and economic growth, SDG 12 on responsible consumption and production and SDG 14 on life below water.

1.4.2. Measuring the sustainability of tourism

1.36 With respect to measuring the sustainability of tourism, a key contribution of UNWTO has been in the space of developing sets of indicators that respond to policy and destination management needs, most notably the 2004 UNWTO Guidebook for Indicators of Sustainable Development for Tourism Destinations. Building on earlier work, the Guidebook for Indicators identified a very large number of indicators (over 700) across 13 issues. This work highlights the importance of measurement in supporting the design and implementation of policy and practices that support sustainable tourism, but also the potential complexity involved in learning valuable policy lessons from extensive and varied indicators.

1.37 Implementation of these ideas has been promoted through the UNWTO Network of Tourism Observatories initiative\(^{15}\) created in 2004 to support monitoring the economic, environmental and social impact of tourism at the destination level and the continuous improvement of sustainability and resilience in the tourism sector. A range of additional indicator work has taken place in parallel, particularly in Europe (see Box 1).

1.38 A particular challenge in sustainable tourism measurement work to date has been the diversity of approaches that have been developed. While all have similar motivations and generally encompass similar themes, the diversity hampers the potential to compare performance and outcomes among destinations and across scales. Thus, “while the research related to sustainable indicators in the fields within the tourism sector is constantly growing, there are inconsistencies at the implementation and aggregation level, especially when it comes to measuring of these indicators. Different metrics, units, measures and reporting forms are used by the different actors in the tourism sector”.\(^{16}\)

1.39 From the perspective of statistical frameworks, a number of the indicators that have been used in sustainable tourism indicator sets can be derived from data collected following the definitions and standards presented in the IRTS and TSA: RMF. Examples are international visitor numbers and expenditure and tourism contribution to GDP. However, there tends to be a disconnect in many instances with sustainable tourism indicators being developed for application at destination level and statistical frameworks being used to support the collection of national level data. As well, the IRTS and TSA: RMF are limited to having a primary focus on the economic dimension and employment, and do not encompass environmental or social dimensions.

Box 1. Selected sustainable tourism indicator initiatives

Eurostat\(^{17}\) released a comprehensive review in 2006 of the measurement of sustainable tourism. The work proposed 20 indicators, primarily from economic and environmental domains, and including some social/cultural indicators, all set within the DPSIR indicator framework\(^{18}\). The indicator set was intended to be applied at regional/sub-national level.

The OECD\(^{19}\) summarized the findings of a workshop in 2010 considering the relationship between tourism and sustainable development. It saw three main challenges for sustainable tourism - climate change, resource conservation and social cohesion – consistent with the themes identified in earlier tourism sustainability work. The European Commission launched a European Tourism Indicators System (ETIS) for sustainable destination management\(^{20}\). This initiative commenced in 2013 and has defined 43 core indicators and has been trialed in a number of destinations, including NECSTouR\(^{21}\) regions. The work aims to also support global initiatives such as the UN 2030 Development Agenda and the related 10YFP on Sustainable Production and Consumption\(^{22}\) and the shift towards Sustainable Consumption and Production (SCP)\(^{23}\).

The European Environment Agency (EEA) is developing a reporting mechanism for indicators linking tourism and environment (TOUERM) in order to provide a more comprehensive picture of tourism in the frame of monitoring and informing on pressures and impacts as well as sustainability trends of European industry sectors.

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\(^{15}\) See \[http://insto.unwto.org\]

\(^{16}\) Abstract, 2014 UNWTO workshop report on Improving evidence-based decision making in the tourism sector

\(^{17}\) See “Methodological work on measuring the sustainable development of tourism”, available at: \[http://ec.europa.eu/eurostat/web/tourism/methodology/projects-and-studies\]

\(^{18}\) DPSIR: Driving force, Pressure, State, Impact, Response used by EEA. This framework is an extension of the pressure-state-response framework proposed for environmental indicators and indicators of sustainable development developed by OECD (1994). See also “Environmental indicators: Typology and overview” available at \[http://www.eea.europa.eu/publications/TEC25\]

\(^{19}\) See e.g. Workshop on sustainable development strategies and tourism \[http://www.oecd.org/cfe/tourism/workshoponsustainabledevelopmentstrategiesandtourism.htm\]; Climate change and tourism policy in OECD countries (\[http://www.oecd.org/cfe/tourism/48681944.pdf\])

\(^{20}\) See: \[http://ec.europa.eu/eurostat/web/tourism/methodology/projects-and-studies\]

\(^{21}\) Network of European Regions for a Sustainable and Competitive Tourism (NECSTouR).

\(^{22}\) The 10YFP, an outcome of Rio+20, is a global framework that enhances international cooperation to accelerate the shift towards SCP.

\(^{23}\) 20 general pilot indicators have been identified for the four 10YFP objectives.
Countries and regions, sometimes led by line ministries and/or academic researchers, including work currently being carried out in MST pilot studies (see information on the UNWTO MST website24). Corporate and business entities including voluntary certification standards around environmentally sustainable tourism operations such as those facilitated by the Global Sustainable Tourism Council (GSTC). The private sector is increasingly aware of the need to measure and report in a consistent way, as demonstrated for example by initiatives such as the Hotel Water Measurement Initiative (HWMI) and its equivalent for carbon promoted by the International Tourism Partnership (ITP) of Business in the Community25.

1.5. Overview of the SF-MST

1.5.1. Design of the SF-MST

1.40 The primary intent in the design of the SF-MST is to provide a holistic statistical framework that operationalizes measurement within the scope of the UNWTO/UNEP broad definition of sustainable tourism. Specifically, the SF-MST aims to provide a common set of concepts, definitions, classifications and reporting structures to guide and underpin measurement of tourism across its economic, environmental and social dimensions and at different territorial scales and locations.

1.41 At the core of the SF-MST design is a multiple capitals approach to the measurement of sustainability. Thus, the SF-MST provides an approach that involves measuring the stocks of produced, natural, human and social capital and the various flows of benefits that arise in relation to tourism. This provides not only a comprehensive framing for data but also a clear narrative for the assessment of the sustainability of tourism. A multiple capitals approach can be implemented using accounting frameworks and a feature of the SF-MST is its combination of existing accounting frameworks (see section 4.1.2). However, accounting frameworks have not yet been sufficiently developed in some areas, particularly concerning social capital. Consequently, SF-MST implements a multiple capitals approach using both accounting frameworks and complementing this with statistics and data on selected themes.

1.42 The design of SF-MST recognizes the importance of reflecting the interactions between the economic, environmental and social dimensions at different spatial scales, from national and global scales to sub-national and destination scales. This supports the application of the UNWTO/UNEP definition of sustainable tourism which is generally embodied at a finer spatial scale (e.g., in relation to host communities). At the same time, interactions at a local level occur within a broader setting and issues that gain more relevance at national and global scales, such as concerning financial markets and climate change, need also to be considered. Thus, from a statistical perspective, the SF-MST aims to ensure a consistency in definition that supports comparison from local to national to global scales.

1.43 More generally, SF-MST recognizes that individual contexts, such as for a single tourism destination, are usefully characterized in terms of “nested systems” – i.e. where the economic system is embedded within a social context which in turn sits within an environmental system. This “economy - in society - in nature” perspective (Costanza et al, 2012) is shown in Figure 1.3b in contrast the more traditional conception of the relationship between the three dimensions in Figure 1.3a where the economy, the environment and society are distinct systems, even if slightly overlapping. Using a nested-systems framing to consider the

24 http://statistics.unwto.org/studies_experiences
25 Developed by the International Tourism Partnership in partnership with KPMG and 18 global hotel companies http://tourismpartnership.org/water-stewardship/
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1.44 A consequence of this framing is that SF-MST does not establish a “single” definition of sustainable tourism. This would require determining, for all locations, the appropriate thresholds across the dimensions of sustainability such that the outcomes were considered sustainable. Establishing such thresholds is not an appropriate statistical task. Thus, the focus of SF-MST is organizing a sufficiently comprehensive set of data such that decision-makers and other stakeholders at different locations and at different scales can make their own assessments of the sustainability of tourism in a holistic and well-informed way.

1.5.2. Conceptual coverage of SF-MST

1.45 The conceptual coverage of the SF-MST supports the integration of information on the three primary dimensions of sustainability – economic, environmental and social and different spatial scales from local to global scales. It is noted that the breadth of data brought together in the SF-MST will enable multiple perspectives on sustainability to be considered, including the perspective of tourism businesses (supply side), the perspective of visitors (demand side) and the perspectives of host communities and governments.

1.46 The following short descriptions are intended to provide a general sense of the coverage. There are linkages and overlaps between the dimensions such that specific themes may be considered part of more than one dimension, scale or perspective. For example, employment is relevant in both economic and social dimensions, will need consideration at both local and national scales and will have different meaning for businesses and host communities.

1.47 The economic dimension covers the production and consumption associated with tourism activity in terms of associated goods and services. This will commonly be reflected in measures such as visitor consumption and the output of tourism industries. The economic dimension also includes description of the characteristics of tourism industries and the production processes of tourism industries. It thus captures investments in produced capital.
(hotels, transport infrastructure, etc.), employment in tourism industries, and human capital (including skills and experience); and information on tourism establishments including the number, size, industry class and ownership.

1.48 The **environmental dimension** concerns the stocks and changes in stock of environmental assets, often referred to as natural capital, that support tourism activity through the provision of ecosystem services, a stable climate and biodiversity; or are affected by tourism activity. As well, the environmental dimension incorporates measurement of the flows of natural inputs to tourism production processes, such as flows of water and energy, and the flows of residuals that are generated from tourism production and consumption including GHG emissions, solid waste (including food waste and plastics), wastewater and other pollutants.

1.49 The **social dimension** covers a range of social aspects related to tourism activity. It includes the local, traditional and indigenous cultural aspects that can support tourism activity or may be impacted by tourism. It also includes the outcomes of tourism production processes in terms of the provision of local livelihoods, decent work and occupational health and safety (and hence links to employment); the contribution to individual and community health and well-being; performance in relation to gender equality, income equality, equality of opportunity, diversity and inclusion, and other aspects of equality; and the development of social capital reflected in the strength of community networks and institutional arrangements.

1.50 When referring to different spatial areas, the following terms are applied in the SF-MST:
- **Global** – referring to all countries and marine areas
- **Supra-national areas** – referring to groupings of countries (e.g. EU, Caribbean, Pacific)
- **National** – referring to countries
- **Regional** - referring to the level of administrative unit directly below the national level (corresponds to the NUTS 1 level in the EU territorial classification scheme)
- **Municipal** or **city-region** - referring to the level of administrative units corresponding to localized, but relatively large, populations. Generally, it will not be the case that tourism is concentrated evenly throughout an administrative unit.
- **Location** - referring to the areas or zones within a given municipality that exhibit particular concentrations or clusters of tourism activities and businesses.

1.51 The term **tourism destination** might refer to any of these scales (except global). Thus, a destination might be a supra-national area, a country, a region, a municipality or a location. In the discussion of the sustainability of tourism, the concept of a tourism destination appears to be most commonly associated with spatial areas defined at the local or municipal level and, when the term destination is used, it is this smaller conception of tourism area that is generally being applied.

### 1.5.3. Connecting SF-MST to other statistical frameworks

As introduced above, the implementation of a multiple capitals approach in the SF-MST will involve the use of data from existing accounting frameworks, statistics and other data sources on selected themes where accounting frameworks have not yet been developed. In this regard the SF-MST represents the integration of existing statistical frameworks. While not complete, the coverage of currently available statistical frameworks is very good across the economic, environmental and social dimensions. SF-MST presents the results of tailoring these frameworks to the tourism context.
1.53 The logical starting point for the implementation of multiple capitals approach is a focus on produced capital as defined within the framework of the United Nations’ System of National Accounts (SNA). The SNA 2008 (EC et al, 2009) is the most recent version of this international standard and provides the basis for the measurement of economic activity and economic wealth. The measurement scope of the SNA encompasses a range of other standards for economic statistics including the balance of payments statistics, government finance statistics and price statistics each of which have separate, but integrated, statistical standards.

1.54 The application of the SNA principles to tourism is encapsulated in the international standard for TSA - the Tourism Satellite Accounts: Recommended Methodological Framework 2008 (TSA: RMF 2008). This document describes in detail the accounting framework for describing tourism’s role in economic activity using a set of 10 interlinked tables. The TSA: RMF is underpinned by the International Recommendations for Tourism Statistics 2008 (IRTS 2008) which provides the international standard for the measurement of visitor flows and their characteristics, tourism expenditure and other key tourism statistics.

1.55 With respect to natural capital, the System of Environmental-Economic Accounting (SEEA) 2012 is the overall international statistical standard for the measurement of the environment and its relationship to the economy. The SEEA, like the TSA: RMF, is a national accounting-based framework that applies the accounting principles of the SNA. More recently, the SEEA has been extended to consider finer, sub-national, spatial scales through the development of standards for ecosystem accounting. Ecosystem accounting organizes data on ecosystems and their links to economic activity and is well suited to providing insights into the connection of tourism to the environment at local scales.

1.56 The SF-MST takes advantage of the common origin of the SEEA and the TSA: RMF in the SNA which allows the environmental dimension of tourism to be coherently integrated with the economic dimension. The integration of the SEEA and the TSA: RMF is an important component of the SF-MST.

1.57 Data on human capital is reflected in the SF-MST in two ways. First, using information on tourism employment by building on existing statistical work in this area by UNWTO and ILO. Second, the SF-MST discusses the potential for the measurement of human capital in tourism following accounting based approaches which have been implemented in a number of countries and by the OECD.

1.58 Social capital has not been sufficiently well defined and a standard statistical framework has not been developed. In the SF-MST, the measurement of the social dimension has therefore utilized statistical advances on relevant themes, such as standards for the measurement of decent work by the ILO, work on gender statistics by the UN and work on income distribution by the OECD.

1.59 Collectively, the SF-MST demonstrates how the concepts and definitions that have already been endorsed by the statistical community can be combined to take advantage of existing and new data sources to tell a more comprehensive story about the sustainability of tourism. In that sense, SF-MST should not be considered as a “stand alone” sustainability framework for tourism, but rather as a demonstration of the potential of statistical frameworks to operate in a joined-up fashion.
1.6. SF-MST outputs

1.60 The implementation of the SF-MST involves integrating input data from a wide variety of data sources covering the economic, environmental and social dimensions of tourism. The input data are integrated using the definitions, classifications and measurement boundaries of the SF-MST to generate coherent output data. These SF-MST output data can then be presented and disseminated, most commonly in tabular form, but also potentially in the form of maps depending on the type of source data.

1.61 There are three forms of tabular output in the SF-MST which are collectively referred to as SF-MST outputs. SF-MST accounts are tabular outputs that present data using a structure that reflects accounting rules, for example ensuring entries for stocks and flows are consistent and that the total supply and use of goods and services balances. SF-MST tables are tabular outputs that present data using a single measurement unit but which do not have an accounting structure. Combined presentations are tabular outputs that present data using a mixture of measurement units (e.g. data in monetary and non-monetary units).

1.62 The SF-MST output data can also be used to derive indicators that summarize performance. There are three types of indicators that are considered in the SF-MST: (i) totals and aggregates (e.g. total visitor numbers, tourism direct GDP); (ii) structural statistics (e.g. share of international visitors of total visitors, proportion of tourism employment in total employment); and (iii) ratio indicators (e.g. number of visitors compared to local population; energy use per visitor). The SF-MST itself does not incorporate a definitive indicator set for assessing the sustainability of tourism. However, throughout the chapters, as each measurement theme is discussed, relevant indicators are described and Chapter 6 provides an indicative set of themes and associated indicators that are commonly considered in the measurement of the sustainability of tourism. No composite indexes, involving the weighting and aggregation of a number of selected indicators, are described in the SF-MST.

Figure 1.4: The role of SF-MST in linking data inputs to indicators and analysis

1.63 Table 1.1 provides a summary of the different topics covered by SF-MST accounts and tables outputs. They are grouped according to their strength of association with the economic, environmental or social dimension. To ensure consistency and comparability of data, all SF-MST accounts and tables present data that are grouped and classified using the same classifications.
Table 1.1: Topics covered by SF-MST accounts and tables

<table>
<thead>
<tr>
<th>Dimension</th>
<th>SF-MST accounts and tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Tourism activity</td>
</tr>
<tr>
<td></td>
<td>Visitor movements</td>
</tr>
<tr>
<td></td>
<td>Tourism expenditure</td>
</tr>
<tr>
<td></td>
<td>Tourism infrastructure</td>
</tr>
<tr>
<td></td>
<td>Employment in tourism</td>
</tr>
<tr>
<td></td>
<td>Demographics of tourism establishments</td>
</tr>
<tr>
<td>Environmental</td>
<td>Water flows (including wastewater flows)</td>
</tr>
<tr>
<td></td>
<td>Energy flows</td>
</tr>
<tr>
<td></td>
<td>GHG emissions</td>
</tr>
<tr>
<td></td>
<td>Solid waste flows</td>
</tr>
<tr>
<td></td>
<td>Land use (incl marine areas)</td>
</tr>
<tr>
<td></td>
<td>Land cover (incl marine areas)</td>
</tr>
<tr>
<td></td>
<td>Water resources</td>
</tr>
<tr>
<td></td>
<td>Ecosystem condition for tourism related areas</td>
</tr>
<tr>
<td></td>
<td>Ecosystem services flows for tourism related areas</td>
</tr>
<tr>
<td>Social</td>
<td>Social capital and benefits (e.g. concerning crime, health, decent work/employment)</td>
</tr>
<tr>
<td></td>
<td>Visitor perception and satisfaction</td>
</tr>
<tr>
<td></td>
<td>Host community perception and satisfaction</td>
</tr>
<tr>
<td></td>
<td>Tourism governance</td>
</tr>
</tbody>
</table>

1.64 There are two primary types of SF-MST accounts – supply and use accounts and asset accounts. **Supply and use accounts** can be compiled in both monetary and non-monetary terms and relate to balancing the flows of goods and services among different economic units, including households, and between the economy and the environment (for example concerning flows of water and energy). They may also be structured so as to show flows between different spatial areas. Supply and use accounts compiled in monetary terms contain the information required to estimate tourism gross value added and related measures of economic activity.

1.65 **Asset accounts** can be compiled in monetary and non-monetary terms as well. They are designed to show the opening and closing stocks of specific asset types (e.g. produced capital, natural capital, human capital, social capital) and changes in the stocks of assets over an accounting period (e.g. one year). Changes in stocks of assets will include those due to investment, depreciation and degradation.

1.66 The accounts described in the SF-MST are based on the existing accounting standards the TSA: RMF and the SEEA and adopting relevant accounting principles from the SNA as appropriate. The relevant accounting principles concerning, for example, the definition of economic territory, time of recording, and monetary valuation, are not summarized here. Compilers are encouraged to read the relevant sections of the accounting standards just listed.

1.67 SF-MST **tables** present data required to assess the sustainability of tourism but the table structures do not embody accounting rules. Examples of SF-MST tables include presentation of data on employment, demographics of tourism establishments, visitor movements and data on social capital and benefits. SF-MST tables will be particularly relevant for the organization of data at sub-national and local scales where the compilation of SF-MST accounts is likely to be more challenging in relation to data requirements.
1.68 Each SF-MST account and table stands alone in the sense of providing a coherent set of information. At the same time, within the SF-MST, each account and table is part of an overall system in which linkages can be made among different outputs each focusing on a specific aspect. Further, this system of accounts and tables is designed for connection to similar accounts and tables concerning other activities, (e.g., agriculture, retail and finance), and hence the SF-MST accounts and tables can support integrated approaches to planning and decision making.

1.69 SF-MST combined presentations are designed to support the communication of information on the sustainability of tourism and the derivation of indicators. Combined presentations provide a means to bring together a range of information from more disparate sources and usually cover a number of topics in a single presentation and use a mixture of measurement units. In this context, the underlying accounts and tables provide the means to ensure that data in combined presentations are coherent and consistently compiled for any given topic, for example, environmental flows of water or energy.

1.6.1. Implementation and application of SF-MST

1.70 The SF-MST as introduced in this section has a wide coverage of topics and, on first impression, implementation is likely to be considered daunting. At the same time, three key points must be recognized:

- All of these topics are being considered in some way by decision makers within tourism but most likely in an ad hoc manner. The range of data is therefore broad but appropriate in the sense of ensuring that tourism statistics can cover the information requirements.
- While the development of tourism statistics for some of these topics is less developed, for many of the topics there are existing statistical standards and methods that are in place and which indicate that implementation of SF-MST is not starting from a zero base. Tourism statisticians are very much encouraged to start with the data that they currently have and to build from there. Further, technical support and expertise for compilation can be found in many different organizations, particularly at sub-national and destination level, and for topics not commonly measured by statisticians. SF-MST should be considered in this respect to provide a common point for the exchange of data, knowledge and experience.
- There is no expectation that all SF-MST accounts and tables should be compiled immediately or that the benefits of SF-MST can only be obtained if all accounts and tables are compiled. Like many other statistical standards, including the TSA: RMF, implementation should be considered in a flexible and modular way. That is, tourism statisticians should look to identify those SF-MST accounts and tables that are most relevant in their context and focus on their implementation in the first instance and, over time, look at the extension of the initial set.

1.71 In adopting a flexible and modular approach—depending on context, circumstances and priorities—it is envisaged that the tourism statistics community will work towards the compilation of a core set of data for assessing the sustainability of tourism that can be used for international comparison. While such an approach means that not all countries will implement all possible parts of the SF-MST at the same time or in the same order, all countries and destinations will be able to effectively compare, exchange experiences and understand the common challenges through the application of the same concepts, definitions and data organizations structures.
1.72 Implementation will require involvement from a range of agencies including data producing/supplying entities and data using entities. It is expected that national statistical offices (NSOs) and national tourism administrations (NTAs) will play leading roles. Chapter 6 provides an extended description of the types of roles that these and other agencies can play and discusses various issues of implementation and institutional arrangements.

1.73 The focus of implementation of SF-MST will commonly be the derivation of indicators and the release of a set of indicators to support discussion of the sustainability of tourism. The selection of components that should be the focus of measurement and indicators should be driven from two perspectives. First, from the perspective of users of information where the question of relevance should be paramount. It is likely that, in any given tourism context, there will be particular topics of concern, for example on water use or employment, which mean initial implementation is focused on the sections of SF-MST that are most relevant to supporting decision making on those topics. Second, from the perspective of data providers, the question of feasibility will be a fundamental question. Thus, initial implementation is likely to focus on those areas where data are most readily available and are of suitable quality.

1.74 Indicators are particularly important in providing clear signals concerning the effects of policy decisions and choices – for example through monitoring the growth in visitor numbers, the trends in visitor expenditure, the patterns of water use and the changes in tourism employment. Regular and reliable information on these types of indicators is best provided by a statistical framework since it ensures consistency in definition of indicators over time (including in the choice of measurement units), the coherence between different indicators and the ability to compare indicators among destinations, regions and countries. For example, if each destination defined tourism industries and employment in a different way, then there would be no means to be confident that trends monitored in one destination could be sensibly compared to trends in other destinations.

1.75 Data to support analytical modeling of economic, environmental and social phenomena is another important output supported by SF-MST. Examples include analyzing the relationship between tourism demand and employment, assessing visitor numbers and water use, and comparing the location of tourism establishments and changes in condition of local waterways. In each of these cases, ensuring that the data from the different areas are compatibly defined helps ensures the relevance and accuracy of the analysis.

1.76 Chapter 1 has provided an explanation of the rationale for the development of a statistical framework for measuring the sustainability of tourism, an overview of the SF-MST and a summary of implementation and potential applications. It provides a general entry point for data compilers since there will be a wide variety of experts involved in the development of the SF-MST, many of whom may not be official statisticians. Chapter 1 should have provided a common understanding and reference point for the implementation and application of the framework.

### 1.7. Structure of the SF-MST document

1.77 Chapters 2, 3 and 4 describe the relevant concepts, definitions, measurement boundaries, SF-MST outputs (including accounts, tables and indicators), and measurement issues for the economic, environmental and social dimensions of tourism respectively. Collectively, these chapters provide the core of the statistical framework in terms of determining the potential
areas of measurement and describing the various stocks and flows that are the focus of assessing sustainability. The majority of the descriptions in these chapters are applications of existing statistical standards and guidance. It is not intended to repeat all of the relevant material but rather to explain how these various existing materials can be integrated and applied to the challenge of measuring the sustainability of tourism.

1.78 Chapter 5 describes a distinctive but fundamental feature of the SF-MST, the need for statistics at multiple spatial scales – from destination and local levels to national and global levels. The discussion of spatial scale provides the entry point for a discussion on measuring sustainability since location provides the common basis for the joint assessment of economic, environmental and social factors.

1.79 Chapter 6 introduces the ways in which the data compiled in the SF-MST may be presented in combined presentations, used to derive indicators of sustainability, including the context of the United Nations Sustainable Development Goals, and applied in analytical models. The intent is to provide an indication of the potential applications of the SF-MST.

1.80 Annexes provide supporting information on classifications, definitions and a research agenda.