UNWTO Statistics Department

Measuring the Sustainability of Tourism: Developing a statistical framework for sustainable tourism

Overview of the initiative[1]

July 2016

1. Background

This Overview describes a recently launched initiative to establish a statistical framework for the measurement of sustainable tourism. The Measuring Sustainable Tourism (MST) initiative was commenced in late 2015 by the UN World Tourism Organization (UNWTO) in partnership with the UN Statistics Division (UNSD). 2017 will be the International Year of Sustainable Tourism and substantial progress on the articulation of a statistical framework is planned through 2016 and early 2017.

It is intended that a central feature of the statistical framework will be the connections between the established accounting framework for tourism, tourism satellite accounts (TSA) and accounts from the System of Environmental-Economic Accounting (SEEA) framework[2]. In using an accounting basis for the statistical framework, the initiative seeks to harness the general benefits that arise from the use of accounting approaches in ensuring internal coherence, the ability to understand data gaps and place different information in context, and the potential to derive indicators based on consistently defined economic and environmental information.

The Overview is structured to provide a short introduction to sustainable tourism (section 2); a description of the intended scope of the MST initiative (section 3); and overview of the use of accounting to form a statistical framework (section 4); an overview of potential accounting tables and indicators that might emerge from combining TSA and SEEA based accounts (section 5); and a summary of the planned approach to advancing the MST initiative including a listing of the key technical issues to be resolved (section 6). Section 7 concludes.

---

[1] Prepared by Carl Obst under the direction of UNWTO's Statistics and Tourism Satellite Account Programme (contact: Clara van der Pol cvanderpol@unwto.org)

[2] It is noted that in the longer term there would be the potential to develop links to other frameworks and initiatives such as UNESCO's work on cultural aspects of tourism.

2. An introduction to sustainable tourism

Sustainable tourism has been a topic of discussion in tourism circles since the early 1990s. The UNWTO, in particular, has been involved in a range of projects to support the development of sustainable tourism, especially in the context of developing guidance for planners and policy makers. A particularly significant document was the release in 2005 of the joint UNWTO/UNEP publication "Making tourism more sustainable: A guide for policy makers". This document featured a definition of sustainable tourism covering the three primary domains of environment, economy and culture and a description of 12 primary policy connections or themes (see Box 1).

Tourism observatories are being established in many destinations with the aim to better understand, monitor and advise on policy towards more sustainable development of tourism. The design, implementation and analysis of indicators are a fundamental part of their work. UNWTO's International Network of Sustainable Tourism Observatories (INSTO) recognizes and builds on these initiatives by addressing policy makers, planners and tourism managers in order to strengthen institutional capacities for information management and monitoring in support of decision and policy making.

From a measurement perspective, the main contribution in the area of sustainable tourism from the UNWTO has been the ongoing work to develop relevant sets of indicators that respond to policy needs. The most significant work in this respect was the 2004 UNWTO Guidebook for Indicators of Sustainable Development for Tourism Destinations. Building on earlier work and linked to the Guide for policy makers, the Guidebook for Indicators identified a very large number of indicators (over 700) across 13 issues. These and other initiatives worldwide have advocated the use and implementation of indicators as a structural part of sustainable tourism development.

Other international organizations and bodies have also made some key contributions to the measurement of sustainability related to tourism; especially notable is the work of EUROSTAT[3], the OECD[4] and the European Commission's initiative on a European Tourism Indicators System (ETIS) for sustainable destination management[5].

[3] See "Methodological work on measuring the sustainable development of tourism", available at: http://ec.europa.eu/eurostat/web/tourism/methodology/projects-and-studies.

[4] 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)

[5] See: http://ec.europa.eu/growth/sectors/tourism/offer/sustainable/indicators_en.

Box 1: Defining sustainable tourism

UNWTO definition:
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:

1. 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.

2. 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.

3. 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.

Source: UNEP/UNWTO 2005, Making Tourism More Sustainable: A Guide for Policy Makers, Box 1.1

Policy implications of a sustainable tourism agenda

1. Economic viability	7. Community Wellbeing
2. Local prosperity	8. Cultural Richness
3. Employment quality	9. Physical Integrity
4. Social Equity	10. Biological Diversity
5. Visitor Fulfillment	11. Resource Efficiency
6. Local Control	12. Environmental Purity

There are two observations from this past work on indicators to monitor tourism in the framework of sustainable development. First, the focus has, on the whole, been on the development of indicators that are relevant at a relatively small scale, i.e. local tourism destinations and regions, as opposed to the national level. Indeed, these sustainable development indicators have been developed largely in isolation of national tourism measurement initiatives. Second, the selection of indicators has been issues driven – i.e. first identifying a policy or analytical issue within the general scope of economic, environmental, social and cultural domains (consistent with the scope of the definition of sustainable tourism) and then, for each issue, describing indicator/s (e.g. UNWTO 2004).

These two factors have resulted in, or coincided with, little development of an underlying body of statistics for monitoring sustainable tourism, especially at a national level. Further, there is a distinct lack of environmental data available in relation to tourism activity. Indeed, the

International Recommendation on Tourism Statistics, adopted in 2008, acknowledges this situation in a short section on “Tourism and Sustainability” (Chapter 8: Understanding tourism in its relationship with other macroeconomic frameworks). This section concludes with the recommendation that “linking tourism and sustainability be considered a priority” for future work.

Given this background, the core rationale for the MST initiative is that, despite the long- standing interest and discussion in sustainable tourism, and the important advances in tourism statistics, there is as yet no standardized basis for the collection of relevant information, particularly at the national level. This is a significant gap, and one that limits the potential for the development of policies directed at advancing sustainable tourism. This is especially so when sustainable tourism is just one among many policy areas which governments must consider.

It is also important to note that much policy direction, and resource allocation, is decided on at national rather than local levels. And while it is true that many effects/dependencies of tourism and actions to influence it are only manifest /meaningful at small spatial levels, there are also important sustainability questions that have national or global implications (CO2 emissions, climate change are obvious examples).

The ambition of the MST initiative is therefore to develop a statistical framework for the multiple domains of sustainable tourism, such that there is (i) a standardized framework for the collection of information; (ii) a means to integrate tourism statistics with other economic, social and environmental information; and (iii) a coherent information base for the derivation of indicators that are relevant for the monitoring and analysis of sustainable tourism.

3. Scope of the MST initiative

The ideal conceptual scope for a statistical framework would encompass all of the elements identified in the definition of sustainable tourism presented in Box 1 above. In short, economic, environmental, social and cultural statistics would all be within scope.

At this stage however, the intended focus for the MST initiative is coverage of economic and environmental statistics and some social statistics such as employment. The reason for this focus is three fold:

- First, from the perspective of sustainable development a particular gap in measurement for tourism concerns the environmental domain while there is much policy interest in the ways in which tourism contributes to environmental degradation and, at the same time, may support moves towards environmental conservation and sustainability.

- Second, in the development of integrated, multi-domain statistical frameworks far more progress has been made on the development of frameworks that integrate economic and environmental domains than those linking to socio-cultural domains.

- Third, the frameworks that are developing for measurement of the economic-environment interaction are extendable to measurement at multiple scales (notably through ecosystem accounting) thus supporting the collection of integrated data at national and local level.

As the initiative progresses, consideration will be given to the integration of socio-cultural information. It is noted that in the development of broad indicator sets for sustainable tourism, there is no barrier to including socio-cultural indicators alongside economic and environmental indicators, however, in the short term, only economic and environmental indicators would be based on data from an integrated statistical framework.

When considering the links between the economic and environmental domains some particular topics that might be examined include:

- The environmental impacts of tourism activity (e.g. greenhouse gas (GHG) emissions and climate change, solid waste, wastewater, disruption of ecosystems and biodiversity)

- The dependency of tourism activity on the environment (e.g. water and energy requirements, healthy and good quality ecosystems – beaches, reefs, forests, etc.)

- Activities and responses (both economic and behavioural) of tourism businesses and visitors in relation to environmental challenges (e.g. environmental protection expenditure, environmental taxes, destination choice)

- Some socio-economic impacts of tourism activity (e.g. on employment)

- The dependency of tourism activity on infrastructure including a suitably qualified workforce, transport infrastructure and public facilities[6].

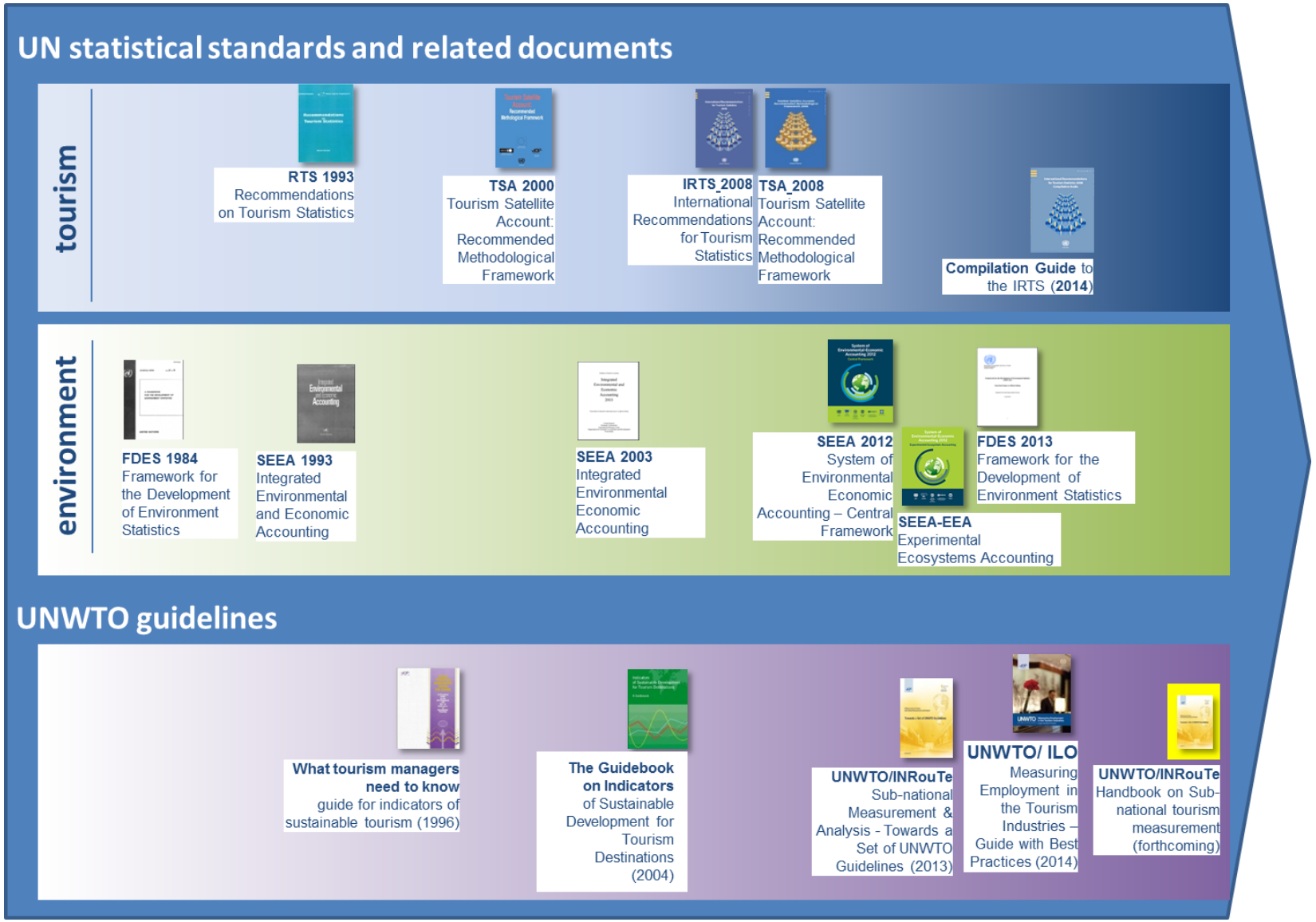
The ambition is to largely rely on data from ongoing measurement programs and thus place tourism statistics in a broader context to support local and national decision making. Overall, it is anticipated that the development of a statistical framework will facilitate a range of tourism related information and statistics being collated and presented to tell a coherent and broader story about tourism.

4. The use of accounting to form a statistical framework

The development of a statistical framework covering the economic and environmental domains of sustainable tourism can build on much existing work. Indeed, in many ways the MST initiative represents the continuation of a statistical journey surrounding tourism statistics, environment statistics, national accounts and even work on the various indicator initiatives. The developments in these areas over the past 20 years are portrayed in Figure 1. The figure serves to highlight the considerable statistical foundation that exists for the integration of tourism data from multiple domains. Over the past 20 years developments in tourism statistics, tourism satellite accounts, environment statistics, environmental-economic accounting and sustainability indicators have each served to advance the understanding of the measurement challenges and opportunities. The MST initiative will take advantage of the findings from the development of these various standards and their implementation.

[6] In time, extensions might be made to other forms of “infrastructure” such as workforce capability (human capital), cultural heritage, governance and social capital.

Figure 1. Some key building blocks for a statistical framework for measuring sustainable tourism



Primary focus will be on the potential to combine the accounting frameworks of Tourism Satellite Accounts (TSA) and the System of Environmental-Economic Accounting (SEEA). Work on combining these frameworks has been considered previously, for example work in Canada[7] and Italy[8], but a more rigorous articulation of the connections is to be considered as part of the MST initiative.

This potential benefit of developing a statistical framework based on accounting is reflected in the role that the standard national accounts framework has played since its initial development in the 1930s. The relative success of the national accounts as an area of statistics is based on three key features that are inherent in accounting based approaches. All of these features are equally inherent in the TSA and SEEA accounting frameworks which are specific applications of the core System National Accounts (SNA).

The first key feature is that the national accounts gives internationally agreed definitions in measurement terms to macro-economic concepts such as production, consumption, income, investment, international trade, saving and net wealth. Consequently, the national accounts dataset has provided the evidence base for the development and monitoring of macro- economic policy over the past 70 years.

Second, the SNA provides a coherent measurement framework in which data about the various economic variables and accounts can be confronted and balanced to provide a single, integrated picture of the macro-economic situation of a country. This is not only true in terms of specific time periods but also in terms of providing a consistent time series and, via the international standards, the capacity to compare across countries.

Third, the breadth of the national accounts including its compilation in both nominal and real terms, provides a framework for the compilation of economic statistics generally. This feature of the accounts has gradually been incorporated into many national statistical systems such that there is increasing alignment, in an end-to-end sense, between the collection of economic statistics (including the formation of statistical infrastructure such as business registers) and the release of quarterly measures of economic activity.

Together, these three factors mean that there is an important and long-standing rationale for the support of national accounts systems and the use of accounting frameworks. A summary of statistical frameworks and the related information pyramid is provided in Box 2.

Accounting frameworks can also be seen in the context of other statistics and indicators. The information pyramid (Figure 2 below) has been developed to demonstrate the different roles and connections within the statistical system. It can also be seen that different types of analysis will be informed by different types of information. Thus broad monitoring might be best facilitated by indicators, comparative analysis is facilitated by accounting type information and detailed issue specific analysis supported by detail statistics on specific themes. Detailed statistics will include data at a sub-national level. The role of an accounting framework in this context is to support the maintenance of a coherent set of information across different types of analysis whether using indicators, accounts or basic statistics.

[7] Jackson, C. et al. (2008), "Linking the Canadian Tourism Satellite Account and the Canadian System of Environmental and Resources Accounts to measure the environmental impact of tourism in Canada: An exploratory study for two pilot countries", presented to the 9th International Forum on Tourism Statistics, Paris, November 19-21, 2008.

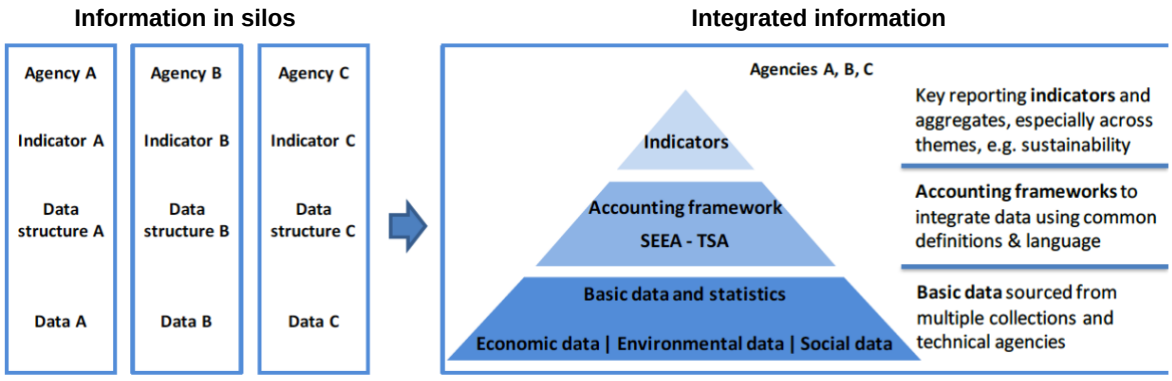
[8] Constantino, C. and A. Tudini (2005) "How to develop an accounting framework for ecologically sustainable tourism" in Lanza A., Markandya P.F. (eds.) *The Economics of Tourism and Sustainable Development*, Edward Elgar,UK.

Box 2: What is a statistical framework?

A statistical framework is an organizing structure for data and statistics that provides a common understanding on concepts, definitions and related terminology, and is independent from the methods by which data might be collected.

The information pyramid below depicts how one type of statistical framework, accounting frameworks, play the role of integrating data from multiple sources through coherent concepts and definition. The coherent data formed in accounting frameworks can then be used to derive consistent and cross-cutting indicators covering multiple themes. Examples include indicators relating to sustainability, productivity, carrying capacity and resource efficiency.

Figure: The Information Pyramid



Some benefits of a statistical framework are that it

- Aligns with information needs of users
- Underpins collection and analysis of data by promoting coherence, consistency and clear thinking about a subject
- Identifies how to measure agreed concepts: data sources, relevant classifications, methods, variables and indicators
- Helps focus, prioritize resources towards statistics that matter the most
- Helps identify data gaps and areas of duplication

Adapted from UNSD and Australian Bureau of Statistics

It is likely that a large range of information relevant to the analysis of sustainable tourism can be brought within an accounting based framework. However, as shown in the list of policy issues in Box 1 and as evidenced in the set of indicators in the Guidebook, there are some relevant indicators that cannot be easily placed in an accounting context. For example, information on visitor experience or the perspectives of residents on the impacts of tourism activity on their well-being. In these situations, it will be relevant to recognize the demand for these data, place that information in context and seek opportunities to develop relevant standards for the collection of information – for example ensuring that the geographic scoping of data collection can be aligned with data collected within an accounting framework.

5. Potential integrated tables and indicators for sustainable tourism

Introduction

As noted above, primary focus in developing the statistical framework will be on the potential to combine the accounting frameworks of Tourism Satellite Accounts (TSA) and the System of

Environmental-Economic Accounting (SEEA). Work on combining these frameworks has been considered previously, for example the work in Canada and Italy noted above. Using these earlier studies, the MST initiative will look to ensure a full articulation and resolution of various technical issues (see Section 6) while recognizing the need for the framework to be widely applicable around the world. It is noted that an example of connecting tourism and SEEA has also been included in the SEEA Applications and Extensions, Chapter 4.

A general issue that must be considered is that accounting as applied in the SEEA framework is primarily from a supply perspective – i.e. the common focus is on natural inputs to economic units and residual flows from economic units from a production perspective. In contrast. tourism statistics and the associated TSA reflect a demand focus whereby the scope of the data depends primarily on the characteristics of the consumer, i.e. whether or not the consumer is a visitor. Further, the status of a consumer as a visitor will continually change over time as people move in and outside their usual environments. Box 3 articulates this point precisely with respect to the TSA.

Box 3: Relationship between the Tourism Satellite Account and the central framework of the System of National Accounts 2008

It is worthwhile underlining that tourism direct gross value added (TDGVA), the aggregate used in the Tourism Satellite Account to measure the size of tourism, does not correspond to the gross value added of any set of productive units developing similar production processes, as is the case of such measurements in the central framework of the SNA 2008. TDGVA is defined as part of the gross value added generated in the economy by tourism industries and other industries directly serving visitors in their supply of goods and services in response to internal tourism consumption. Part of this aggregate may be generated by tourism industries, and part of it may also be generated by other industries. Not all the gross value added of tourism industries (GVATI) is part of TDGVA since these industries may also serve non-visitors, in the same way that non-tourism industries may serve visitors and thus generate part of TDGVA.

Source: TSA: RMF 2008 Annex 2

By way of example, the supply and use of water products is measured in its entirety in a SEEA physical flow account for water, including production and consumption in the household sector. This would provide, for example, an estimate of the level of consumption of water by, for example, restaurants. A tourism perspective on the other hand, requires an understanding of the share of value added that is attributable to the expenditure of visitors, i.e. those people outside of the their usual environment[9]. The integration question is therefore is what share of water use by restaurants might be attributable to tourist activity.

The challenge of melding demand and supply perspectives in an accounting context will be discussed through the course of developing the statistical framework. Importantly, there are some alternative, albeit partial and intermediate, presentations of data that can be envisaged. These presentations are still based on accounting conventions of the SEEA and TSA and can be used to derive relevant indicators of sustainable tourism. Some of these possible presentations and indicators are shown below, noting that they have not yet been the subject of discussion among experts in this area and should be considered proposals aimed solely at demonstrating the potential in this area and also the technical challenges.

[9] Visitor—A *visitor* is a *traveller* taking a trip to a main destination outside his/her *usual environment*, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited (IRTS 2008, para. 2.9).

Physical flow accounts for tourism characteristic industries

The most straightforward connection that may be made is through developing physical flow accounts for tourism characteristic industries. Tourism characteristic industries are the activities that typically produce tourism characteristic products. Tourism characteristic products are those that satisfy one or both of the following criteria: (a) tourism expenditure on the product should represent a significant share of total tourism expenditure (share-of- expenditure/demand condition); (b) tourism expenditure on the product should represent a significant share of the supply of the product in the economy (share-of-supply condition)[10].Box 4 provides a listing of the twelve categories of tourism characteristic industries. Categories 1 through 10 comprise the core categories for international comparability purposes. The remaining two categories are country specific, with category 11 covering tourism characteristic goods and the corresponding retail trade activities, and category 12 covering other tourism characteristic services and activities that may be relevant in the country.

Box 4. Categories of tourism characteristic products and activities (tourism industries)	
Characteristic products	**Characteristic activities**
1. Accommodation services for visitors	1. Accommodation
2. Food and beverage serving services	2. Food and beverage serving activities
3. Railway passenger transport services	3. Railway passenger transport
4. Road passenger transport services	4. Road passenger transport
5. Water passenger transport services	5. Water passenger transport
6. Air passenger transport services	6. Air passenger transport
7. Transport equipment rental services	7. Transport equipment rental
8. Travel agencies and other reservation services	8. Travel agencies and other reservation services activities
9. Cultural services	9. Cultural activities
10. Sports and recreational services	10. Sports and recreational activities
11. Country-specific tourism characteristic goods	11. Retail trade of country-specific tourism characteristic goods
12. Country-specific tourism characteristic services	12. Other country-specific tourism characteristic activities

The SEEA presents a range of physical flows accounts, the primary ones concerning energy flows, water flows, air emissions, solid waste and emissions to water. All of these topics may be of interest in the context of assessing sustainable tourism. A series of these accounts would help to inform discussion of, for example, water use, energy use, greenhouse gas emissions, and flows of solid waste by tourism characteristic industries. By way of example, the following two tables show a possible structure for accounts related to water and GHG emissions. By making the necessary changes, similar accounts can be constructed for other physical flows. Note that the physical flow account for water has been somewhat simplified for the demonstration purposes here. In practice a more complete account incorporating flows of recycled and reused water would be developed in line with the format in the SEEA Central Framework.

[10] See IRTS paras 5.8-5.11 & 5.18

Table 1: Physical flow account for water for tourism characteristic activities

Physical supply table for water

	Abstraction of water; Production of water; Generation of return flows									Flows from the rest of the world	Flows from the environment	Total supply
	Tourism characteristic activities						Water collection, treatment and supply	Sewerage	Other industries	Households	Imports		
	Accommodation	Food & beverage	Transport	Culture & Recreation	Other	Total							
(I) Sources of abstracted water													
Inland water resources													
Other water sources													
Total abstracted water													
(II) Abstracted water													
For distribution													
For own-use													
(III) Wastewater generated													
(IV) Return flows of water													
(V) Evaporation of abstracted water, transpiration and water incorporated into products													
Total supply													

Physical use table for water

	Abstraction of water; Intermediate consumption; Return flows									Final consumption	Accumulation	Flows to the rest of the world	Flows to the environment	Total use
	Tourism characteristic activities						Water collection, treatment and supply	Sewerage	Other industries	Households		Exports		
	Accommodation	Food & beverage	Transport	Culture & Recreation	Other	Total								
(I) Sources of abstracted water														
Inland water resources														
Other water sources														
Total use abstracted water														
(II) Abstracted water														
Distributed water														
Own use														
(III) Wastewater														
(IV) Return flows of water														
(V) Evaporation of abstracted water, transpiration and water incorporated into products														
Total														
Total use														

Table 2: Physical flow account for GHG emissions for tourism characteristic activities

	Supply table for air emissions										**Use table for air emissions**	
	Generation of emissions								**Accumulation**	**Total supply of emissions**	**Flows to the Environment**	**Total use of emissions**
	Tourism characteristic activities						Other industries	Households	Emissions from landfill		Emissions released to the environment	
	Accommodation	Food & beverage	Transport	Culture & Recreation	Other	Total						
Type of substance												
Carbon dioxide												
Methane												
Dinitrogen oxide												
Nitrous oxides												

These tables reflect a production or supply perspective and hence do not require changes to the conceptual framework for physical flow accounts outlined in the SEEA Central Framework. The largest challenge in compiling these accounts will be collecting data on the physical flows for the specific tourism industries.

In interpretation it is important to recognize that the aggregate physical flows across tourism industries shown in these tables will overstate the contribution of tourism since some of the activity captured in these tables will relate to non-tourism activity. Further, there may be flows relating to non-tourism characteristic industries that are part of the provision of products to visitors that would be omitted in such an aggregation.

For some physical flows, particularly water, it is likely to be particularly important to understand the sub-annual and seasonal patterns. In most locations, tourist activity will peak at certain times of the year and the sustainability of tourism activity will require an understanding of whether the peak demand can be satisfied given expected patterns of supply of natural resources, which may also be affected by seasonal variation. It also likely to be appropriate in certain cases, again including water, to understand the spatial distribution of flows within a country. The development of the MST statistical framework will need to consider appropriate means by which sub-annual and sub-national information can be incorporated.

Embodied environmental flows for tourism characteristic products

All products are outputs from production processes which are, at an aggregate level, reflected in standard supply and use tables. Using the information on the relationships between inputs and outputs of goods and services reflected in these tables, in principle it is possible to determine a link between the environmental flows of specific production processes and the outputs that are ultimately consumed. For example, it could be possible to estimate the quantity of energy embodied in the provision of rooms or unit accommodation services for visitors. The same logic can be applied in for other environmental flows such as water and GHG emissions.

The techniques of attributing environmental flows to categories of final demand are well established and widely applied. The SEEA Applications and Extensions provides an introduction to the relevant approaches and associated literature in Chapter 3 and, in Chapter 4, it provides an example of applying this approach in relation to household consumption. It could be possible to use the principles outlined in SEEA Applications and Extensions to attribute environmental flows to tourism characteristic products, and using information tourism expenditure, potentially differentiating by different types of visitor.

Connecting sustainable tourism and ecosystem accounting

As noted in Section 2, sustainable tourism has commonly been conceptualized and applied at a destination level. This focus on specific areas within a country has a natural connection to the spatial accounting approach used in ecosystem accounting. One area of focus in the development of the statistical framework will therefore be on developing a set of information that supports analysis at a fine spatial level.

The logic of the approach here would be to define spatial areas for analysis including the tourism destination itself and related ecosystems, for example beaches, national parks, marine areas, etc.

For each spatial area an assessment would be made of ecosystem condition, for example using indicators of the quality of beaches, which could be tracked over time to provide insight into the environmental impact that could be attributable to tourist activity. From a supply perspective, the scope of accounting might be extended to include the changing condition of water catchments and groundwater systems that underpin the provision of water to support tourism activity.

Further, assessment could be made of the supply of ecosystem services from the various ecosystems including those services that contribute to tourism activity but also other services that may be jointly produced. For example, carbon sequestration of forests which are visited by tourists. An important distinction might be identified between visitor direct consumption of natural inputs, e.g. water; and visitor use of ecosystems for recreation, e.g. lakes, rivers and beaches. The allocation of ecosystem services to various beneficiaries, including visitors, permanent residents of the area and others, can support a broader discussion on the potential changes in the mix of ecosystem services supply associated with tourism activity and development.

In the first instance ecosystem accounting in physical terms would be a likely focus. However, there may be interest in the valuation of ecosystem services and related ecosystem assets. To this end, the fact that much information on tourism can be attributed to specific destinations, may provide information to support direct valuation of ecosystem services. This may in turn be used to support broader work on ecosystem accounting.

Indicators for sustainable tourism

An extensive set of indicators has been proposed in relation to sustainable tourism but they have not been selected or developed in the context of a statistical framework. The ambition in the MST initiative is to enable indicators to be derived from the statistical framework and hence have a firm base for ongoing measurement and comparison, for the assessment of data quality and for appropriate co-ordination of collection activities.

At this stage there has been no conclusive discussion on the types of indicators of sustainable tourism that might be defined. However, related discussion has taken place in the context of defining indicators for monitoring the UN Sustainable Development Goals (SDGs). There are two targets that require measurement of sustainable tourism, namely:

> Target 8.9: By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.
>
> Target 14.7: By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

For both targets, the current proposals are for the measurement of sustainable tourism using information that can be derived from TSA – that is, tourism GDP (TGDP) and tourism employment/jobs. These two indicators are intended to cover the economic dimension of sustainable tourism and, in part, the social dimension. At present there is insufficient confidence in the capacity to measure indicators that capture the environmental dimension.

Building on the discussion above, the statistical framework envisaged here would support the derivation of indicators such as tourism related GHG emissions, energy use and water use. Within

an accounting framework these flows might be compared to TGDP or tourism expenditure. These types of indicators will support an improved understanding of the environmental pressures created through tourism activity.

From an ecosystem accounting perspective, a longer term ambition might be to develop connections between tourism activity and changes in ecosystem condition that can be attributed to that activity, but the development of these types of indicators is not considered a priority at this stage.

A final note on the discussion of indicators of sustainable tourism in the context of the SDGs concerns indicators related to the implementation of tools to monitor progress towards sustainable tourism (Target 12.b)[11]. For this target the proposal is to assess progress towards the implementation of both TSA and SEEA based frameworks and their application to sustainable tourism. Advancing a statistical framework for measuring sustainable tourism is of direct relevance in this regard.

Beyond SDG relevant indicators, it will be important to assess the extent to which the broad range of sustainable tourism indicators that have been described by UNWTO, may be derived from the accounting based statistical framework that will be developed.

6. Advancing the MST and developing the statistical framework

Key stakeholders

It is intended that the MST initiative be conducted collaboratively between UNWTO and the UN Statistics Division (UNSD), under the auspices of the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA), the WTO Committee on Statistics and Tourism Satellite Accounts and the WTO Committee on Tourism and Sustainability. A Working Group for the MST initiative has been established to support this engagement work.

Beyond these formal arrangements, the development of frameworks about sustainable development naturally cuts across a range of disciplines and agencies. In addition to the UNWTO and UNSD as leaders of the statistical work, relevant international organizations include the OECD, IMF, World Bank and UNESCO.

At national level, there will be important roles for national and sub-national tourism administrations in particular, but also, potentially for central and territorial planning agencies, development agencies and banks, environment departments and natural resource managers, and transport agencies. Staff in all of these types of organizations are considered the primary users of data on sustainable tourism and hence should be involved in the development of the statistical framework.

From the perspective of statistical production and compilation, advancing the statistical framework for sustainable tourism will involve experts from national statistical offices, academia and other organizations in areas including:

[11] Target 12.b: Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

- tourism statistics
- environment statistics
- national accounts, employment, trade and other economic statistics
- environmental-economic accounting
- tourism satellite accounts
- transport and mobility data,
- geo-spatial and regional statistics data
- classifications of activities, products and environmental stocks and flows

Usually, experts in these different areas will be based in different agencies or in different units within agencies. Successful progress will require co-ordination among these different groups, particularly the different statistical areas – tourism, environment and economic statistics – and national accounting units.

An important task in taking this work forward is to ensure appropriate engagement from experts in these various statistical and measurement areas. As appropriate, engagement will take place with international groups established for the discussion of these types of technical areas. An example is the London Group on Environmental-Economic Accounting.

Main steps involved in advancing the statistical framework

To develop a statistical framework for sustainable tourism the following seven steps are considered relevant.

(i) Initial framing of sustainable tourism for measurement purposes

Building on the definition of sustainable tourism from Box 1, this step will involve further refinement of the scope of sustainable tourism for measurement purposes. As noted in Section 2, the intended initial scope is focused on the environmental and economic domains. The socio-cultural domain will be considered more explicitly at a later stage. Within the environmental-economic dimension further detail will be required to appropriately target the design of the statistical framework.

Relevant considerations in this refinement include (a) defining the scale of measurement (national, regional, local), (b) determining the relative focus on environmental outcomes (change in environmental stocks and their quality) or environmental pressures (e.g. water use, pollution and emissions), (c) considering the potential to incorporate a broad range of ecosystem services; and (d) the scope of expenditures on environmental goods and services that might be captured.

It is intended that the statistical framework will support analysis from a production perspective, a consumption perspective and in terms of a more localized ecosystem specific perspective that may be particularly suited to local level decision making.

As part of this initial framing work, consideration will be given to the types of indicators that could be generated from the statistical framework. This consideration is important upfront to ensure that the detail in the framework is sufficient to support the provision of information of relevance to key policy issues. The connection to the development of SDG indicators is particularly relevant in this context.

(ii) Assess relevant statistical guidance and frameworks

Based on the understanding of key policy issues and the framing of sustainable tourism (above), the second step is to assess how existing statistical guidance and frameworks might be best utilized and integrated in the formation of a statistical framework for sustainable tourism. Likely existing sources to be considered are

- TSA (TSA:RMF 2008)
- SEEA 2012 Central Framework
- SEEA 2012 Experimental Ecosystem Accounting
- International Recommendations for Tourism Statistics (IRTS 2008)
- Framework for the Development of Environmental Statistics (2014)
- INRouTe work concerning spatially enabling tourism statistics (2015)

As an initial, short-term output to promote discussion in this area, a paper will be drafted proposing some potential accounts for measuring sustainable tourism.

In addition, it will be relevant to ensure linkages can be made to the work currently underway to define indicators for the UN SDGs being led by the SDG inter-agency expert group (IAEG-SDG). Support for the discussion of these linkages may emerge from the technical note just proposed.

(iii) Assess country experiences

To inform both the relevance and feasibility of the statistical framework it will be important to take advantage of experience to date at country level in measurement related to sustainable tourism. These experiences may cover work on the development of indicator sets, work on specific aspects of sustainable tourism (e.g. on GHG emissions) and work on environmentally extended tourism satellite accounts. An initial task will be the collection of information, or stock-take, of countries experiences in TSA and SEEA implementation, possibly using a questionnaire.

(iv) Describe key measurement challenges

As part of developing the statistical framework it will be important to understand and document the key measurement challenges – both conceptual and practical. Statistical frameworks are theoretical in nature to provide a clear sense of direction and scope for measurement and analysis. At the same time, there must be a clear understanding of challenges such that implementation of the framework can be appropriately communicated and understood, and that a path towards implementation can be determined. This, in turn, will support discussion of data requirements and the development of alternative measurement options.

The following issues are noted at this initial stage. This initial set will be subject to consultation with experts, the drafting of relevant issue papers and discussion at the next expert meeting planned for October 2016.

a. The integration of the demand side/consumption – “visitor” - perspective inherent in tourism with the supply side/production perspective inherent in much environmental statistics. Connecting these perspectives for the full range of relevant variables will not be straightforward and some of the complexities have been described earlier in this paper.

b. The attribution of environmental flows in the context of international tourism. The standard SEEA/SNA approach to attribution involves assigning natural inputs and residual flows to the economic units that use or generate the flows. In the case of tourism this will generally mean that flows are attributed to economic units supplying tourism characteristic products. However, it may be of significant analytical interest to understand the contribution of the consumption of non- residents, including for example, the attribution of GHG emissions due to air travel to the residence of the traveller.

c. A related demand side measurement issue is the definition of a travel party and the links between this concept and the associated statistical concept of households will be an issue to consider.

d. Generally statistical frameworks are developed and implemented to provide national level information. However, for understanding environmental impacts and dependencies and for understanding tourism behavior it is increasingly clear that sub-national/location level information is required. Ideally, the statistical framework will provide coherence between national and sub-national perspectives. Of course, the data requirements are much increased as finer scale information is incorporated and some variables may not be amenable to measurement at finer scales. Thus describing the appropriate scales of measurement for the various parts of the statistical framework will be important, since it is likely that different data sources and measurement approaches are required for data at national compared to local level.

e. In defining the scales of measurement, a particular focus will be needed on incorporating the concept of tourism destinations with national and regional level areas. Given the intent to link environmental and economic data, this will mean that spatially defining tourism destinations will need to reconcile with areas that are meaningful from an ecological perspectives, such as water catchments and coastal zones.

f. Generally, frameworks for economic statistics are based on a focus on production, consumption and investment behaviour of *individual* economic units, i.e. businesses, households and governments. However, when integrating environmental and social perspectives it is important to be able to allow for public/societal costs and benefits, many of which are not-priced explicitly in markets. The extent which measurement of these public costs and benefits can be taken into account will be an important aspect of the framework.

g. A particular issue in tourism statistics, particularly at local level, is the seasonal nature of tourism activity. It will be important to consider options for recording information on a sub-annual basis to support analysis of seasonal trends and to consider how seasonal trends might be linked to environmental patterns – for example linkages between rainfall and water use.

h. From an analytical perspective a particular concept that may be advanced from a measurement perspective is “carrying capacity”. This concept has been developed in the field of sustainable tourism and may speak directly to the linkage between the economic and environmental domains.

i. From a data collection perspective, an interesting area for consideration is the potential role of non-survey based data, for example from administrative sources or satellite data. The potential to utilize this information should be considered in the development of the statistical framework.

(v) Engaging with users and clarifying requirements

The development of statistics must respond to the needs of users. In the case of tourism this will include both government and private sectors. The various types of analysis and specific areas of focus within the broad coverage of sustainable tourism should be discussed and understood with relevant stakeholders. A questionnaire may be helpful for this process. This will enable the statistical framework to be relevant and also ensure effort is placed in priority areas.

(vi) Develop country pilot studies

Beyond utilizing the experience of countries that have already undertaken work on the measurement of sustainable tourism (step iii), it will be appropriate to look to examine the relevance and feasibility of the statistical framework through country pilot studies. These may be undertaken in both statistical advanced and less advanced countries, with an aim of covering all of the different UNWTO regions. In addition to being useful for assessing the potential of the statistical framework at country level, the findings from country pilot studies should be able to inform on the potential to support global monitoring on sustainable tourism.

A separate document “UNWTO MST Designing pilot studies” has been developed to support these activities. It describes the main objectives and benefits from undertaking pilot studies and also summarizes the key aspects to consider in designing a pilot study, including its scope, policy focus, institutional arrangements, data collection and management and presentation of results.

(vii) Draft a statistical framework for sustainable tourism

Based on the information obtained from the previous six steps it will be possible to draft a statistical framework for the measurement of sustainable tourism. The framework can then be the subject of relevant consultation and approval processes.

Links to other streams of work

In conjunction with the work on the development of a statistical framework, the MST initiative will be useful to feed the development of indicators for monitoring sustainable tourism in the context of the UN SDGs and also to build on the development of sub-national tourism statistics in the context of the INRouTe initiative. Work in both of these areas has been progressing in recent years. In an ideal scenario, the development of a statistical framework for sustainable tourism would be completed before commencing work in these areas but that is not the reality. Consequently, work is progressing on these areas concurrently, with each taking advantage of developments in other areas as progress is made.

7. Next steps and expected outputs

As summarized in Table 3 below, over the coming six months it is anticipated that significant progress can be made in establishing the connections between TSA and SEEA based accounts to inform understanding of sustainable tourism. In line with the steps described in section 6, work will progress in all areas with a particular focus on discussion and resolution of key technical issues. Issue papers will be prepared and discussed at a meeting of the MST Working Group in October 2016. Early drafts describing the statistical framework will be completed by late 2016.

It is intended to take advantage of pilot studies at both a national and sub-national level as opportunities arise. These pilot studies will add to an existing body of literature and practice on accounting for tourism and the environment that extends back to the 1990s. In addition to the substantial body of work on sustainable tourism indicators and policy advice that has been developed over the past 20 years, there is strong reason to suggest that clear and effective guidance to support indicator initiatives by tourism observatories can be provided in a relatively short time frame.

A key to progress will be ongoing engagement with the various stakeholders, particularly those across various areas of statistics including tourism statistics, environmental-economic accounting and environment statistics. To this end, relevant papers describing the initiative and its progress will be proposed for discussion at the London Group of experts on environmental-economic accounting, the SEEA Central Framework Technical Committee, and the UNWTO International conference on Tourism Statistics.

In the medium term, pending progress in finalizing the statistical framework, various materials will be developed to support compilation and the integration of tourism, environment and economic statistics. Wherever possible this work will utilize the information already available concerning the implementation of accounting approaches, both with respect to TSA and the SEEA. Also, over the medium term, it will be important to incorporate statistical advances in the measurement of other dimensions of sustainable tourism, particularly relating to culture and local heritage.

Further, one outcome of this initiative will be updating the section of the International Recommendations on Tourism Statistics pertaining to sustainable development and sustainability.

Overall, the MST initiative responds to a clear gap in the tourism statistics framework concerning sustainability that has been acknowledged for some time. The current momentum around the monitoring of SDGs, the extensive past discussion on sustainable tourism, the recent work on developing sub-national tourism statistics and the surge of sustainable tourism observatories (including INSTO), and the increasing recognition of the role of extended accounting frameworks (TSA and SEEA), together provide a firm basis for advancing the initiative and delivering meaningful progress on describing a statistical framework for sustainable tourism.

Table 3: Timelines for MST outputs

2016	Over-view	UNCEEA paper	Key issue papers	Pilot studies	Country experience	User engage.	Statistical f/work
MAY	X	X					
JUNE		X			X		
JULY	X*		X	X**	X		
AUGUST			X	X**	X		
SEPT			X	X**	X		X
OCT			X	X**			
NOV			X		X	X	X
DEC						X	X
2017							
JAN						X	X
FEB				X**		X	X
MAR							X
APRIL							

X*: The Overview will be updated as required through the life of the project.
X** it is envisaged that work on pilot studies would proceed as opportunities arise with a status report covering all pilot studies to be completed in Feb 2017 for input to the draft Statistical framework

Annex: Terms of Reference for the Working Group of experts on Measuring Sustainable Tourism