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Tourism and Territory

Tourism and Territory: taking sub-national tourism seriously by INRouTe

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Visitors flow measurement at regional level: experience from Santander Colombia, by Guillermo Rincón Velandia

Measuring Intra-Regional Tourist Behaviour: Towards Understanding Visitor Expenditure Dynamics, by Jason Stienmetz and Daniel Fesenmaier
Tourism and Territory: taking sub-national tourism seriously by INRouTe

As part of the agreement held between UNWTO & INRouTe, INRouTe will submit to UNWTO in 2016 a document entitled “A Closer Look at Tourism: Handbook on Sub-National Measurement and Economic Analysis of Tourism: UNWTO Guidelines” (provisional title). The present document constitutes part of the current draft of such handbook.
INTRODUCTION

1.1. Nowadays planning any field or industry cannot be conceived without reference to the concept of sustainable development; In fact, it is recognized that sustainability is a key component to consider in any planning process.

1.2. In a given territory, the relationship between tourism and territorial planning should involve, necessarily, at least the following set of topics:

- Reaching a consensus and prioritize among key stakeholders the actions to be undertaken in various areas of economic activity in the tourism sector to boost its development in the medium / long term.
- Identifying in relation to the principal existing tourism products (and eventually in the design of new products), those elements related to traffic infrastructure planning and capital equipment (which would in principle be infrastructures that may influence the development of significantly more tourism in the territory).
- Evaluate the advisability of establishing limits to the growth of tourism, most notably to various forms of collective accommodation (including second homes for tourism use).
- Measure the corresponding pressure on the territory and those territorial infrastructures that support this flow of visits and overnight stays by visitors and determine which would be desirable in the medium term.
- Measure the electricity consumption associated with tourism and the impact of this on those natural resources that are considered most relevant to the territorial entity, in terms of environmental sustainability.

1.3. The assessment of the sustainability of a territorial entity where tourism is significant (and as a priority, in consolidated tourism destinations) should be done from a global perspective, which are considered large-scale impact factors (climate change, possible depletion basic resources— including soil, and water, etc.) and others linked to the relationship between uses and activities of visitors in that territory. Given that as it is well known, it affects not only the environment but also to the economic activity and the resident population (both social and cultural terms).

1.4. This document identifies some issues of particular relevance to the measurement of tourism in relation to sustainability that have not always received the attention required. This might have been due probably to the fact that the concept of sustainability is a “policy concept”. Therefore, it is not intended to be defined with accuracy, as it should have a normative character to manage any activity, regardless of the particular type of entity that conducts it, or the precise territorial scope of performance—, much less have an appropriate definition in order to allow for its measurement and analysis.

1.5. Today, it would seem beyond doubt that within those territorial entities where tourism is significant (see UNWTO/INRouTe Basic Glossary), those issues mainly refer to the following ones:
- Territorial planning and tourism: Promote thorough treatment of tourism sector in territorial planning initiatives (see section 2/A)
- Setting up a Regional Tourism Information System (R-TIS): tourism measurement as an economic sector (see section 2/B)
- Measuring tourism and sustainable development: setting the focus (see section 2/C)
- Fostering subnational analysis and measurement of visitors behaviour: learn with the necessary precision, what visitors do once at a destination (see sections 2/D1 a 2/D.3)
- Comparing tourism destinations: operationalizing the measurement of tourism destinations for key unit for tourism measurement and analysis (see section 2/D.4)

The proper treatment of each of them is crucial in order to take regional tourism seriously.

A. TERRITORIAL PLANNING AND TOURISM

2.1. The identification and accurate assessment of tourism in the territorial planning has not always received due attention and is a particularly important issue for measurement in relation to sustainability. In addition to the small number of basic statistical data and indicators associated to tourism at sub-national levels in most regions where tourism is significant, the lack of a conceptual framework of tourism as an economic activity might also be responsible for such divorce between territorial planning departments and regional and sub-regional tourism authorities.

2.2. Given the importance of territorial planning for tourism development, the concept of “tourism spatial areas” is proposed, as it corresponds to that part of the territory where tourism is significant; it may be that the concept is applicable in its entirety with a certain territorial subnational administrative entity, but in any case it is likely that it might not cover a single municipality, neither an entire region.

2.3. It seems obvious that for the operationalization of this concept, it is necessary to use a classification of possible territorial entities (see UNWTO/INRouTe Basic Glossary, Territorial entities), adapted to the interest of measuring significant visitor flows (either overnight or same-day visitors) as well as the analysis of tourism and its impacts at subnational levels.

2.4. Consistent with the criteria used to define "territorial entities", it is possible that several “tourism spatial areas” make up a multi-regional own territory for the given purposes, for example, for territorial planning especially in relation to transport infrastructure.

2.5. It is therefore a concept that responds to the need to involve tourism and territorial planning, as there is a whole set of elements related to the inflow and activity of the (actual or potential) visitors, which should be identified and also, for some of them, be measured properly. This is the case of:
- potentially tourism resources (such as landscape, protected areas, cultural and historical heritage, etc.).
- transport infrastructures of people and collective equipment with tourism impact (urban and rural) and its use.
2.6. It might be relevant to point out to within the case of establishments that offer accommodation to visitors, that there could also be an additional supply of vacation homes used by tourists that competes with those establishments, e.g. buildings operated under a time sharing, housing property used by temporary residents of foreign nationality and possibly also other buildings used by visitors.

This refers to establishments explicitly mention as part of the category: “Accommodation for visitors” of ISIC Rev.4 category, which includes the following types:

- 5510 Short term accommodation activities
- 5520 Camping grounds, recreational vehicle parks and trailers parks
- 6810 Real estate activities with own or leased property
- 620 Real estate activities on a fee or contract basis

This whole set of complementary services can be a significant source of funding for local governments (especially in the short term), at the same time that it may mean an appropriation of territory that can be environmentally aggressive. It might be reasonable to foresee that it may also originate difficulties for proper consolidation of tourism destinations in the medium term, particularly in terms of environmental sustainability.

(For more details, interested readers should see later on in this chapter D/1 Understanding how a territorial entity becomes a tourism destination)

2.7. While infrastructure related to communications (air, port, road and maritime) condition both passengers and goods accessibility, and their domestic travel, tourism development on its own right also requires additional needs in relation to the available equipment associated with urban metabolism (energy, both water and sanitation, and waste management).

It should be noted that these claims do not need to necessarily be homogeneous in a “tourism spatial area”, since the usual case implies the existence of different zones - coastal, inland, mountain, etc. and a diverse concentration of tourism population in part(s) of its territory.

2.8. This dual relationship between tourism and adequate territorial infrastructure demands necessarily imply public intervention, and in particular, the desirability of a framework of governance between regional tourism administration and other administrations (which can also be national and local) with a say in other sectorial policies that directly or indirectly impact on that area.

2.9. One aspect that should not be overlooked in terms of access to tourism destinations is the degree of connectivity between different modes of transport so that there is high accessibility to & from airports, ports, train stations, coach stations, etc. and the destination itself. Moreover, the connectivity of the given destination with key issuing markets.

2.10. It is also important to emphasize that in addition to the availability of urban infrastructure of the tourism spatial area, functionality and level of facilities of certain services, such as health and safety are of particular
relevance to this area’s quality (as to be guaranteed in that territory, appropriately and proportionately to the population, under busiest times).

2.11. Given the importance of the relationship between tourism, transport infrastructure and urban equipment, it would seem obvious that when designing regional tourism policies respectful with the environment, the relevant tourism authorities should have a sufficient set of information and knowledge, including appropriate indicators for monitoring the process of development of relevant initiatives taken, as well as to preserve the territorial cohesion in their areas of activity.

2.12. As it was mentioned, (see paragraph 2.2), usually a “tourism spatial area” it is not a homogenous territory for the purpose of analysing the relationship between tourism and territory. Therefore, it is not homogeneous even when intended for tourism planning. The criteria for breaking this concept down into more homogeneous units in order to perform analysis, should be based on geographical criteria, on the presence and use of certain tourism resources and on the characteristics of tourism supply in that territory. For the purposes of tourism territorial and economic analysis, the breakdown of that area would require identifying ”tourism zones”. This articulation between “tourism spatial area” / ”tourism zones” can be very useful; one example is the work done by the National Institute of Statistics and Geography of Mexico on the occasion of the 2004 Economic Census (Durán, 2008) 1

2.13. It should be noted that addressing this breaking down into zones would almost certainly require more than one criterion because different needs may require different models. Consequently, any of the approaches that are considered as suitable should be subject to pilot exercises before tackling its generalization to the whole ”spatial area” of reference.

2.14. One possibility would be to define such areas based on municipalities that meet at least the following three conditions:
   - The characteristics necessary to be considered as tourism destinations (see UNWTO/INRouTe Basic Glossary)
   - Which also have a geographic continuity between them
   - A similar population structure regarding the tourist population and the types of establishments offering accommodation services.

The concept of ”tourism population” is a tourism statistics concept proposed to be used for measurement and analytical purposes linked to concentration/intensity of particular type of tourism activity figures as well as for setting up tourism environmental indicators. Equivalent Tourism Population figures should be included in different type of indicators measuring tourism impacts on the environment such as

<table>
<thead>
<tr>
<th>Tourism population is a tourism statistics concept proposed is defined as a subset of visitors, and for the measurement and analytical purposes linked to concentration/diffusion of tourism activity indexes as well as for setting up tourism environmental indicators. Equivalent Tourism Population figures should be included in different type of indicators measuring tourism impacts on the environment such as</th>
</tr>
</thead>
</table>

1 Next section 2/B.1 presents a proposed hierarchical classification of territorial entities in which such concepts as “tourism spatial area”, “analytical units”, etc. are part of it.
natural protected areas
- land
- needs for waste management facilities
  - water cycle
  - energy flows
  - etc.

Tourism Population should be estimated (see UNWTO/INRouTe Basic Glossary, Full-time equivalent) using overnights figures associated to inbound visitors (including those staying in vacation homes); consequently, Accommodation Surveys are crucial for such purpose. In the case of local tourism destinations, such estimate of Tourism Population figures should allow for a correction factor due to the fact that not all such overnights type of figures are available at the local level. For the concept of inbound visitors see Regional Tourism (see also UNWTO/INRouTe Basic Glossary); it should be highlighted that in the case of local tourism destinations, the definition of the “residents subset” of such inbound visitors must be adapted.

2.15. Another possibility, by far more complex, would be to define those areas based upon the identification of different types of behavioural patterns; this would require linking each of them with supply side indicators related to the corresponding tourism resources.

As mentioned below, it should be noted that if these types of tourism behavioural patterns are identified with the main purpose of the trip; those typologies will not be homogeneous as an overlap between them it is unavoidable.

2.16. It would also be possible to apply, for instance, methodologies using multivariate analysis methods from which the development of a comparative analysis with reference to the average values of a set of variables observed for the whole territory of reference, could be possible. The cross nature of tourism undoubtedly explains the difficulty of obtaining the information necessary and appropriate for measurement and analysis especially in the sub-national level, which is where policies related to the territory are designed and implemented. It should be taken into account that if a given territory counted with the following information:
- accommodation establishments for tourism
- the corresponding occupation throughout the year
- attendance to protected natural areas
- jobs associated with tourism
- number and type of establishments providing goods and services demanded by visitors
- water consumption and selective collection of waste generated by tourism
- and tourism seasonality indexes, etc.

It would be a good starting point to specify the “degree of sustainability” of tourism in a given time but surely, it would be insufficient to assess whether a municipality can be identified as “touristically sustainable” or that a sole ranking could be developed in relation to sustainability.

2.17. There is an increasing understanding that the unstoppable advance of the use of administrative records accessible for research purposes can
change this situation soon. “The promise of open data and statistics for sharing and integrating data from multiple sources is great. It is especially hopeful for combining data from different disciplines to explore the interaction of human activity and the environment. However there are issues of harmonization and integration that are difficult and expensive to do.”

Clear valid data linkage requires commonality on two of three dimensions: spatial, temporal and topical. To compare or contrast two spatial areas requires data for the same time periods on comparable topics expressed in similar ways. To look at change in an area over time, there needs to be consistency in the spatial area and topical comparability. To link and analyze data from different sources and topical coverage, the temporal and spatial coverage need to be comparable” (Thomas & Kugler, 2013, p. 2701)

B. THE CONCEPTUAL DESIGN OF THE RECOMMENDED REGIONAL TOURISM INFORMATION SYSTEM (R-TIS)

B.1 The focus

2.18. In 2008, the United Nations endorsed a significant overhaul of the international standards that underpin the foundations of economic statistics: specifically, those instruments that constitute the basis of macroeconomic measurement (i.e. the System of National Accounts and the Balance of Payments) together with their corresponding classification systems (the classifications of economic activities and of products). 2

2.19. In 2004 UNWTO decided to take advantage of this collective effort (led by the UN Statistics Division in close cooperation with other international agencies, notably IMF, OECD, Eurostat, WB, UN Regional Commissions, etc.). The aim was not so much to revise the conceptual framework of the Tourism Satellite Account (TSA) approved in 2000, but rather to revise the recommendations for tourism statistics dating back to 1993, whose conceptual framework was not consistent with that of the TSA.

2.20. The international consensus achieved during 2004-2008 resulted in a substantial modification to the basic core of what have come to be the set of concepts, definitions, classifications and data (understood to include not only basic data but also indicators and accounting aggregates) used for the measurement of tourism and the corresponding analysis.

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Central Product Classification (CPC) Ver.2.
2.21. Among other consequences of this renewed approach, it is worth highlighting the following aspects:

- the foundations were laid down for the development of a more comprehensive set of internationally comparable tourism statistics;
- the concept of a “tourism sector” has been defined as a cluster of production units in different industries that provide consumption goods and services demanded by visitors. Such industries are called tourism industries;
for the first time, guidelines were provided for the measurement of employment in the tourism sector thanks to the cooperation of the International Labour Organization (ILO) with UNWTO;

it was underlined that it is necessary to pay more attention to the measurement of domestic tourism as the main form of tourism in most economies;

a consensus was established in the International Recommendations for Tourism Statistics 2008 (IRTS 2008) calling for its adaptation to sub-national levels;

2.22. The last reference is particularly relevant and requires a more detailed clarification. Indeed, UNWTO has expressed on earlier occasions (such as the T.20 Tourism Minister’s Meeting in Korea on 11-13 October 2010) that it is important to start considering the measurement of tourism also from the sub-national perspective, for a number of reasons:

- Tourism activity is unevenly distributed across the national territory and consequently, the inputs for designing national policies (mostly regarding domestic tourism, because its policies are provided at sub-national levels) require a rigorous understanding of tourism activity in such sub-national territory beyond being a fractal of national tourism;

- Policy that is oriented at the management of tourism destinations, and its relationships with the rest of the national economy, require a sub-national measurement and analysis of tourism in these territories in order to be able to directly monitor progress;

- The articulation of national / sub-national initiatives, especially regarding domestic tourism, require a consistent and coherent set of basic data and indicators as well as a shared conceptual framework about what tourism is and how to measure and analyse its contributions to overall sustainable development;

- The transposition of national data to regions hides particularities of tourism activity in these regions. For example, it does not allow for a proper identification of the (disaggregated) structure of tourism from both the demand (visitor activities) and supply side (the activities catering to visitors). Consequently, analysis and focussed policy, is handicapped due to such constraints.

2.23. The adaptation of IRTS 2008 conceptual background to sub-national levels implies the need for a classification of territorial entities. This document will use as reference the following hierarchical classification of territorial entities (also referred as “subnational areas”) integrated by both administrative and analytical units at two basic subnational territorial levels:

REGIONAL
- Region
- Multi-regional (supra-national)
- Multi-regional (intra-national)
- Other administrative units
- Analytical units

LOCAL
- Municipality
- Multi-local
- Other administrative units
- Analytical units

Such classification breaks down the national territory in two basic sets of units; the terms region, multi-regional and sub-regional used refers to subnational areas. Consequently, such terms and classification used in UNWTO/INRouTe documents should not be understood as the same terms used by UNWTO in its capacity of UN Specialized Agency for Tourism. Any of such units (either at the Regional or Local levels) where tourism is significant could be labelled as a tourism destination. In the case that a tourism destination is associated with more than one tourism product, such territorial entity should be split for analytical purposes in smaller units (either “other administrative” or “analytical” units).

In any case, the physical space of each destination must be clearly identified.

2.24. The classification should be adapted to any country and other extensions could also be envisaged for tourism purposes (for more details, interested readers should see “UNWTO/INRouTe Basic Glossary / Territorial entities)

Such classification is proposed because the IRTS 2008 does not use precise criteria but rather suggests that in the case of considering a territory other than a nation, the concepts as well as all the corresponding definitions, classifications and relevant statistical data should be the same as those in the national case, with the only difference being the substitution of the term “country” with “place” (either a region, municipality or other sub-national geographic location).

2.25. It should be expressly noted that this transposition of terms is not so simple since there are many aspects of the measurement of tourism at the national level that are quite different when compared to cases of sub-national scope. For example:
- the connection between tourism and the mobility of the resident population has greater importance;
- the concept of tourism sector is not always appropriate at subnational levels due to the fact that a cluster of a significant number of production units in different tourism industries might not be significant;
- the identification of tourism industries at the regional level would justify the consideration of, for example, the producers of souvenirs as a tourism characteristic industry, while this would not necessarily be the case at the national level (in the case that the associated expenditure were marginal or scarcely significant);
- the measurement of passenger transport is almost impossible to approach exclusively from the regional perspective (as it is normally necessary for the national information to be disaggregated using some kind of ad hoc indicators or parameters);
– while at the national level it would be possible to justify not prioritizing certain issues (like the measurement of the tourism contribution of special events, the Meetings Industry, the expenditure associated with the number and maintenance expenditure of vacation homes, the phenomenon of same-day visits, etc.), these could be priority interests for certain regions;
– tourism as a service in terms of international trade only makes sense at the national level (as it is a subject that is directly related to the Balance of Payments).

2.26. As already mentioned (see 2.24), the adaptation of IRTS 2008 to sub-national levels implies the need for a classification of territorial entities; supplementary, the concept of “significance” must be defined in order to operationalize the measurement of a tourism destination which is a basic unit of analysis of tourism (see section 2/D Tourism Destination).

Such concept refers to the economic importance of tourism in any territorial entity; this concept, used in the IRTS 2008 (paragraph 5.10) as the criteria for defining a tourism characteristic product, should also be used in a sub-national approach in order to identify when a territorial entity can be labelled as a tourism destination.

In order to promote not just intra-national but also international comparability, the application of such concept on its own is misleading; as official statisticians know very well, there is also the need for a supplementary set of concepts, definitions and classifications that should be internally consistent, so as to facilitate the link between the conceptual frameworks of the Tourism Satellite Account, the System of National Accounts and Labor Statistics.

2.27. For the operationalization of “significance”, it is recommended the use of a limited number of indicators (both from the supply and demand side); each country should complement them and fix the threshold for its application in absolute terms, if deemed appropriate and feasible. Different key tourism stakeholders could also launch such proposal; in any case, the initiative should be subject to a formal requisite: the agreement of key stakeholders in such territory.

The present document proposes the following criteria in order to support intra-national and inter-national comparability:
– From the Supply side, the use of employment figures associated with part of the Accommodation for visitors industry: hotels as well as other activities such as motels, guesthouse, pensions, bed and breakfast, time share units, etc. Complementary criteria could be based in other accommodation services for visitors, number of establishments in the tourism industries, value added by the tourism industries, basic infrastructure and tourism equipment, etc.
– From the Demand side, the use of overnight figures; complementary criteria could be number of visitors –including same-day visitors–.
MOVE 2015 International Conference – Measuring Tourism and Sustainable Development at subnational levels

B.2 Overview

2.28. Since the 2008 ratification of the UN international recommendations for tourism statistics, it became possible to define what a System of Tourism Statistics (STS) is and, equally important, how this connects to other sets of information that National Tourism Administrations consider relevant for the design of tourism policies (and which are not necessarily of a statistical nature). Such an expanded system is known as the Tourism Information System (TIS).

2.29. The International Recommendations for Tourism Statistics 2008 (IRTS 2008) as well as the Compilation Guidelines developed by the UNWTO for their application, should constitute the basic reference for the design of a TIS at both the national and subnational levels. This has been precisely the starting point of the INRouTe initiative, with a very clear message: the design of a proper Regional Tourism Information System (R-TIS) would be justified under two circumstances:
   – the significance of tourism in a given region and
   – the availability of a basic set of national statistical sources. This precondition highlights that R-TIS conceptual design, as recommended in this document, is very data demanding.

2.30. In fact, such a system requires three sets of information:
   – the statistical information obtainable as a disaggregation of operations carried out with a national coverage and in an official capacity mainly by National Statistical Offices and National Tourism Administrations;
   – official statistical operations carried out by regional bodies (such as Regional Statistical Offices, Regional Tourism Administrations, Regional public institutes and agencies for tourism development and management, and other official bodies). These operations are sought to be supplementary to the first set in order to avoid information overlapping between national and regional levels. Exceptionally, some countries might have institutionalized bottom-up methods of collection for national data purposes (basically for the National Statistical Offices).
   – a third set, not necessarily of official and/or statistical nature (such as electricity consumption by households, credit card expenditure records, transport authorities control, business cycle indicators, early warning indicators, etc.), considered to be relevant not only for the measurement/monitoring of tourism (carried out by the regional tourism authority or other regional entities, other entities of supra-regional scope or even by national bodies), but also for analytical purposes (such as analysis of the performance of certain subsectors and foresee their evolution, the perceptions of the demand of a certain destination, etc.)

The expansion of open datasets (data is considered open when everyone is allowed to use, reuse, link or spread the data, for all
purposes) will certainly spread the content of this third set of information

(For more details, interested readers should see “UNWTO/INRouTe Basic Glossary / Regional Tourism Information System)

2.31. To properly understand the nature of the recommended R-TIS system, the following remarks are highlighted all along this document in order to provide proactive arguments to support such medium-long term initiative:

– This initiative has been conceived and developed as the adaptation of 2008 international standards for tourism statistics (the International Recommendations for Tourism Statistics –IRTS 2008- and the Tourism Satellite Account: Recommended Conceptual Framework –TSA 2008-) to subnational levels

– It is recommended that the basic core of such system refer to basic statistical data and indicators; most of them should be derived from official statistical surveys at the national level (six main sources have been identified) and eventually, also from the regional level

– Such national sources are available in practically all EU member countries as well as in non-European countries pertaining to the G.20 international community

– The conceptual design of the R-TIS follow a systems approach: a set of concepts, operational definitions, accounting rules and principles of recording and classifications consistent with those of the System of National Accounts

– This initiative requires also a particular type of governance structure: a regional inter-institutional network integrated by key tourism stakeholders (both at the regional and subregional levels) and supported technically by a multidisciplinary group of experts in statistics, geography, economics and tourism as well as other practitioners and researchers. Such a group might request the cooperation of any type of national or subnational institutions

– The database of such a system is recommended to be geo-referenced and include an articulated set of basic data at the national/ regional/ sub-regional/ city level as well as a limited number of no more than 15 statistical indicators

– The initiative of setting up a R-TIS is recommended as a necessary pre-requisite for comparing nationally and internationally main tourism destinations and cities where tourism is significant, as well as to rigorously measure territorial, environmental and other economic and social impacts of tourism activity.

– Etc.

Other countries with a lower level of statistical development might find inspiring this document and might also request UNWTO for technical assistance in order to set up a planning work schedule for those regions where tourism is particularly significant, to be in line with the recommended guidelines proposed.
2.32. The rationale regarding the measurement of tourism at the subnational levels is explicitly mentioned in five paragraphs of the IRTS 2008 (Chapter 8/Section C — Measuring tourism at sub-national levels) inserted in the following box

Box 2.1. IRTS 2008 “Measuring tourism at sub-national levels”

3.10. “Increasingly regional tourism authorities are interested in regional statistics and possibly some form of Tourism Satellite Account at regional level as a means of providing useful indicators for tourism enterprises and organizations in identifying possible business opportunities, assessing the volume and intensity of tourism business and determining the extent to which private and public regional tourism networks and clusters are interconnected.”

3.11. “This interest stems from the specific features of tourism across the regions of a country, as well as different needs of regional tourism authorities, including, among others:
- The need to highlight or emphasize the importance of specific features of regions as tourism destinations;
- The fact that characteristics and expenditure patterns of visitors can vary markedly across regions;
- The need to design policies to attract visitors (such as the type of demand that needs to be met) and make investments (such as the infrastructure that needs to be put in place) that are specific to regional objectives;
- The need to adapt classifications of tourism characteristic products and of tourism industries by adding more details where relevant, while preserving the overall structure of the classification;
- The need to be able to make comparisons of tourism, in terms of visitor numbers, characteristics and expenditure, across regions and between the regional and national levels;
- The desire to foster areas of analysis such as identification of seasonality patterns, recognition of main types of tourism, segmentation of tourism demand, early warning indicators about potential decline of a tourism destination, etc.”

3.12. “Nevertheless, there are some statistical limitations in producing regional data, especially in the absence of a national collection framework for tourism statistics: defining survey frames for tourism sample surveys conducted at the sub-national level is particularly difficult due to the lack of control at the corresponding administrative borders. In addition, regional estimates of tourism might not be compatible with those for other regions, therefore undermining the credibility of tourism estimates both for the regions and for the country as a whole.”

3.13. “Consequently, it is recommended that, as a first approach, National Statistical Offices, tourism authorities and/or other organizations with direct responsibility for tourism statistics promote the use of national instruments to collect tourism data at the regional and local levels using a common set of definitions, based on the IRTS 2008, that would permit national tourism statistics to be — built up from data at the regional and local levels.”

3.14. “There are often differences in the density of population, transportation accessibility, cultural behaviours, proximity to administrative borders, etc., within a given country. Thus, it is crucial that the operational definition of usual environment be reviewed and discussed among regional and national entities. It is recommended that a consensus be forged around a common definition that satisfies previous recommendations (see IRTS 2008 Chapter...
2.33. In order to permit comparability of regions (both intra-national and international), those three sets of information proposed to be included in the R-TIS (see 2.29) should address a list of topics for a reasonable number of areas.

2.34. When launching the INRouTe project, it was decided that first of all, the approach to be followed should adapt the thematic areas used in the IRTS 2008 (and compiled in the UNWTO Compendium of Tourism Statistics – an annual publication-), which are notably: inbound tourism, outbound tourism, domestic tourism, tourism employment, tourism industries, and macroeconomic indicators related to tourism.

In a second step, it was decided that at the regional level, in addition to identifying the set of basic statistical data and indicators that make it possible to measure tourism as an economic sector, it is also necessary to address the consequences on the sustainable development of the territory of reference (i.e. a broad political objective, encompassing an intention to avoid activities that will cause long-term damage and a desire to ensure adequate quality of life for present and future generations) as well as the potential impact on the territorial cohesion of the destination itself, and in other adjacent territories.

2.35. Lastly, in addition to these three areas of particular interest (viz. tourism as an economic sector, the consequences of tourism on the sustainable development of the territory of reference and the territorial cohesion that tourism should preserve or promote), a fourth one was added: the identification of a basic set of initiatives required for supporting destinations key stakeholders in relation to tourism information and analysis.

2.36. One of such initiatives refers to governance. There are many arguments that justify taking governance seriously, not the least of which is the fact that each dimension of sustainable development necessarily requires the sustainability over time of the very actions taken for the development of tourism. Tourism itself refers to a set of activities related to different subgroups of travellers — in other words, those that qualify as visitors (whether tourists or same-day visitors) — and of the productive establishments that provide them with the goods and services demanded, thus resulting in a multiplicity of actors with very different levels of participation and responsibilities in the development of any given tourism destination.

2.37. Regarding this complexity of actors, public bodies and authorities deserve special attention due to their implication and responsibility on the
visitors’ final satisfaction as they are involved in a wide and varied range of functions and investments (infrastructure provision and management of access and various services - such as public safety, preservation of natural and cultural resources, territorial planning, etc). In addition, public authorities might condition the install of tourism enterprises located in their respective territories.

2.3.8. All the above-mentioned references allowed setting up a framework for the measurement and analysis of tourism from a regional perspective including the following research areas and subareas.

<table>
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2.39. It should be highlighted that such a list of research areas and topics is not to gather basic statistical data and indicators for all of them, but just to illustrate a proposal to be used as reference by those regional authorities and tourism officials that are interested in the measurement and analysis of tourism in their region. Complementary to this list, such authorities should consider asking relevant users about their needs. In any case, there will be similarities with this list and those proposed eventually by other regional networks or initiatives.

2.40. It would seem obvious that, depending on the level of development of the region concerned, different sets of information would be available and desirable. But it is imperative to agree on a basic set of statistical data and indicators to be gathered for the following purposes:

- To highlight the importance of tourism at the regional level and foster the credibility of its measurement;
- To provide a basis for a more detailed analysis of issues identified as especially relevant for key tourism destinations;
- To warn about vulnerability of tourism destinations regarding the different components of sustainable development;
- To promote a consistent quality of the data in order to allow intranational and international comparability between regions; and
- To make sure that such information is provided regularly.

2.41. The generated set of information should, besides being statistically founded, also comply with some technical requisites:

- It should guarantee the characteristics of collectability, simplicity and efficiency (meaning that the use of available data sources as well as new data sources should guarantee that the collection of data uses technical innovations and methods);
- In addition to being easy to understand, it should be credible. The goal must be to provide credible information to tourism managers as well as to other key tourism stakeholders;
- The available (or desirable) periodicity for each kind of basic data and indicators should be specified, since the temporal length of the data is a determining factor of the data's use and usefulness;
- The development of quantitative indicators should be prioritized because, when compared to qualitative ones, they are more objective and allow a better comparison of cases. However, they are often conditioned by lack of data; in such cases, oftentimes qualitative estimates are the only available solution;
- Duplication of data for each information item should be avoided; and for that to happen, basic national tourism surveys should be properly designed and stratified in order to provide efficient estimates by regions.
- The database hosting all this basic data and indicators should be georeferenced due to relevance of “scalability” for the measurement and analysis of tourism at subnational levels (see UNWTO/INRouTe Basic Glossary)

2.42. It is recommended for those regions, where tourism is significant, to focus on an incremental approach that involves, first of all, the development
of a limited set of statistical information (no more than 15 basic statistical data and indicators).\(^3\)

2.43. With this background and clarifications, it is recommended as a first step in the set-up of a R-TIS to focus on tourists (overnight visitors) and on a limited number of the areas previously identified (for which there is more international experience than in the remainder areas where a more precise conceptual framework is needed).

2.44. The following basic statistical data and indicators, each with different periodicity (Monthly / Quarterly / Annual), are proposed to be implemented in those sub-national regions where tourism is significant for the region itself as well as for a selected number of cities and tourism destinations in which tourism is also particularly significant:

**A. Tourism as an economic sector:**

**A.1 Demand**

For each of the following set of tourists (residents from other countries, residents from another part of the country of reference, residents in the region of reference):
- number of tourists (Q)
- number of tourists classified by key characteristics of the trip (Q)
- numbers of overnights (international tourists should further be classified by main countries of residence) (M)
- daily average expenditure by tourists (A)
- average length of stay of tourists (Q)

**A.2 Supply:**

A.2.1 Tourism industries - number of enterprises/establishments (classified according to size, i.e. numbers of employees) for - Accommodation as well as for - Other tourism industries (A)

A.2.2 Employment
- number of jobs for - Accommodation as well as for - Other tourism industries (M)
- corresponding average wages and salary income (A)

**B. Tourism and sustainable development:**

**B.1. Tourism and environmental sustainability**

B.1.1 Urban drinking water consumption due to tourism - m\(^3\) (A)

B.1.2 Tourist pressure - visitor load
- ratio of tourism population to total population (Q)

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\(^3\) Because such list refers to two main grouping being “Tourism and sustainable development” one of them, readers should be warned that the basic difference of the INRouTe initiative and the focus of UNWTO 2004 Guidebook for Indicators of Sustainable Development for Tourism Destinations refers to:

(a) the nature of the basic data and indicators proposed (statistics vs. any type of information);

(b) the precise definition of tourism destination (based on a hierarchical classification of territorial entities vs. almost any kind of local tourism destination unit); and also in

(c) the main purpose of the respective initiatives (measurement and analysis, as well as intranational/international comparability vs. assisting destination management organization at the local authority level).
B.2. Tourism and its impact on the social and cultural dimensions of the resident population:

B.2.1 Job creation
- rate of change in the ratio of tourism related jobs to total jobs (A)

B.3. Tourism economic contribution and impact:
B.3.1 Economic performance
- rate of change in the number of tourists (M)
B.3.2 Business demography
- birth rate of enterprises/establishments (A)
- rate of change in overall income (A)

2.45. Although such proposal may appear extremely ambitious, it could be considered as a minimal requirement for analytical purposes. Here is why:

- The information selected (not more than 15 basic statistical data and indicators) is considered to be the minimum required input for modelling exercises. Data modelling techniques are used extensively to derive synthetic estimates when the cost of obtaining small area statistics is too great to obtain them from a survey.

The Australian Bureau of Tourism Research has been one of the pioneers in modelling inbound tourism data derived from national surveys; the first data referred to 1997 International Visitor Survey and the modeling approach provided estimates of expenditure by international visitors at the State/Territory and regional level. The model used survey data on total trip expenditure in a randomly selected region. In very general terms, this modelling approach allocates foreign visitor expenditure to regions on the basis of where each night was spent and relative costs in the region (Bureau of Tourism Research Australia, Occasional Paper No.32 “Tourism Expenditure by International Visitors in Regional Australia, 1998”).

- Both sets of information would make it possible to advance both in a descriptive type of economic analysis of tourism and in more powerful analysis using instruments such as the regional TSA, social accounting matrices, general computable equilibrium models, etc.;

2.46. INRouTe will suggest UNWTO to start asking by 2018 for subnational data on such a limited number of basic data and indicators for a selected number of countries on a voluntary basis: each of such countries will select one or more regions where tourism is particularly significant. For each of them, the following subregional breakdown would apply: Tourism Destinations/ Cities. Such breakdown implies that tourism is particular significant for either type of units.

2.47. The units to be included in each of the three categories of territorial entities are consistent with the proposed classification of Subnational Territorial Entities (see UNWTO/INRouTe Basic Glossary):

- **Region**: is the administrative unit corresponding to the first level of territorial disaggregation of a country in terms of its political and administrative organizations- for instance, NUTS 2 level in the EU, provinces in Canada or China, states in Brazil and Mexico, etc.

- **Tourism destinations**: each of such units might correspond to two or more cities (identified as municipality in the classification) or to any of
Each of them has its own complexity in terms of conceptual background, statistical insight, particular topics of relevance, as well as policy implications.

C MEASURING TOURISM AND SUSTAINABLE DEVELOPMENT: SETTING THE FOCUS

2.48. This sub-section should be understood as an introductory section to chapters 3 and 8 of the future document “A Closer Look at Tourism: Handbook on Sub-National Measurement and Economic Analysis of Tourism: UNWTO Guidelines” (provisional title). In fact, linking tourism and sustainable development measurement is a relatively new topic and deserves some introductory remarks.

2.49. The relationship between tourism and sustainable development in terms of its statistical measurement was introduced for the first time in the IRTS 2008 document in sub-chapter 8/D; as can be checked in box 3.1, all along the 12 paragraphs, the scope of its measurement at national and subnational levels imply a very different focus.

At such moment (2006/2007, when the final phase of drafting the IRTS document to be presented to the UN Statistical Commission meeting in 2008 was taking place), UNWTO was not active in the world-wide discussion (officially launched by the UN Statistical Commission by 2005) for a consolidate approach after the experience of successive updates of the Handbook of National Accounting: Integrated Environmental and Economic Accounting (United Nations, 1993). The Statistical Commission determined that the revision of the IEEA should first proceed as a proper area of work with the development of a Central Framework covering those issues on which there had been general international agreement (in fact, the new System of Environmental and Economic Accounting (SEEA) Central Framework document was approved by 2012), and then proceed with the development of material covering those issues on which agreement was not likely to be reached within the timeframes available and on which on-going research and discussion would be required. (SEEA_CF 1.16)

2.50. Such second area of work became focused on accounting for the environment from the perspective of ecosystems. While SEEA Experimental Ecosystem Accounting is not a statistical standard, it provides a consistent and coherent synthesis of current knowledge regarding an accounting approach to the measurement of ecosystems within a model that complements the SEEA Central Framework 2012 document (SEEA_CF 2012)

Also during the revision process, a need emerged for material covering potential extensions and applications of SEEA-based data sets, which would fulfil the aim of promoting and supporting the widespread adoption of the SEEA among official statisticians, researchers and policymakers. To this end, SEEA Applications and Extensions was developed

2.51. The SEEA Central Framework document is also supported by publications that further elaborate the conceptual framework of the SEEA
for specific resources or activities. These include, for example, the SEEA-Water and the SEEA-Energy.

SEEA-CF 2012 and its complementary materials urges for the update of IRTS 2008 paragraphs 8.33 to 8.45 (reproduced in Box 2.2.) in order to properly clarify the differences between the macroeconomic and national approach for Tourism and Sustainable Development (identified with the Tourism Satellite Account) and the subnational approach (also referred in IRTS 2008 as “empirical approach” identified with “indicators”).

**Box 2.2. IRTS 2008 sub-chapter 8/D “Tourism and sustainability”**

**D. Tourism and sustainability**

8.33. The issue of tourism and sustainability is an increasingly important one and any measurement of tourism and its effect on an economy must take into account the social, economic and environmental impacts. Links with the latter component should be a high priority.

8.34. Nature in its pristine form (mountains, beaches, tropical forests, deserts, etc.) or transformed by humans (landscapes, cultural heritage, etc.) is an important attraction for some visitors.

8.35. But tourism also contributes to irreversible damage to the environment, through pressure on fragile ecosystems, through construction of resorts or roads that destroy the natural sites and heritage, through the pressure that is exerted on land, water and air and through diverse processes of all kinds generating pollution, discharge of residuals, erosion, deforestation, etc.

8.36. This damage may also affect the feasibility of new tourism development in given locations or the profitability of present tourism investments and, consequently, affect job creation and employment.

8.37. In the last 10 years, the growing awareness about the negative impacts associated with certain tourism practices, along with the general acceptance of the principle of sustainable development, has led the world community to reassess tourism activity in the light of its long-term economic, social and environmental sustainability.

8.38. In recent years, beyond the measurement of the economic contribution of tourism in terms of Tourism Satellite Account aggregates and other complementary and/or alternative modelling exercises, an increasing number of initiatives have appeared at subnational levels in order to generate indicators for analysing, monitoring or evaluating the environmental implications of tourism development in specific areas.

8.39. Both approaches (macro-accounting and indicators) have their potential and challenges for measuring at different territorial levels the links between tourism and the environment and thus are recommended as the first priority regarding tourism sustainability issues.

8.40. The existence of both the Tourism Satellite Account and the system of
environmental and economic accounts (SEEA) allows a country where both international recommendations are being developed to estimate the links between tourism and the environment at the level of the national economy. This could be done in two ways: (a) Incorporating tourism as a specific set of industries and of consumers within the hybrid flow accounts of the environmental accounts; (b) “Greening” the tourism GDP that is derived from the Tourism Satellite Account, taking into consideration the cost of the degradation of the environment and the use of the natural capital by tourism; expenditures that prevent degradation could also be taken into consideration as a further adjustment.

8.41. The core of this macro-approach at national level consists in establishing a more complex type of input/output matrix in which not only the “usual” inputs are considered, but also environment inputs are established in quantity, and output also includes waste, greenhouse gas emissions and other environmentally significant by products. Consumption of fixed capital would also include estimation of the degradation of the environmental assets. As the core of the Tourism Satellite Account is a representation of tourism industries and tourism consumption within a supply and use framework, it could be adapted into this type of analysis, provided both the Tourism Satellite Account and environmental accounts are compiled at a sufficient level of detail to allow some type of mutual integration. Nevertheless, leaving aside conceptual issues, there is increasing evidence that developing each type of account is not a straightforward exercise.

8.42. The second approach is more empirical and might be more appealing to countries in which existing tourism regions and destinations would be interested in the design of concrete and geographically-oriented goals and policies in terms of developing a more environmentally-friendly tourism with which all stakeholders might be associated, including visitors.

8.43. In this case, the focus would be to develop a set of indicators to highlight an interface between tourism and environmental issues that might identify phenomena or changes that require further analysis and possible action. Like other indicators, these indicators are only tools for evaluation and have to be interpreted in context to acquire their full meaning. They might need to be supplemented by other qualitative and scientific information, notably to explain driving forces behind indicator changes, which form the basis for an assessment.

8.44. These indicators might be used as a central instrument for improved planning and management, bringing managers the information they need when it is required and in a form that will empower better decisions.

8.45. It is recommended that linking tourism and sustainability be considered a priority.

Table 2 IRTS 2008 sub-chapter 8/D “Tourism and sustainability”
2.52. To date, the first approach barely counts with a sufficient number of case studies that would enable the setting up of a methodological design to standardize how such a link between TSA and SSEA could be set-up. It may be expressly noted the pioneering exercise conducted by Statistics Canada during 2007/2008 (Jackson, Kotsovos & Morissette, 2008), and more recently the one included for Italy in the SEEA Application and Extensions document.

In any case, it is a national and macroeconomic approach that takes into account the entire country and on which the UNWTO has taken up the challenge of moving towards that goal. For both reasons, such an approach is beyond the scope of this document.

(Interested reader should see UNWTO “A statistical Project to support mainstreaming tourism in sustainable development” 2015 http://unstats.un.org/unsd/envaccounting/ceea/meetings/tenth_meeting/BK4a.pdf)

2.53. However, the subnational approach (linked to the impact that tourism causes on the environment) has been preferred not only by countries but also by International Organizations such as UNEP, UNWTO, European Energy Agency, European Commission and others. In most of them the approach for such link has not been statistics oriented and has been developed before the new international standards on tourism statistics (IRTS 2008 and TSA:RMF 2008) were approved by the UN Statistical Commission. Consequently, such approach has given less visibility to the measurement of other dimensions of sustainable development (such as tourism and its impacts on social and cultural dimensions of the resident population, as well as its economic contributions and impact on those territorial entities where tourism is significant).

2.54. In any case, it might be relevant to stress that being a policy concept, the operational definition of sustainable development may be different depending on the perspective used: in the case of measurement with respect to the set of economic activities that make up the sector tourism, it is possible that the concept of sustainability should be associated: on the one hand, with the very sustainability of the sector and on the other, its impact on the population living in the territory analysed according to previously established objectives for the whole social fabric.

2.55. Indeed, the rigorous formulation of these basic aspects and, of course their measurement, requires understanding two types of phenomena connected but that also are quite different in regard to the measurement and analysis:

– First it will be necessary to measure and analyse what is the volume of tourism in a given territory (which means taking into account the importance of tourism flows as well as the goods and services demanded by these visitors). Formulated so, we would be giving priority to a certain type of tourism destination that could be identified as “consolidated tourism destination” (also referred as “mature destination” in tourism research literature).
For that purpose, it would be necessary to count with basic statistical data and indicators of the tourism sector in such destination (both from the demand and supply side –including employment and number of establishments of tourism industries-) likely to bring a structural approach to this sector (i.e., what are the magnitudes and basic parameters to address a rigorous economic analysis of the sector); that is, a descriptive structural analysis, with the desirable rigor and completeness would be able to be carried out, for a period of time (logically multiannual).

Secondly, the sustainability analysis (i.e., how the destination affects the overall sustainable development of such territorial entity) involves measuring and analysing how such tourism activity does or not approach to those objectives to ensure that their impact in terms of sustainability are zero or negative; that is, it would mean conducting a regular assessment of the corresponding impacts and contributions over those three components of sustainable development aforementioned (see 2.51).

2.56. Surely it is no coincidence that the limited experience available to address the measurement of impact / contribution of tourism to the sustainable development has not been particularly successful. At least three major reasons could be identified:

- Most of them are initiated before the approval by UN in 2008 of the new international standards on tourism statistics that have proved to bring a solid conceptual framework to the measurement and economic analysis of tourism.
- There has been no clear international leadership fostering the need for international comparability at least on the most researched dimension of sustainability: environmental.
- The isolation of tourism statistics background from general economic and social statistics development: concepts like “tourism sector”, “tourism related employment”, “tourism population” and many others are not yet familiar within the tourism community (in particular, practitioners and researchers) but are key concepts in order to develop sustainability type of indicators (see 2.43).

2.57. As already mentioned one of the singularities of the INRouTe initiative vis-à-vis other projects or initiatives regarding tourism at sub-national levels is its statistical foundation by adapting the 2008 UN international standards on tourism statistics as well as the cooperation agreement with UNWTO. Such approach allows for a robust conceptual design of a R-TIS and its set up (for the provision of a set of basic statistical data and indicators –being its basic core the link of tourism and sustainable development-) in the perspective of measuring and analysing tourism in a standardized way in order to allow for comparability (both intra-national and international) of those regions where tourism is significant.

Such approach jointly with the existence of a regional inter-institutional network for the setting up of a R-TIS, should allow for a supplementary objective such as facilitate the incorporation of sustainability criteria in
decision-making and management of tourist destinations by the corresponding key tourism stakeholders; in fact, the recommended design of such inter-institutional network points to such initiative as a key objective.

D. TOURISM DESTINATION

2.58. Any territorial entity where tourism is significant (either at the regional or local levels included in the proposed hierarchical classification – see paragraph 2.24) could be labelled as a tourism destination. In the case that a tourism destination is associated with more than one tourism product, such territorial entity should be split for analytical purposes in smaller units (“small tourism destination areas”). In any case, the physical space of a tourism destination must be clearly identified and consequently, also such smaller areas.

The fourth issue mentioned as part of the Introduction (paragraph 1.2) was referring to the need to measure more accurately the “activity” developed by visitors once at destination; it is an issue of enormous complexity that will be addressed from different perspectives. This will be the focus of the subsections D.1 to D.3, while Section D.4 particular regards the fifth of those issues (Operationalizing the measurement of tourism destinations).

2.59. A first confirmation of such complexity is that it is not so uncommon that a tourism destination includes various “tourism products”. If this were the case, it would be useful to identify different segments of visitors (current and potential) for the purpose of designing policy measures in terms of marketing and products. It would be advisable to enable market analysis tools and instruments to determine effectiveness of the marketing budget spent.

2.60. It is worth highlighting the fact that when emphasizing the need for market analysis, it should be taken into account the need to deepen on patterns of behaviour and visitors’ expectations as well as the possibilities of attracting new segments. In this perspective, it has been shown that the tourism potential of a given region is not fully expressed in terms of arrivals, night spends and expenditure but also in terms of different form of tourism flows (Alivernini, 2014)

(It is important to clearly understand the concept of regional tourism which adapts the different forms of tourism as in the IRTS 2008 to the sub-national level -see UNWTO/INRouTe Basic Glossary-)

2.61. Such discussion is considered useful for the target audience of this document (tourism practitioners -including tourism officials who commission surveys and research, and those who undertake such surveys-and key stakeholders in relevant tourism destinations -including governments, public institutes and agencies, universities, research centres, industry associations, trade bodies and specialized firms-) and be primarily based on:

– what visitors really do while at destination and for that purpose should refer both to the demand and supply side information and to new
information tools (surveys and many others). That’s to say that travel behaviour is of particular relevance

- consistency between statistical and marketing frameworks addressing the proper measurement of tourism for marketing type of analysis
- the visitor identified as a particular type of consumer, requires to focus on consumption patterns and destination marketing

2.62. The following four topics might illustrate the complexity of the discussion and how relevant might be for the target audience of this document:

- Understanding when a territorial entity becomes a tourism destination
- Exploring the connection between mobility and tourism as research areas particularly for the design and measurement of tourism itineraries as well as for selecting the criteria for defining types of tourism and types of visitors.
- Looking for consistency between statistical and marketing frameworks addressing the measurement of tourism at sub-national levels
- Operationalizing the measurement of tourism destinations for comparability purposes

D.1 Understanding how a territorial entity becomes a tourism destination

2.63. This is a key topic because tourism destination is a relevant unit although no definition is provided in this document, nor will it propose any typology of them for comparability purposes; instead some indicators that should be used for such intent are recommended.

2.64. Although not using a definition suitable for any type of territorial entity in any country, it should be feasible to achieve some degree of consensus regarding some comparability framework among destinations. If that could be acceptable, destinations with similar products could benchmark against themselves, via demand and supply side information (where the most reasonable proxy for that purpose could be arrivals and overnight data, as well as hotel room capacity and occupation, employment linked to tourism industries and some other supplementary indicators).

2.65. A tourism destination implicitly presupposes the existence of a set of built or natural resources that serve visitors, a set of potential activities to be carried out by visitors (some of them for free), a number of establishments pertaining to the tourism industries, tourism stakeholders (public and private), etc. The concept of tourism product refers to a bundle of goods and services available for a visitor (a particular type of consumer) to acquire some of them while visiting such territory. Any destination has at least one tourism product.

2.66. The approach followed in this document is not the one recommended previously by UNWTO. In fact, in 2004 UNWTO published the Guidebook for Indicators of Sustainable Development for Tourism Destinations which contains the following definition of tourism destination: “a local tourism destination is a physical space in which a visitor spends at
least an overnight. It includes types of tourism such as support services and attractions, and tourism resources within one day's return travel time. It has physical and administrative boundaries defining its management, and images and perceptions defining its market competitiveness. Local destinations incorporate various stakeholders often including a host community, and can nest and network to form larger destinations”.

2.67. It should be noted that this definition is neither used consistently through the 2004 UNWTO Guidebook nor its conceptualization is robust enough:

- when it comes to establish a hierarchy of territorial levels, the following is mentioned: nation / region / specific destinations (such as coastal zones, local municipalities and communities) / key tourist use sites (such as protected areas, beaches, historic districts within a city);
- “destination” is used as equivalent to “development area” and therefore, the 2004 UNWTO Guidebook mentions that some destinations are already defined -“defined destinations”- while when that's not the case there is a need to define them by defining the corresponding boundaries: “destination boundaries”;

D.2 Tourism and Mobility as research areas

2.68. The second topic addresses the connection between mobility and tourism research particularly regarding the concepts of “itineraries” and “travel behaviour” because they are key in order to measure and understand what visitors do while at destination. IRTS 2008 identifies “trip” and “visit” as units related to the displacements of visitors: such trips qualify as “round trip”. From an analytical perspective the concept of itinerary (closer to the mobility research community –see UNWTO/INRouTe Basic Glossary/ tourism trip and tourism visit-) allows for deeper understanding of the movement of visitors in space and time while at destination.

From a measurement perspective an itinerary can be defined as a systematization of an alignment of potential points of interest to be visited: in the case of tourism, such alignment is usually defined and structured for planning, promotion and commercial purposes.

The measurement of itineraries should incorporate, in addition to a reference to the corresponding administrative and analytical territorial entities and characteristics of visitor (obtained from local surveys) other set of information as well, such as:

- georeferenced information, which includes number of stops (events) and points of interest visited (visited spots)
- length of time
- distance covered

2.69. The measurement and analysis of mobility and tourism have their own conceptual background, expertise and focus. Nevertheless, some guidelines referred in this document are built on the expertise in the area of mobility
Also, mobility research expertise in areas such as number plate recognition in road transportation, deriving transport data from cell phones, using Global Positioning System (GPS), sub-samples in household surveys, and possibly others, would be crucial for expanding the measurement and analysis of resident and non-resident visitors activity. Some of these areas could also involve surveying visitors in order to identify their itineraries, a description of trips, obtain special insight in short trips, etc.

2.70. It seems obvious that the development of new technologies related to the growing registry of different types of digital footprints left behind by tourism movements, will increase our information background about what visitors do while at destination. In fact, mobility research has already acquired a critical mass of knowledge about the design of new tools and empirical analysis about travel behaviour and consumption patterns in particular (which presupposes that researchers share a culture of reporting data in a format that allows other stakeholders to use the data for further analysis))

The adaptation of such tools and research to the case of tourism should give priority to the design of surveys focusing on activity-based travel behavior of visitors at destinations

D.3 Looking for consistency between tourism destination and tourism statistics conceptual frameworks

2.71. In addition to the concepts of visitor, tourism trip and tourism visit which are the key statistical units to measure and analyse tourism from the demand side, when focusing to the adaptation of IRTS 2008 to sub-national levels also other concepts as well as particular measurement issues highlight the need to be also considered particularly for the sake of key tourism stakeholders.

2.72. Special attention should be given to the following concepts and issues all of them closely related to the objective of looking for consistency between tourism destinations and tourism statistics conceptual framework:
- The new concept of “travel party” and its operationalization
- The enlargement of the list of “purpose of the trip” (and the association between purpose and activities carried on by visitors at destination)
- About the use of “tourism products” as the criteria for market segmentation
- Operationalizing the measurement of travel behaviour of visitors at destination
- UNWTO experience using “type of tourism” definitions
- The new concept of “regional tourism” and “regional tourism expenditure”
D.4 Operationalizing the measurement of tourism destinations for comparability purposes

2.73. UNWTO has recently published a Handbook on Tourism Product Development, in which some topics are defined differently as in this document.

In the referred document, a tourism destination has the following attributes:

- comprises many products within the overall destination;
- involves many stakeholders with differing objectives and requirements;
- is both a physical entity and a socio-cultural one;
- is a mental concept for potential tourists;
- is subject to the influence of current events, natural disasters, terrorism, health scares etc.;
- is subject to historical, real and fictitious events;
- is evaluated subjectively in terms of what represents value-for-money e.g. based on reality compared with expectations; and
- differs in size, physical attractions, infrastructure, benefits offered to visitors and degree of dependence on tourism – in fact no two tourism destinations can be treated the same, each offering its own unique and authentic attributes. (section 1.2 The Tourism Destination and its Characteristics).

2.74. The focus of UNWTO in this document seeks instead for operationalizing the measurement of tourism destinations for comparability purposes within a given country as well as for international comparability; a quite different type of approach.

2.75. Focusing on those territorial entities that qualify as tourism destinations because of (1.) the significance of tourism flows (the demand side criterion), as well as (2.) the turnover of those establishments pertaining to the tourism sector that provide goods and services to visitors (the supply side criterion), is a major step in determining the work to be carried out by INRouTe in the coming years because they:

- presuppose the existence of a tourism sector and market in such territories which is the case of consolidated tourism destinations, but not exclusively
- suggest that thresholds on the minimum volumes of supply and demand for a destination to qualify as tourism destination be elaborated
- allow for comparability (intra-national and international comparisons) between specific components of such markets in similar types of destinations

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- provide sub-national authorities and other key stakeholders with an operational concept to be applied in order to qualify a territory as a tourism destination
- it also provides advice for potential tourism developments involving a significant amount of investments

2.76. Those tourism destinations that satisfy both the demand and supply criterion already mentioned, share a common set of components that should be defined and listed in order to support for comparability purposes: this document recommends that as a first step, comparability should be limited to consolidated destinations because the critical mass of key components of supply and demand in such territorial entities allows one to focus on the relationship between economic analysis and destination management at sub-national level.

2.77. The following paragraphs provide a list of components that should be considered for comparability purposes.

**Infrastructure and equipment**

**Resources**

2.78. Natural, cultural or artificial (e.g. theme parks) resources. In order to become tourist attractions, resources need to be translated into products by the action of the local and non-local stakeholders; this has already been the case in consolidated destinations).

Each tourism product combines goods and services. Any tourism destination has one or more tourism products.

**Stakeholders**

2.79. These include tourism practitioners (including tourism officials who commission surveys and research, and those who undertake such surveys) and different key stakeholders (including public institutes and agencies, universities, research centres, industry associations, trade bodies, and specialized firms).

2.80. While private agents contribute by matching demand and supply and making the tourism product available on the market, public bodies are usually crucial in the final satisfaction of visitors due to their varied set of functions and investments (endowment and management of infrastructures to access diverse services, safety, preserving natural and cultural resources, planning and territorial ordination, etc) which influence the perception of the destination attractiveness. Moreover, within their competences, public administrations directly condition the pace and activity of firms that produce the goods and services located in destinations demanded by visitors (they condition this pace and activity via their better or worse bureaucratic agility to resolve business procedures, their legal capacity to adapt the sector regulations to the new demands in ever more changing contexts, etc.)

**Establishments producing goods and services demanded by visitors**

2.81. Such production units pertain to any of the tourism industries (see Annex Basic Glossary/Tourism industries) although only part of the
production of such establishments is related with tourism demand (this is an issue that will be addressed in Chapter 6)

Tourism flows

2.82. The measurement of the flows of visitors and all associated variables (both related to the visitor and to the trip) is highly sensitive to the definition of usual environment. Such flows refer to the different forms of tourism (see UNWTO/INRouTe Basic Glossary).

Territory

2.83. The integrated set of infrastructures and equipment, resources, stakeholders and productive establishments are located in a territory that must be precisely defined in order to be properly measured (in terms of physical and monetary components such as number of resident and non-resident population, infrastructure, economic activity, etc.).

2.84. The following paragraphs will focus on some key components of tourism destinations and a minimum set of basic data and indicators needed for its measurement.

It is suggested to generate, as a first step, a limited number of basic statistical data and indicators (no more than 15 -see paragraph 4.16- for a particular type of tourism destinations; those selected by countries that might wish to volunteer, from 2018 onwards, to cooperate with UNWTO on the initiative proposed in the Introduction chapter.

2.85. If applicable, the concept of significance implies the existence of a tourism sector and a tourism market in such a territory. In order for the supply and demand sides to be measured, the conceptual framework of IRTS 2008 is especially adequate for one main reasons: there is a formal international agreement about the concepts, definitions and classifications to be used for the measurement of the tourism sector (as a cluster of production units in different industries that provide goods and services demanded by visitors) and flows of visitors associated to the three forms of tourism (inbound, domestic and outbound).

2.86. This document focuses in the identification and measurement of some components of such sector and market, as well as the corresponding territory. Because the measurement and analysis of travel patterns of visitors is a clear priority for marketing research and management at subnational levels, these ones are particularly important:

- Tourism products
- Activities undertaken by visitors
- Tourism population
- Characterization of visitors and trips
- Regional tourism expenditure

2.87. Because the focus of this document is primarily about the measurement of tourism, the definition used for tourism product is proper for such purpose: a tourism product is branded for attracting visitors to a specific subnational area, and can be identified by a visitor once at destination. Such products can neither be defined in a standard way, nor can
a proper typology be set up; only part of their components can be measured although this is not usually done

2.88. In such products there are embedded remunerated components (services - such as lodging, eating, transportation, as well as potential activities to be undertaken-) and components provided for free (climate, nature, landscape, enjoyable “atmosphere”, etc.); these last ones, related with non-reproducible resources, although price-less, influence greatly the consumption of visitors. It is a supply side concept usually associated to market segments

Although the consumption of a tourism product is more than just paying for goods and services, at least basic data and indicators associated with their corresponding tourism sector performance could allow for comparability (such as overnights, establishments, and employment)

2.89. It should be highlighted that comparison based on a demand side concept such as market segments will lack of statistical rigor according to the reasoning presented in Chapter 6/A.2.

2.90. Activities undertaken by visitors will be proposed in order to request respondents of surveys about round trips; this question should be further adapted if applied at destination level. For instance, identification of attractions visited, tourism experience, about the degree and frame of trip planning - such information would render distribution channels much more effective-, more precise level of expenditure and its main components, etc.

Such activities can be derived using a questionnaire but it is also possible to identify them related to movements at the destination either following signposted itineraries or moving around: gathering such information would allow for more targeted types of visitors and design of new or improved tourist products.

2.91. It seems obvious that the development of new technologies related to the growing registry of different types of digital prints left behind by tourism displacements, will increase our knowledge about what visitors do while at destination. In fact, mobility research has already acquired a critical mass of knowledge about the design of new tools and empirical analysis about travel behavior and consumption patterns in particular (which presupposes that researchers share a culture of reporting data in a format that allows other stakeholders to use the data for further analysis)

The adaptation of such tools and research to the case of tourism should give priority to the design of surveys focusing on activity-based travel behavior of visitors at destination, the use of Google Map technology and pop-up questions related to such behavior, explore the potential of open data, etc.

In any case, basic data and indicators about itineraries are not standardized as is the case of the kind of information pertaining to tourism products and the characterization of visitors and trip. Consequently, this document does not provide any particular recommendation on a minimum set of associated data to be obtained.

2.92. The concept of tourism population is a statistical concept that is not defined in the 2008 International Recommendations for Tourism
Statistics official document. The measurement of such concept requires the use of full-time equivalent procedures. Equivalent Tourist Population figures should be included in different type of indicators measuring tourism impacts on the environment such as:

- ecosystems
- needs for waste management facilities
- water cycle
- energy flows
- etc.

As an indicator of population density and tourism specialization, such figures can also foster comparability between tourism destinations.

2.93. Regarding **characterization of visitors and trips**, it should be kept in mind that the universe of arrivals or overnights is used as a proxy to the number of visitors; consequently, surveys addressed to visitors at destination should take advantage of looking for a statistical sounded research on both characterizations of visitors and trips. Such universe allow to split survey data according to different type of characteristics both of the visitor (either tourists or excursionists –same-day visitors-), and the trip (such as the main purpose and main destination, organization of the trip, length of stay, etc.) as well as other type of components (mainly travel party size and composition, origin and destinations of trips, availability of travel mode/s, attractions visited, activities undertaken, etc.). As already mentioned, clustering different characteristics and other components allow for setting up different types of visitors for analytical purposes (see 3.25). A practical example can be found in CISET 2014 “Italian and Domestic Tourism Expenditure in the Veneto Regions. A milestone for the Veneto Region TSA Compilation”

Besides the traditional data used for measuring the market from the demand side (arrivals and overnights figures), this document understands that in statistically developed countries there are a set of basic data and indicators that could be used for enlarging the traditional scope of measuring demand and supply. (Please see Chapter 5 about the completeness of a R-TIS of the following publication: INRouTe and UNWTO (2012) *A Closer Look at Tourism: Sub-national Measurement and Analysis – Towards a Set of UNWTO Guidelines*, UNWTO, Madrid.)

2.94. Some of these data highlight the possibility to derive from the respective national databases (particularly border, household and accommodation surveys) a more ambitious analysis about typologies of visitors than just the breakdown of arrival figures by main purpose of the trip. Nevertheless, supplementary information about what visitors really do at destination (in particular, those topics related with travel behavior patterns) should be envisaged. Also the emotional drivers of visitors when arriving at destination and the evaluation of their experiences while at the destination constitute an important set of data for destination management (basically in terms of qualitative type of data).

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5 A copy of this publication is available here:
2.95. As will be mentioned in chapter 6, the questionnaire to be used for the measurement of **regional tourism expenditure** requires three basic sets of ventilation:
- according to the two possible perspectives to view the trip (from the perspective of the visitor or from the perspective of the regional or local entity visited)
- if the visitor is a resident or non-resident in the region of reference; in some destinations it might be relevant to open the first category in nationals/foreigners
- when the expenditure took place (pre-trip or during the trip). While pre-trip payments might include accommodation, transportation tickets, package tour as well as other services, payments during the trip might include a more comprehensive list of goods and services

2.96. In due time these five components of the tourism sector and market in a consolidated tourism destination should be extended and also include additional concepts and challenging topics such as:

- Vulnerability: meaning either the degree of diversification of markets and types of visitors, or the degree of dependence to tour operators/foreign direct investments/accessibility to destination by low cost air companies or other factors that could affect sustainability of the tourism destination
- Tourism and new technologies: both in relation with tourism data collection and in relation with definition of “new” terms in official statistics such as online intermediaries, online purchases/reservation, etc.
- Main externalities caused by tourism and its measurement: for instance, related to the use of resources (such as water, land, etc.), inflationary pressure affecting mainly the resident population, real state and vacation homes developments with a marginal and highly seasonal type of occupancy rate throughout the year, etc.

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Tourism in Puerto Rico: an Alternative for Sustainable Economic Development by Dávila Pagán, N.

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Introduction

Currently, there is a decline, this mainly due to globalization, which has expanded to other markets thus adding greater competitiveness especially in the Caribbean area. The big question is, how it has been fulfilled with the purpose of the public policy and/or the purpose of the laws applicable?, the efforts of the past two decades (1990-2010) have managed to overcome the apparent stagnation in the tourism sector? And finally, can you Puerto Rico to achieve a sustainable tourism and is a real alternative to economic development?

We are experiencing the worst economic crisis at the global level since the Great Depression. Puerto Rico has a privileged position in the Caribbean and a diversity of natural resources, in addition, cultural diversity, religious tolerance, we have a advanced infrastructure and a population with a high rate of academic training. Tourism can generate more revenue to the State through the foreign investment and local, creation of direct and indirect jobs, so as to increase the expenditure of visitors among others taking as well, a multiplier effect on the economy. The contribution of the expenditure of visitors to the Gross Domestic Product in 2010 was 5.69 %; and since 1979, the highest level has been achieved a 6.49 % in 1994 (Contribution of tourism to the Gross Domestic Product Planning Board of Puerto Rico). In Puerto Rico has tried to promote as a tourist destination, as it has with the natural resources and biodiversity a privileged; the beaches, rivers, underground rivers, lakes and lagoons, waterfalls, mangrove swamps, sinks, panoramic view on the mountain, mountain peaks, canyons, valleys, formations of hummocks (the area taking you through karst country), rain forests, the main is the El Yunque National Forest and dry forests as the Guanica, inlets, islands, cays, bioluminescent bays, caves, coral reef ecosystems, wetlands, systems of thermal waters, estuaries salt licks, flora and fauna endemic among others (Dumas 2004). In addition to this are the historical buildings, archaeological sites and indigenous heritage Historical-cultural (Interview Hector Sanchez) parks such as indigenous, sugar mills, farms etc. The peak season or more important than will be detailed later in this research was in the 1970s.

The island could be better exploited economically as a tourist destination and to open the door to more types of tourism and diversifying markets and thereby achieve a sustainable tourism; which is defined as those activities environmentally-friendly tourist natural, cultural and social, and with the values of a community, which allows you to enjoy a positive exchange of experiences between residents and visitors alike, where the relationship between the tourist and the community is fair and the benefits of the activity is distributed in an equitable manner. When we talk about the sustainability refers to the environmental, economic and sociocultural aspects of the development of tourism in a given destination; we should establish a proper balance between these three dimensions to ensure the long-term sustainability. A tourist
destination is a physical space in which the visitor spends at least one night. Includes tourist products such as support services, attractions and tourist resources in radio that lets you go for the day. (Indicators of Sustainable Development for Tourism Destinations in the WTO 2005) Combat poverty; thus meeting the needs of the present without compromising the ability of future generations to meet their own (WCED, 1987). According to Miguel Angel Acecenza contributions of tourism are the following: improves the balance of payments (recording of all economic transactions between residents of a country and the rest of the world for a certain period of time), domestic product growth through the expenditure of tourists; in the cultural field protects the historical heritage by preserving the cities, monuments and traditional architecture, as well as the revitalization of the cultural traditions of the peoples. In addition, it increases the educational level of the population by allowing the same with a greater geographical knowledge of the country and its traditions.

Historical development of tourism in Puerto Rico

The event that marks the start of the tourism is the inauguration of the Coamo Hot Springs in 1853, a place known for its thermal waters. The hotel Condado Vanderbilt was opened in 1919 with 100 rooms and was very successful. During that time the majority of the tourists arriving on the island in steam boats, it is not until 1929 that starts the first commercial flight of the airline Pan American World Airways. In 1937 was inaugurated the Institute of Tourism of Puerto Rico, under the governorship of the north american Blanton Winship and launches the first promotional campaign entitled you are part of the landscape. In the 1942 was created by the Act Number 188 the company Industrial Building that later would be in charge of promoting the tourism industry on the island. The inauguration of the Caribe Hilton Hotel (first hotel property of the Government) and the Hotel School in 1949 marks a major step in the industry at that time had an increase of tourists due to the postwar era. 11 The inauguration of the Luis Muñoz Marin International airport in 1955 increased the flow of visitors so much so that in 1959 exceeded one million. It is not until 1962 that one begins to expand the tourist activity outside of the metropolitan area, and also in that year was inaugurated the Puerto Rico Convention Bureau (negotiated on Conventions of Puerto Rico) that promotes the island as the venue for conventions and trips for groups. In 1970 begins the advertising campaign for the tourist, you are first and inaugurate offices in Canada and in the Rockefeller Center in New York. In addition, in the same year kicks off the Tourism Company established under the Law Number 10, which will be explored in this research later. In 1973 starts the advertising campaign The Island complete with the purpose of marketing the island as a tourist destination aimed at the United States; also starts the program of Paradores Puerto Ricans. It was opened in the 1974 another tourist promotion office in Frankfurt, Germany.

At the beginning of the decade of 1980 is amended by adding the advertising campaign: Only Puerto Rico you sights that Warm You Like The Sun. In the 1985 campaign begins another: Puerto Rico : the Shining Star of the Caribbean. In 1993 starts the promotional campaign Discover the Continent of Puerto Rico. For its part, the Puerto Rico Convention opens regional sales offices in Chicago, New York, Atlanta, Los Angeles and Madrid. In the winter of 1997 was launched the campaign sounds of Puerto Rico: Puerto Rico puts it all within your reach. In the 1998 Launches the Internet page www prtourism.com, designed to be more interactive, visually appealing and more effective in attracting visitors to the island. Had recently been changed to www gotopuertorico.com and currently www seepuertorico.com. Finally, in the last four years (2008-2012) was launched the campaign Puerto Rico does it better, for both tourism and attract foreign investment to the country. This campaign
had been launched before the end of the decade of the nineties as a motivational in nature for the employees of the Puerto Rico Tourism Company. (Manual and history of the Tourism Company, 1999)

Puerto Rico Tourism Company

The creation of the Puerto Rico Tourism Company (CTPR) it was not until the Law Number 10 of the June 18 of 1970, which defines its functions and organizational structure; which has been amended several times through history. On June 22, 1994 was the reorganization plan, as amended, in which the CTPR (acronym to use for the Puerto Rico Tourism Company) is under the umbrella of the Department of Economic Development and Trade.

Its mission is to contribute to the economic and social development of the country working in the most effective and efficient way with all the components of the tourism industry, in order to attract visitors and provide them with the best experience on our Island; the vision is to make Puerto Rico destination in the most vibrant and diverse of the Caribbean.

Its main functions are the following: (although this varies according to the administration) promote Puerto Rico as a tourist destination, carry out the campaign of advertising and public relations, regulating and controlling the gambling in a casino, raise the money through taxes to the slot machines, provide technical assistance to those interested in the establishment of tourist facilities, evaluate the tourist facilities endorsed by the Company, promote domestic tourism family, as well as the parador hotels and small inns and the guide to the visitors.

The organizational structure of the CTPR consists of the following units: the Board of Directors, Legal Advice, Administrative Affairs, Internal Audit, Office of gambling, Planning and Development, promotion and marketing, Office of Public Relations and Communications, Products and Tourist Services, Office of Information Technology and the Office of the Executive Director.

The Division of marketing and promotion is the one with the greater part of the budget of the CTPR, develops and implements marketing strategies to promote Puerto Rico as a tourist destination. These functions are carried out through the Divisions of Marketing, Public Relations, Special Events, tourism operations and sales of Latin America, Puerto Rico and the Caribbean. On the other hand, is promoting the island with the support of the offices of the United States, Europe, Canada and Latin America.

In addition, form part of the interagency efforts and entities related to the market access of air and sea tourism. It is co-ordinating the advertising in conjunction with the private company, this is known as cooperative advertising, which is promoted is a particular destination as packages and offerings in the outside to visit Puerto Rico, patterns of advertisements in the different media. Also are handled and protected trademarks under the CTPR such as Paradores, Pousadas, Porta del Sol, Porta Caribe and other tourist regions.

Another important Division is the Planning and Development which manages and promotes the development of the infrastructure of land and tourist facilities, collects and provides the statistics of the industry, creates incentives and programs, creates the policy and sustainable tourism development, handles the process of endorsements and the create funds regional capital in cooperation with the municipalities and the private sector in the development of tourist infrastructure of each region. In addition, provides technical advice to individuals, partnerships and corporations interested in the
development of the tourism activity. Until the fiscal year 2009-2010, the Program was known as physical development of tourist facilities.

The Office of Oversight of Games of Chance supervises the activities held in the conference rooms of gambling; establishes controls and provides services to clients of the gambling rooms. On the other hand, approves new games, and collects the money generated by the slot machines. To fulfill its responsibility, the Program has the control divisions, collections, electronic games and accounting.

Finally, there is the Division of tourism products and services that manages and promotes the development of tourism products through the areas of Quality in Tourism, tourist areas, tourist transportation and tourism operations, promotes the quality of service and of the tourism product, provides support to companies of tour and stimulates the ground transportation. In addition, coordinates and promotes the tourism through the different regions as Porta Caribe and Porta del Sol. (Manual and history of the Puerto Rico Tourism Company, 1999; Tourism Company Recommended Budget 2012-2013).

Regional Tourism Destinations

As part of the effort to regionalize the tourism created six regions that are the following: Porta Caribe, Porta del Sol, Porta Atlantic, Porta Cordillera, Porta Antilles and Metro Region.

The Region of Porta del Sol, was created by means of Law Number 158 of 20 December 2005. The peoples that compose it are: La Aguada, Aguadilla, Anasco, Cabo Rojo, Mayagüez, Isabela, giant anteaters, Las Marias, Lajas, Maricao, Moca, Rincon, Sabana Grande, San Sebastian, Quebradillas, Guanica and San Germán.

Peoples southern region corresponding to the Porta Caribe are: Ponce, pins, Arroyo, Guayama, Salinas, Coamo, Santa Isabel, Juana Diaz, Villalba, Peñuelas, Guayanilla and Yauco. This region was created by Executive Order of Governor Anibal Acevedo Vila on 22 May 2006.

The peoples that make up the Region of Porta Atlantic are the following: Arecibo, Camuy, Hatillo, Barceloneta, Manati, Vega Alta and Vega Baja, Dorado and Toa Alta.

The Porta Antilles region consists of the following villages: Caguas, Loiza, Canovanas, Rio Grande, Luquillo and Fajardo, La Ceiba, Culebra, Vieques, Naguabo, Humacao, Las Piedras, Juncos, Gurabo, San Lorenzo, Yabucoa and Naguabo.

The Metro Region is composed of the capital San Juan, Trujillo Alto, Bayamón, Carolina, Guaynabo, Caguas, San Juan, Toa Alta, Toa Baja. And finally, the Region Porta Cordillera range that was created using the Act Number 54 of the August 4 2009 and is composed of the following municipalities: Aibonito, Orocovis, Adjuntas, Cayey, Ciales, Cidra, Morovis, Jayuya, Corozal, Barranquitas, Comerío, Lares, Aguas Buenas, Utuado and Naranjito. This law directs the Tourism Company to prepare a Strategic Plan for Tourism Development and Marketing of the District and naming and identification of special tourist district of the mountain. It is sorted to the participating municipalities submit to the Tourism Company an inventory of the tourist attractions of the potential and actual same as well as, the needs of infrastructure related to the same. Also, submit a listing of the artisans and the popular festivals and cultural that located and are held in the municipalities.

In addition, the Tourism Company develop a plan of public funding for the special tourist district of the mountain and to promote the economic sponsorship of the
private sector. In light of the foregoing, the Economic Development Bank for Puerto Rico, subject to the provisions of the Organic Law and the compliance of their policies and regulations in force, will collaborate with the Tourism Company in the development of the plan of public funding.

**Tourism Legislation**

In the beginning of the 1930s created the Law Number 42 of the same year which created the first committee of tourism in our history. In 1937 through the Law number 138 was created the Institute of Tourism. Its purpose was to carry out a program of advertising in the United States. Later creates the Department of Tourism in the 1950s through the Act Number 423 of May 14, their main functions was the development and Promotion, licensing and gambling; continues with that name until 1970 when you create the enabling law number 10 by which becomes the Tourism Company.

Innkeepers Act Number 85 1956- imposed in all hotelier the obligation to keep a record with numbered pages containing information of guests who rent or occupy rooms and apartments in the hotel. Has suffered several amendments to that would be less burdensome and updated the registration process to the inns and more updated.

Historic Old Law Areas and Areas of Tourist Interest number 8 of the June 8 1972-designates these places and that will be preserved for tourist purposes.

Law of Random Game Number 2 of the July 30 1974- empowers the CTPR to manage the operation of slot machines in the casinos and maintain control of the revenue generated by the operation.

Transportation Law Land Tourist Number 282 of December 19, 2002- to delegate all the functions on the regulatory, research, monitoring, intervention and prosecution of those persons or legal entities who are engaged in providing service to transport land tour to the Puerto Rico Tourism Company, and other companies, and to delimit their duties, functions and responsibilities. In addition, and in the interest of easing the regulations in force and respond quickly and effectively all complaints and complaints in relation to the terrestrial tourist transportation in Puerto Rico, is delegated to the Tourism Company, the functions of the regular tourist transportation land, thus integrating the legal system applicable to tourist taxis, tourist excursions, special buses (charter buses, motor coach), transfer vehicles ("shuttles") and stretch limousines and the companies sales and service of taximeter and/or any other means of tourist transportation.

Law of the Puerto Rico Convention Center Authority Number 400 of 9 September 2000- creates the Authority and sets its duties, powers and rights; create your Board of Directors; attach penalties; and establish a fund for the expansion of the Authority.

Sustainable Tourism Law Number 254 of 30 November 2006- the CTPR has responsibility for planning and promoting programs and projects of sustainable tourism on the island and avoid that natural areas with high ecological value, culture and historical are managed or operated by agencies and private sectors with conflicting objectives to the definition of sustainable tourism.

Puerto Rico Tourism Development Act Number 74 of the July 7, 2010- it is intended to convert Puerto Rico into a first-class tourist destination at the global level by fostering conditions suitable for ensuring the continued development and global competitiveness in the hotel industry in Puerto Rico. Provide the environment for the continuing formation of local capital and abroad for its investment in tourism projects. Mitigate the high cost of construction and operation of the business tourism of Puerto Rico and reduce energy costs in operations, through the different alternatives of renewable sources. Eligible businesses can be new or existing devoted to tourism.
activities such as: hotels, condohoteles (group of properties where 15 of its rooms are an integral part of a lease program, operates as a hotel to receive tourists when the owners do not use; example in PR ESJ Towers in Isla Verde), vacation clubs, inns, guest houses; excluding the operation of casinos, theme parks, golf courses, marinas for tourist purposes, facilities in port areas, caves, forests and natural reserves.

It should be noted the benefits conferred by this act to the private sector to comply with the public policy of tourism development. For a period of 10 years the business will be eligible tax credit of 10% of the total project cost or 50% of the cash paid by investors, whichever is less. Also 100% exemption on means of municipal construction, of imported items and taxes on the sale of municipal fees. In addition, a 90% exemption on contribution on the property (CRIM), and on income taxes.

Law on timeshare and Vacation Clubs Number 252 1995- (known as time-share). With this law seeks to comply with the following objectives: to protect the rights of buyer of timeshare and holiday rights and promote the development of the industry through the establishment of rules under which the industry must operate. The adoption of this measure is aimed to achieve those goals.

Law of incentives for Economic Development and Municipal Tourist Number 118 of 2010- this law contains a number of tax incentives to encourage the establishment of new tourism projects that include hotels, tourist facilities, gambling, and the emergence of complementary shops and services that are comparable to other jurisdictions. The main requirements are that must be exclusively developed by private capital, a world-class hotel with a rating of at least 4 stars. They can also be commercial establishments and varied recreational (may include casinos).

Law of the improvement of the Tourist District 171 2009- changes the structure and composition of the Board of Directors of the Puerto Rico Tourism Company, and allow the company to require their inns and guesthouses endorsed to provide statistical information necessary and regulate, investigate, intervene and impose fines on any activity related to the nautical tourism, a flexible promotion of training to our citizens. Sized hotel schools and tourism at the vocational level and/or specialized, ease the processes of public hearings in the regulatory processes, among other purposes.

Law for the Promotion and Development of the industry for many cruise ships Number 113 of 2011 - this industry generates about $245 billion a year, wax of 1.2 million passengers visit us annually and created about 4,000 jobs direct or indirect. The main objectives are to reaffirm and reinforce the importance of Puerto Rico as the destination port base (homeport) regional and global; increase traffic on cruise ships and the stay of the cruise ship passengers in inns, the visits and the volume of passengers, promote the consumption on the island by passengers and the crew and provide incentives equitable to all cruise lines and create a partnership with each of the lines among other benefits.

Through that act creates a special fund of the Ports Authority for incentives to industry of Cruise Ships attached to the Ports Authority. These incentives would be for the companies, frequency of visits home port, time in port for boats in transit of supplies and services and so on.

Program Act of Craft Development Number 166 of 11 August 1995- promote between the tourists and foreigners on the island, the acquisition and purchase of puerto rican crafts.

Law of medical tourism of Puerto Rico Number 196 of 15 December 2010- setting public policy on the promotion and development of this industry; provide that the Executive Director of the Tourism Company shall have the powers and faculties desirable and necessary to implement this law; list the powers and duties of the
officer; create an Advisory Board to make recommendations to the Executive Director of the Company of tourism in the area; it creates an Advisory Council responsible for advising the Advisory Board on aspects related to health and tourism; have the procedures for the issuance of certifications and licenses for activities, facilities and facilities; set parameters for the development of medical tourism in Puerto Rico; provide that the Planning Board shall instruct the Administration Permits and Regulations to give priority to any initiative of the public or private sector to develop infrastructure, facilities and facilities of medical tourism; provide for the granting of building permits; impose bans, fines and penalties.

Nautical Tourism Act Number 241 of 30 December 2010 - is declared as public policy of the Government of Puerto Rico the promote nautical tourism as a tool for economic development and tourism of Puerto Rico for the purpose of promoting and regulating the activities related to the nautical tourism and to the operation of activities related to yachts and mega yachts For tourism purposes; transfer of certain functions related to activities of nautical tourism to the Tourism Company; clarify provisions that apply to yachts and mega yachts for tourist purposes; and expand the "Adoption Program of mooring buoys of the Department of Natural Resources and Environmental"; to repeal the Law No. 179 Of 16 December 2009.

EMB-2011-044. Executive Order to establish the Advisory Board to the Governor on the Tourism- establishing the Council to make recommendations on technical aspects, environmental, social, legal, and economic on the design of the public policy of the environment.

Tourism activity in Puerto Rico

It begins with the means of transport of the traveller, in our case being an island it would be by air or by sea, being its entry through the airport and the cruise ships. The next step is the accommodation is a hotel, luxury hotel, hostel, guest-house (guest house) or another type of hospice. This is complemented with the transportation mean tourist taxis or vehicles to provide the tour service known as tour operators, or car rental of a private company. In the accommodation mainly in the large hotels have an area designated for the "concierge" which are the guiding forces of the visitor or tourist agents, mostly, Related to the excursions or tours. The other factor is the entertainment (nightlife largely), restaurants, shopping centers, entertainment, clubs, pubs, in and outside the hotel; and the sightseeing tours to places of interest (Sergio Rubiera), where often used the tourist guides certificates. The main attraction is the natural, especially with regard to Puerto Rico are the beaches, El Yunque and his historical places such as for example the Old San Juan. Alex Diaz (2012)

Negotiated the Convention of Puerto Rico (Puerto Rico Convention Bureau), the main organization, non-profit organization dedicated to the promotion of Puerto Rico as a destination for meetings and conventions, also forms an essential part of the industry, promoting mainly for these purposes the Convention Center in Miramar. Recently, of the 1.3 million visitors that we receive and stay in our hotels 60% (780,000) are traveling on business while 40% (520,000) are traditional tourists. Alex Diaz (2012)

Domestic Tourism

The promotion and marketing is directed at the local tourist. There is a program of Paradors Puerto Ricans and small inns to promote tourism outside the metropolitan area. In the fiscal year 2002-2003 began the project of customer service through the comment card (Guest Comment Card) participating inns 66 small/medium and
Paradores and were able to access. The results through www.unifocus.com, an administrative tool for lodgings. In the majority of the municipalities, especially those who are self-employed, there is a tourist office usually under the Division of Economic Development to promote domestic tourism. The CTPR in the duties is supposed to advise the municipalities for the development of sustainable tourism.

**Tourism Education**

In Puerto Rico there are several universities and institutes of higher education that offer courses and academic degrees related to this field. The Puerto Rico Tourism Company evaluates the curriculum of the educational institutions and make their suggestions, however they are not obliged to accept these suggestions.

The Sacred Heart University offers a bachelor's degree in Tourism, with a subconcentration in Hotel Administration, under the Faculty of Business Administration. The curriculum of this program prepares the student to serve as: Planners of activities, meetings and conventions; work in the Travel Industry, cruises, airlines, and means of transportation; work in the food industry, hotels; specialists in public relations, travel agents and transportation of tourists. The University of Puerto Rico in Carolina offers Management of Hotels and Restaurants one with emphasis in food and drinks and the other of Management of hotels, in addition to the Baccalaureate of Cultural Tourism. The Interamerican University Campus of Fajardo offers a bachelor of Tourism Administration and the certification of tourist guide. This educational institution is part of the program of the Themis Foundation, an educational program attached to the World Tourism Organization (UNWTO); its mission is to improve the quality, competitiveness and sustainability of the tourism sector through excellence in education and training (UNWTO Themis Foundation). Finally, the ICPR Junior College offers certification to tour guide.

The Hotel School founded and administered by the government was transferred to the Colegio Universitario del Este (today's University of the East of the University System G Ana Mendez), under the Law of 47 July 25 1997. According to the report of transition from 1996 to 2000, this transaction benefited the student because it offers more and better opportunities for academic development. Today is the International Hotel School of Culinary Arts and Jose (Tony) Santana, offers certificates, associate degrees and Post-secondary education in various areas such as kitchen, administrator of hotels, event coordinator, manager of conventions, catering manager among others. The Office of Tourism Quality and Educational Affairs of the Company of Tourism rather is responsible for training, retraining of any organization such as hotels, Mesones Gastronomicos among others, at the request of the same in regard to the customer service area (Interview Eva L Galarza). One of the training programs is known as Puerto Rico SuperHost (Currently its name was changed to the Promises) that occurs in the service area, intended to raise the quality of service standards in the destination. According Explanatory Memorial presented to the legislature (Suarez 2005), is planned to hit the 78 municipalities, private enterprise and educational institutions. There had been collaboration agreements with educational institutions that offer tourism programs.

**Public Education System**

An attempt was made to implement a curriculum of tourism in vocational schools but not worked because the teachers who taught the courses were not trained in the area of tourism (Interview Hector Sanchez Appendix D), there are only very few schools that offer academic offering. In 1998 the CTPR visited several schools as part of the program School to Work; informative material was donated to the schools and the
students participated in seminars in which they discussed important aspects of the tourism industry. In 1996 it introduced a program Hello, Tourist in 35 schools, with the participation of approximately 985 students, this to promote the good treatment toward the tourist (Suarez 2005). Both programs were discontinued.

**Public Policy through the History**

In fiscal year 1981-1982, according to the explanatory memorial submitted to the Legislature, the public policy was to promote, develop, regulate and improve the tourism industry in Puerto Rico, in order to maximize the benefits of this important economic activity and contribute to the socio-economic development of the island. Aldrey of Peter (1981). In that year, the most significant goals was to increase the participation of residents in the domestic tourism, the Parador was built Hacienda Juanita in Maricao and Hacienda Gripinas in Jayuya (the latter remains currently), continue the efforts to decentralize the tourism and its benefits, it would develop the Western region as the second tourist center of the island. Motivate the municipal committees of tourism to participate in the development of tourism through technical and economic assistance. To that date had not yet been completed a Master Plan for tourism in Puerto Rico.

In the nineties, specifically in 1998, there were new air routes with Kiwi Airlines with destinations in Aguadilla to Newark and Orlando, Continental, British Airways, Copa, Iberia and Sun Airways. It should be noted that Mexicana de Aviación resumed travel Mexico City and Cancun under the incentive program of Air Service of the Department of Economic Development and Trade. Another important piece was brewing a study on satellite accounts to allow in more detail the contribution of tourism to the local economy.

For the fiscal year 2005, according to the Memorial of the Explanatory CTPR for that year, (Suarez 2005) was working for that Puerto Rico will ensure its positioning in the Caribbean by increasing to 20% their participation in the Market by 2020. It would be a follow-on to a Strategic Plan that was designed in the fiscal year 2002-2003 which includes fourteen key strategies and initiatives on 120 that should have been implemented in the subsequent five years. In addition, were to be achieved to have 30,000 rooms and receive about 11 million visitors a year. Design is the first regional plan of Porta del Sol (western region) and began to draft legislation to create incentives for the nautical tourism.

In the section of program commitments was to develop a Master Plan for tourism; the same would be prepared with the cooperation and participation of the representatives of the tourism industry, municipalities, communities and civic groups of the country. It would take the necessary steps to ensure that protect the natural environment of Vieques and Culebra and there would be a sustainable development in the islands municipality.

The Work Plan contained 14 strategies the most important are the following: to promote the development of facilities and services in each region, preserving tourist attractions and protect the environment, improve the operation and maintenance of existing facilities to optimize the execution and the efficiency of services, improve the existing infrastructure and build new facilities to meet the current and future demand of visitors, develop and implement educational programs and trainings and to improve the climate for Business by simplifying the regulatory processes and improving competitiveness in cost.
METHODOLOGY

In this investigative work is intended to have a vision of tourism in Puerto Rico and its industry, with emphasis on the analysis of public policy through legislation and that has been proposed in the platforms of government in different years and in different periods were compared. In addition, compared to other tourist destinations in the Caribbean in that line. The focus of the research will be one mixed and/or formative evaluation, being descriptive and informative.

The instruments to be used are the primary sources through interviews with staff of the Puerto Rico Tourism Company; the Lord Jose Juan Soler Terrasa Planning and Development Division on 21 November 2012, to Mrs. Carolina Morales, of the Office of Sustainable Development in February 2012, to Eva L. Galarza of the Office of Tourism Quality and Educational Affairs in March 2013 and Mr. Rafael Silvestrini from the Statistics Division in February 2012.

It is interviewed to members of the Association of Hotels and Tourism of Puerto Rico (PRHTA) to the lady Esmeralda Perez on 29 November 2012 and the Lord Ismael Vega on 3 December 2012. In addition, Mr. Hector Sanchez Martinez on 31 October 2012, tour guide, environmentalist and founder of the Center for Tourism Studies (CENET) and the Corporation of Planning and Tourism Studies (COPLADET).

They were also interviewed informally tour guides, staff of the hotel industry, carriers, and taxi drivers, at the airport, hotels in the metropolitan region, the Anvil and other tourist places. Most visited at various dates between March 2012 to March 2013. These preferred on condition of anonymity and provided with valuable industry information.

Secondary sources were used by revision of strategic plans for the CTPR, reports to the Governor prepared by the Planning Board and the Tourism Company, CTPR Statistics and the Planning Board, books related to the topic and the Stanford Reports.

FINDINGS

Tourism Statistics

To know the income it brings to the Puerto Rican economy this industry uses the expenditure of visitors, which are classified in tourists and hikers, the latter are cruise passengers. The contribution in the 1979 the gross domestic product (GDP) was a 5.62 % equivalent to $10,061.00, in the year 1994 reached a 6.49 % equivalent to $26,640.90. Then began to descend (markedly after the events of the September 9 2001) until the 2005 that increased to a 6.02% representing about $53,752.40 and has been a constant. The most that has contributed to our tourism economy in about 30 years is 7 %. These data were provided by the Statistics Division of the Puerto Rico Tourism Company.

In the explanatory Memorial on the Recommended Budget 2012-2013, it should be noted that in relation to Visitor expenditures stresses that the tourism industry is fundamental to the economy of Puerto Rico, because this is one of the fastest growing sectors and with a great potential for the future. Puerto Rico has 17 major resorts, hotel chains and resorts around the island and tourist activity develops inside of some commercial and services sectors, particularly in the operation of the facilities of accommodation. The cost of non-resident visitors in Puerto Rico, totaled $3,142.8 million during the Fiscal Year 2010-2011, registering a decline of 2.1 %, compared to the previous fiscal year, which was $3,210.7 million. It is projected that the expenditure of visitors for the fiscal year 2011-2012 is $3,171.0 million with a growth of 0.9 % With respect to the Fiscal Year 2010-2011. For the fiscal year 2012-2013 it
is expected that the expenditure of visitors reach $3,208.0 million representing an increase of 1.2 %

In the room Inventory 2010-2011 there were 164 inns and guesthouses endorsed by the Tourism Company, this includes luxury hotels, inns, guest houses, time sharing, bed and breakfast among other modalities; for a total of 14,399 rooms. In registering and tourist occupation, the number of people registered at hotels and hostels during the first six months of the fiscal year 2011-2012 increased 7.6 %, as compared to the same period of Fiscal Year 2010-2011. Of a total of 1,181,656 persons registered in hotels and hostels in the period from July to January of the fiscal year 2010-2011 increased to 1,271,736 persons registered in the same months of the current fiscal year.

Also, during the months of July to January of the Fiscal Year 2011-2012, the registration of persons resident and non-residents in hotels and hostleries increased 11.4 % and 5.5 %, respectively, compared to the same period of Fiscal Year 2010-2011. In relation to the registration of persons in hotels, for the months of July to January of the fiscal year 2011-2012 we have observed a rise of 8.3 %, compared with the same period of the previous fiscal year. The registration of persons resident in hotels increased 13.5 % and 5.7 % of the non-residents, compared with the same months of the Fiscal Year 2010-2011. For its part, the registration of persons in hostels for the first seven months of the Fiscal Year 2011-2012 Averaged 3.1 %. The register of residents, decreased by 2.5 %, compared with the 11 same period of the previous fiscal year.

Non-residents reflected a decline of 5.6 %, compared with the same period of Fiscal Year 2009-2010. The occupancy rate in hotels and hostleries average 66.1 % during the period from July to January of the Fiscal Year 2011-2012. This accounted for 1.1 percentage points higher than the rate recorded in the same period of the previous fiscal year.

The occupancy rate in hotels average 33.5 %, reflecting a rise of 0.5 percentage points, compared with the same period of the previous fiscal year. While the occupancy rate in paradores average 33.5 %, reflecting a rise of 0.5 percentage points, compared with the same period of Fiscal Year 2010-2011.

In the Appendix F shows the major airlines and the place of origin of tourists who come to Puerto Rico. In addition, the Table 1 entitled Related Employment to the Tourism Industry - Fiscal Years, shown in employment that generates the tourism industry in our country.

**Stanford Report: Development of Tourism in the Commonwealth of Puerto Rico**

The Stanford Research Institute, South Pasadena, California has prepared a report for the Department of Economic Development of Puerto Rico in November of 1968. The researchers were Terrence Cullinan and Keith E. Duke. The same consists of several volumes in the English language but for purposes of this research used the Volume 4 and Volume 6, which deals on governmental organization for the tourism, marketing and public relations. In the same it is proposed to create Division of Education and Training, since the Hotel School (the first was in Barranquitas) was well below the required standards, lacking a faculty and staff with greater academic preparation. It was also suggested that the Division of Information and advertising promotional opened offices in Puerto Rico in Los Angeles and Chicago and other cities in the United States. Also that this Division will transfer him the magazine Que Pasa for it was distributed to more places and more frequently, your print it took a long time and hence its circulation, because the bureaucracy of the organization.
It should be noted that the magazine, existing today, although it now handles Casiano Communications (a private entity), as in the 1998 he was granted a contract to redesign, publish and distribute the same. This contract saved $300,000 in its publication and distribution, according to annual report of the CTPR of 1998.

The vast majority of these proposals were received and two years later in 1970 it adopted the Organic Law of the Tourism Company. Although it has suffered several amendments through history, you are still using this study as a basis.

The Stanford Report suggested the creation of two Committees; one agency for the Development of Tourism and an Advisory Committee. The first was to be composed of representatives from the Planning Board, Department of Economic Development, of the Public Service Commission, Highway Authority, Land Management, Finance, Police Dept, Sports and Recreation, Land Authority, Department of Public Works, Port Authority, the Institute of Culture and the Industrial Development Company (PRIDCO by its acronym in English). Among its functions are suggested to evaluate the projects of government and private sector to include industrial, housing and construction. The second committee would have representation of the Institute on Culture, Hotels Association, Chamber of Commerce, negotiated on Conventions of Puerto Rico, mayors, tour operators, hikers, representatives of workers' unions, airlines among other private entities relevant. His role was more relevant to encourage in the Puerto Rican residents tourism education and hospitality to tourists and create a positive image of the contribution of tourism to the country.

It was recommended that would decentralize tourism outside the metropolitan area as for example Fajardo, Luquillo, Humacao; that would preserve the Puerto Rican culture, it will be promoted to Puerto Rico as a tourist destination In and outside the United States. It was further suggested that an increase in the number of visitors to the island, diversifying supply attracting other markets not only the classes with high income (deluxe) but also to the middle class especially for the low season. Also, change the focus of advertising using various means of communication. In addition to this, which will be promoted other tourist attractions outside of the hotels such as water sports, historic sites, restaurants, shopping malls, places of entertainment among others.

Finally, to promote domestic tourism with the construction of resorts of moderate level in price for both the local as well as a foreign tourist; and to improve customer satisfaction. Some of the complaints was the poor customer service and high prices in the restaurants

After analyzing the previous platforms of government, the similarities found are the following: to improve the labeling of tourist places, measure the impact tourism in the country, keep the brand consistent for Puerto Rico as a destination, establish new air routes, all have proposed the preparation of a Master Plan, to improve the infrastructure of the springs and the cruise industry, the cleanliness of the beaches and tourist areas, promoting the development of tourism, medical tourism, sailing, shopping and cultural, improving the collection of statistics and creating small inns.

The marked difference between the major parties is that the New Progressive Party (NPP) encourages more the luxury market and powers over the private sector, while the Popular Democratic Party (PDP) powers over the projects of community tourism and the strengthening of internal tourism. In synthesis, and their proposals are quite similar.

The new parties, including the Puerto Rican Independence Party, gave a more general idea with emphasis on sustainable tourism, in the preservation of natural resources.
Comparative analysis with other tourist destinations

Tourist destinations to compare are Dominican Republic, Cuba, Barbados and Belize. The first country in the Caribbean is our sister Caribbean island of the Dominican Republic. One of the keys to the success of the tourism sector is the organization, the creation of a strategic plan in the short and long-term, regional plans or by poles. The so-called poles are the following: Azua-Peravia, Barahona-Pedernales, Jarabacoa-Constanza, Monte Cristi, Nagua Cabrera, Puerto Plata, Punta Cana, Samana, Santiago and Sunday - La Romana.

The State Secretariat of Tourism (SECTUR) is the main institution of the government although there are other organizations that interact with the same. The initial proposal was presented by the Society for Planning and Development (SOPDE) in the year 1999 and the same was taken as a basis for creating a Strategic Plan for Tourism Development in the Dominican Republic (PEDTUR). (Ref Dominican Ministry of Tourism). We have continued to do cutting-edge research on tourism trends, remain fairly updated their statistics and made a comprehensive SWOT analysis on all elements that are involved with the tourism process. The Dominican Republic in the 1970s had with 3,000 rooms and currently account with 68,000. (In Table 2 is an example of how there has been a growing industry of hotels, bars and restaurants from 1980 to 2011. It helps us to deepen the analysis of the economic growth of the industry.

The second target is to compare Cuba, due to its political regime communist has had several limitations, for this reason began to join the tourism industry in the nineties, is when you create the first joint ventures and there is an accelerated growth in the number of arrivals of visitors and income. Since 1996, when for the first time exceed one million visitors, Cuba has been proposed to consolidate its position as world-class destination and the Caribbean.

To market its tourism product, the largest of the Antilles account, mainly, with the hospitality and warmth of its people, unique natural attractions, its own historical heritage, prolific artistic and cultural life, a single health development, political stability and safety for the tourists.

All information and promotion of tourism in Cuba can be found on the Internet at www.cubatravel.cu the Portal of tourism in Cuba, that with a daily update in the English, Spanish, German and with plans to add the Russian and French, provides to those who visit precise details of the attractions, products, procedures, accommodation and other details of tourism on the island.

The main visitors to Cuba come from Canada, Germany, Italy, Spain, France, United Kingdom and Mexico, while seven major tourist generating markets hogging the 65.75% (1 108 726) of the total of Visitors who arrive in the country. In 1990, there were 12,900 rooms in 1990 and became a 37,225 at the close of 2002, which are grouped in 240 hotels. At the end of 2002, 53 hotels and 18,390 rooms operating under foreign management contracts with 16 chains of recognized international prestige, such as Sol Melia, Accor, Barcelo, Iberostar, LTI, Red Deer, sandals and Superclub.

Tourism in Cuba generates direct employment to about 100 thousand employees, the figure in 1990 was 52 thousand. For the training and upgrading of staff of the sector, with a view to ensure professionalism, quality and efficiency in the service, the country has the National System of Vocational Training of the Tourism (FORMATUR), composed of 19 schools throughout the national territory. (Ministry of Tourism www.cubagob.cu).

The Ministry of Tourism, is the agency has two levels of management: the first one is composed of the Minister and the deputy ministers; while the second is composed of
the officials in charge of the different areas of work: Secretariat, product quality, investments, Negotiations, International Relations, Legal, development, commercial, informatics, promotion and advertising, Economic analysis, administration, staff, and tables.

The third destination is Belize, as curious information this country was literally a banana republic, their main revenue came from agriculture. This changed with the delineated a Master Plan for Sustainable Development and today its Main industry is tourism. Is located in Central America and is also part of the Caribbean. In the 2008 had a gross domestic product that fluctuates between 18% to 25% and an employment rate of 28 %. Belize receives around 245.000 597.000 visitors and cruise passengers, providing $563 to its economy. This destination, although it is not an island, it has many similarities with Puerto Rico; its main market is the American followed by Canada, its official language is English, but the population speaks Spanish, due to its history that belonged many years the United Kingdom. Have your culture, beaches, forests, nature reserves, its territorial extension is not very large and have only one international airport the Philip SW Goldson. Although Puerto Rico has regional airports, the majority of visitors arrive through the international airport Luis Munoz Marin.

Outlined the strategic master plan and National Sustainable Tourism Master Plan of Belize by 2030, which contains the guides and standards for the management of project and programs, improving the infrastructure and marketing of the destination and finally the indicators to measure results.

The ultimate destination is Barbados, one of the British Virgin Islands, its main economic income came from the sugar plantations, but with the inclusion of the tourism industry achieved greater economic growth. Initially promoting the mass tourism and beach, its main attraction. It took them quite some time implementing a master plan due to struggles with the Great interests of the hospitality industry (Wilkinson 1997). It also has one airport, the Grantley Adams. According to statistics from the Caribbean Tourism Organization, in February 2013 Barbados received 48.870 visitors. The Gross Domestic Product of Barbados ranges from 7% to 9 %, the latter was reached in 2006.

Destination Marketing Organization (DMO)

There are organizations which represent a tourist destination and develops the same long-term to attract tourism to the same. In the case of Puerto Rico the CTPR is responsible for the promotion and marketing. Recently, it has been suggested the private sector of the tourism industry the creation of a Destination Marketing Organization (DMO known by its acronym in English).

This proposal has created controversy and resistance as that would mean the transfer of $60 million from the budget of the CTPR intended for these purposes to this public-private initiative. In addition there is a fear that dismantle the Tourism Company and the loss of 70 jobs management among others (Quiles Cristina del Mar 2012).

There are several tourist destinations that have adopted this such as Aruba, Australia, Barbados, Florida, Italy, Germany among others. In Puerto Rico the organization that has been pushing the DMO is the Association of Hotels and Tourism of Puerto Rico (PRHTA); the signature InterVISTAS, specializing in tourism and transportation, was commissioned to do the study. According to interview with the president of the PRHTA, the lord Ismael Vega, it is not intended to dismantle the Tourism Company as allege trade sectors, but it would create an independent entity through legislation with the sole purpose of marketing and promoting the destination. Currently the marketing was concentrated in the United States, specifically the East coast, this...
because there is no need for a passport to travel to Puerto Rico. The West Coast and central of the EU has not been touched (Interview Vega).

The purpose is to provide continuity to the marketing, creating a brand (branding) that do not change every four years or every time you change to any Executive Director. This independent entity would be funded with the money budgeted for the Division of marketing and promotion of the CTTPR, would have a Board of Directors composed of representatives of the tourism industry, would be merged the Puerto Rico Convention Bureau (PRCB) to include the promotion of tourism in meetings, groups and conventions; the Executive Director of the CTTPR and representation of the Department of Economic Development and Trade. The idea is to take the partisan politics of the entire process and that they will be hired experts in the field to attract tourists from different parts of the world and thus boost the economy, with more construction of hotels and job creation.

The proposal even projected that you would use the 75% of the allocated budget. In 2008 Puerto Rico invested $19 million dollars in advertising while the Dominican Republic invested $2 million dollars; Results of visitors contrast greatly by comparing the investment. Alex (Díaz 2012).

For that the DMO is effective there can be no conflict of interest, no one will be appointed by the governor in turn except the positions of Executive Director of the Department and CTTPR Development and Trade, which is an independent structure with fiscal autonomy. You have to make sure through legislation that the money earned by the charging of the room tax to the room) arrives to the DMO direct and not to the Puerto Rico Tourism Company. In addition, CTTPR would have the role of overseeing through audits and other resources relevant to the DMO. It would yield annual reports to the Legislature and create an audit committee and efficiency, similar to the Puerto Rico Convention Bureau (PRCB). (Interview Ismael Vega)

According to the study, the DMO in Puerto Rico would take 18 months to enter into force and operate, are expecting a massive influx of tourists, and one of the goals is to reach the 30,000 hotel rooms. The Tourism Company has 500 employees in total; those who are in the Division of marketing and promotion can be taken into consideration for work under the MOD or the Tourism Company the reabsorb, because according to the proposal, the company would continue the promotion of domestic tourism.

Finally, Mr. Vega indicates that one of the goals is that in 5 years the DMO is self-sufficient and does not have to necessarily be dependent on the CTTPR budget, that by creating a % account, you have a reservation.

Here is an article published in the newspaper El Nuevo Dia drafted on 5 August 2012 by Mrs. Yalixa Rivera entitled suffers from the tourism sector in Puerto Rico, which shows how the policy-partisan influences in the promotion and marketing of tourism in Puerto Rico:

As a general rule, the advertising account of tourism - the most juicy of the government with a budget that exceeds $20 million a year - has been awarded the advertising agency that performs the party's campaign during the election period, once you win at the ballot box. Situation that has been repeated with the two parties that have been in power. That was the case of Marti, flowers, Prieto with Rossello; Lopito Ileana & Howie with Sila M. Calderón; and the agency De La Cruz with Fortuño administration.

The DMO would lose him this absolute control to the government of the day. Even when the entity that arises will integrate five posts of public officials in his board, he would not allow the government to favor their suppliers advertising, since it would be the MOD who would decide the agency and the advocacy strategies.
Currently, the company account of tourism is in the hands of the agency Key Integrated Solution, a subsidiary of the agency De La Cruz, that in the last year (2010-2011) has received nearly $21 million for the work done for Tourism.

These money come from revenue generated by the very hotel industry, and subsequently receives the Government by the payment of room taxes and casinos.

CONCLUSIONS

From 1937 to 2012 we have had eight different advertising campaigns our destination marketing. The only thing that has remained consistent for more than 50 years to promote the island is the magazine that passes. In 1970 Puerto Rico had 9,000 rooms, then in the 1987 low to 7,100 and continued to rise to what are currently has; 14,400 rooms. The Dominican Republic in the 1970s had with 3,000 rooms and currently account with 68,000. It should be noted that the Dominican Republic is larger than Puerto Rico but this data allows us to appreciate the lag that we have in the area of tourism.

In Belize the Gross Domestic Product is at least 18% and in Barbados, an island with a geographical extension much smaller than ours, has been between 7% (which is the highest that Puerto Rico has been achieved) and a 9%. Puerto Rico was to the front of many Caribbean countries and even in the world and there was a stagnation in terms of continuity of public policy related. The Stanford Report was the basis for creating under the Law of 1970 what we know today as the Tourism Company, there have been amendments but really has not undergone any major changes. Basically, you continue to face the same problems, are not promoting the domestic tourism with the aggressiveness that warrants, although with the regionalization of Porta Caribe, Porta del Sol, Porta Atlantic etc. has begun to expand the tourism outside the metropolitan area, but the process has been one slow. Continue dragging the same goals, although there has been some progress, it is not enough for the high competitiveness that we have with other destinations.

In terms of tourism education the offer is not very wide but it is going to chord with visitors that are currently being received; if it were to be the case of an increase in the flow of visitors, would not be sufficient educational institutions and those that exist currently does not have the capacity to receive the bulk of students suddenly.

The promotion and marketing was concentrated in the United States with emphasis on the east coast, has not been marketed to other states of the American nation. Although efforts have begun to attract European tourist, at present, we do not have direct flights from Europe to Puerto Rico, this obviously makes it difficult and therefore does not put Puerto Rico between the first tourist destination options for them.

To analyze the governing platforms of the various parties are found several similarities in the setting of targets and even repetitive between both parties. Due to the constant changes of administration many Programs and projects are replaced by some more suited to the philosophy of the incoming administration.

The consensus on the main issue to which Puerto Rico not hailed as a tourist destination is the political will; the legislation is in place, all the basic organizational structure and strategic plans also, but the political changes mean that we do not make a Master Plan in the long term by which all leaders, regardless of their political ideology are governed.

These problems faced the other destinations analyzed, but even well managed alliances between parties and private organizations to achieve a Master Plan and today we can see the results.
RECOMMENDATIONS

After completing this research we make the following recommendations: first of all make the tourism master plan with short, medium, and long term goals. This must have as its main objectives the sustainability. You have to make a catalog of properties (inventory of potential tourist attractions) or update that was made under the leadership of Mrs. Terestela Gonzalez Denton. This should go hand in hand with the Management Plan of the land use that should be adopted as soon as possible.

You must create an interagency committee as recommended in the reports and Stanford as proposed in the NPP platform of 2000 under Carlos Pesquera. It is suggested that form a part of this Committee government agencies such as the Puerto Rico Electric Power Authority, Board of Environmental Quality, Natural Resources, the Police of Puerto Rico, Public Service Commission, Department of Transportation and Public Works, a company of Trade and Export Company of National Parks between other relevant government agencies.

Must be completed the improvement of the springs not only in San Juan but to level island, as well as boost regional airports as well as add Flights to the international airport Luis Munoz Marin. Also diversify the inns, not focus only on the luxury hotels, but in the accommodation for tourists of adventure and nature that is the fastest-growing global level. By doing this it diversifies, according to the purchasing power of the tourist, the offer for the benefit of the tourist of middle class. Some of the proposals of the government's platform of the NPP 2004 of Luis Fortuño that must be implemented and/or take into account: create funds regional capital in cooperation with the municipalities and the private sector for the development of the tourism infrastructure of each region, that the cruise ships arriving and departing from other ports of the island and which together with wholesalers, airlines, hotel industry and tour operators will make travel itineraries (packages) in which the tourist spent several nights in inns outside the metropolitan area and visit the regional destinations, thus prolonging the stay of the foreign tourist. One of the goals set forth in the administration of Governor Anibal Acevedo Vila was that we have 30,000 hotel rooms for the year 2020.

In the government's platform of the 2000 PDP Governor Sila Maria Calderon proposed a restructuring of the Board of Directors, include representation of hoteliers, airlines of the negotiated on Conventions, hikers, taxi drivers and so on. Another proposal that should be given continuity is of the 2004 PDP which is to create numerous tourism projects Community in all regions of the island as a new economic model. You must include the cooperative movement to create small inns, organizations that provide tourism services, restaurants, tourist transportation organizations and all that apply. Some of the community initiatives that promote sustainable tourism are Casa Pueblo in Adjuntas, the Interpretation Center of the salinas in Cabo Rojo and the PECES project in Humacao. Another program that is must retake is the Posadas in the squares that consists in rescue properties in disuse for the revitalization of the traditional town centers and thus help to regional tourism and domestic. It is very important to emphasize in a beach cleanup, zones, and tourist attractions, the lettering and especially strengthen security, created a Tourist Police unit for that as well remain fixed in these areas; have a specialized training and have knowledge of the English language.

In regard to the Puerto Rico Tourism Company must show greater government transparency, really do not have an institutional portal www.seepuertorico.com because the portal is for promotional purposes only. In order to expedite the paperwork and keep the citizens informed it is recommended that there is a Web page for the CTPR. There is a need for a greater allocation of funds to the Office of Sustainable Tourism, a need for staff to work in order to streamline the processes for grant certification Green among others. It should ensure compliance of interagency
agreements for the development of the tourism industry. It is suggested that it be mandatory endorsement of the CTPR to all organizations that offer tourist services, it would have the force of law to ensure compliance with regulations and, above all, the standards of quality and customer service to Puerto Rico to be a highly competitive tourist destination.

The CTPR should revise its regulations and update them, and to monitor for the tourist industry, there is a need for more inspectors to the springs, regulate rates and services for tourist taxi drivers, hikers, inns, restaurants etc. must also be complete finally the Board exam of the tour guides, it is extremely important that the guides, that interact directly with the tourist, with the requisite skills and are at the forefront. Promote that the tourist guide is organized as a partnership for that well have greater representation in the CTPR. Encourage employees to the industry learn other languages such as french, italian, german and others.

It should be noted that it is proposed that the CTPR encourages that employees of the industry, as part of their continuing education, take courses or workshops to improve their pronunciation of the English language. Another priority would be to promote the tourism education in post-secondary institutions doing academic partnerships with international universities as for example in Spain or Costa Rica. Also that the CTPR participate in training programs on the application of indicators of the WTO, that aim to facilitate An intensive training on sustainable tourism and their indicators to competent public administrations and private tourist businesses at different levels. (DST e-bulletin number19) It is extremely important to reinforce the culture in our citizens to have a basic knowledge and may be promoters of the same, in addition to promote as well which are hospitable to the tourist.

The domestic tourism to give greater emphasis as it boosts the local economy. For this purpose the CTPR can provide advice to the municipalities (which is part of their duties), becoming an alliance with the Office of the Commissioner of Municipal Affairs to encourage and enable the economy to the same.

In the area of promotion and marketing you have to develop a country brand and/or branding and assure you of its continuity. You have to reassess strategies and how to use the budget for this commission using indicators of effectiveness. In the budget for the fiscal year 2011-2012 was allocated $26,219,000.00. The creation of the Destination Marketing Organization (DMO) would be a wise decision. It has been proven that has been effective in other tourist destinations and it gives continuity to our destination and has just been with the ups and downs party-political, that is our primary weakness. This Organization not Government would be composed of the private sector of the hospitality industry, and only two posts of the Government that it would be the Executive Director of the CTPR and Economic Development Bank. The MOD should promote tourism both external and internal, since the Paradores are parts of the regional destinations and these are promoting the international tourists. Must undergo a rigorous auditing by the CTPR, the relevant committees of the Legislature and the Office of the Comptroller.

As a second option, you can stay with the current structure but creating a committee with the same composition before mentioned and that is also subject to the audit suggested. Finally promote the self-assessment in the Tourism Company of their enforceable, but not for punitive purposes but to improve the quality of the service in line with the mission and vision.

Recently, The Tourism Company of Puerto Rico, launches the new webpage www.puertoricotourism.pr.gov is an excellent tool to the people interested in doing business in tourism sector, and differ of www.seepuertorico.com that is a marketing webpage. The population now has more access to the information and that is a good step to a governmental transparency.
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Measurement of Visitor Flows at Regional Level: Experience in Santander for Colombia, by Rincón Velandia, G.

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Abstract

The Tourism Information System of Santander - Santander Situr is a project supported by the Ministry of Trade, Industry and Commerce of Colombia and the Chamber of Commerce of Bucaramanga. It integrates a set of research to study the tourism industry and measure the impacts on environmental, social, cultural and economic development of the tourism industry at regional level. Since December 2012, it has made measurements to characterize the flow of visitors to Santander and estimate the level of expenditure with reference to the recommendations of the World Tourism Organization (UNWTO) and INRouTe. Situr Santander by documenting its experience, has become the reference methodology to implement measurements of tourism in other Colombian regions. They are grouped in the Tourist Information Centre of Colombia - CITUR that will serve as the linchpin. The purpose of this document is to share methodological elements related to measurement processes implemented and the results obtained.

Keywords: Tourism information system; demand: measurement; visitors; inbound tourism; spending

1. Introduction

Tourism is considered one of the economic sectors with greater opportunities to contribute to the Gross Domestic Product. – GDP. The national government encourages the arrival of public and private investment to improve basic infrastructure and offers tax benefits for new companies that expand the range of accommodation in the regions with tourist attractions. This new scenario is very favorable for the communities involved in these areas, to encourage the generation of business ideas related to tourism products and services and to create new jobs, encouraging the improvement of quality of life and the emergence of more prosperous regions.

Santander is a state located in eastern Colombia. From 2007, Santander has managed to consolidate tourism as one of its competitive bets for the construction of major tourist megaprojects which added to its natural, historical and cultural wealth, Santander has gradually become an attractive destination leading to the arrival of increasing flows of domestic and foreign visitors.

By 2020, Santander expects to reach the goal of two million visitors per year. Compared to 36,000 visitors in 2006 and 600,000 visitors in 2014, a greater flow will cause significant impacts on the economic, social, cultural and environmental aspects, definitely changing the vocation of the region. Faced with this new reality, the tourism industry is expected to expand and innovate its product offerings and services in order to leverage the costs incurred by visitors, income considered vital in the development and regional growth. Likewise, this new panorama implies policy
sustainable development at subnational levels.

The definition of government policies aimed at making tourism a sector generating development and regional growth. The ability to provide entrepreneurs the possibility of undertaking new investment projects and the need to sensitize the communities involved to understand the benefits and problems of this industry are generally, decisions that require a common input: information on the impact of the activities related to tourism in the economy and the natural, historical and cultural heritage of Santander.

The first steps to implement a Tourism Information System occurred in late 2012. The initial purpose, to study the characteristics of the flow of inbound visitors, spending measure and understand the impact of activities related to tourism in the regional economy. However, since its inception, it was considered important to address four areas:

Measurement of tourism as an economic sector: the purpose is to know the characteristics of demand by reference to the flows into the region (inbound tourism), regional movements of visitors (domestic tourism) and those generated from the Metropolitan Area of Bucaramanga to national and international (outbound tourism) destinations.

Tourism sustainability indicators: the objective, measuring the impact of tourism activities in the environmental, social, cultural and economic, in addition to evaluate the management of the destination in sustainability policies.

Prospective tourism: exercise that seeks to integrate all tourism stakeholders to assess possible future scenarios for the tourism industry at regional level.

Marketing intelligence system: aimed at strengthening environmental information and the results of the different links in the value chain of tourism.

By the end of 2015 projects will be implemented to make these four study groups a reality. Results will be available in early 2016.

The study of tourism as an economic sector poses many challenges, one of them, providing information to match demand with supply, aspect considered crucial to boost regional development and growth. The knowledge of the profile and behavior of visitors to a territory (inbound tourism), provides the key for industry players to understand the tourism from the demand side, valuable information to build a range of products and services differentiated, design and implement innovative programs to promote employment and design alternative channels to facilitate doing business, strengthening the capacity of the region to attract new visitors and managing to be more competitive in domestic and international markets.

One of the achievements of Situr Santander, is becoming a pioneer in Colombia in implementing research processes aimed at characterizing the flow of tourists arriving in the territory (inbound tourism), to develop a methodology for the collection, processing and dissemination of information of interest to stakeholders in tourism at the regional level, experience adopted by the Ministry of Industry, Trade and Tourism to be implemented in four Colombian regions integrated into the Tourist Information Center of Colombia - CITUR - SITUR.

2. Design of the statistical operation

The statistical design of the structure and operation includes developing strategies in order to meet the information needs related to the characterization of visitors to the territory and the expenditure incurred during their stay. It includes the use of a variable operating model, strategies for the development of the statistical operation and the methods used to collect process and analyze data.
2.1 Thematic / Methodological design

Research problem. The observed growth in visitor arrivals to Santander since late 2006, at which time the first megaproject Chicamocha National Park was opened, caused significant growth in the supply of tourism products and services, allowing the communities involved enjoy benefits mainly represented in new employment opportunities and strengthening small businesses, making tourism a real alternative to improve the quality of life of the communities involved.

During the forums convened in 2012 by the Chamber of Commerce of Bucaramanga, where tourism trade associations, government agencies, universities and researchers, among others participated, some areas for improvement were identified. The need for further characterization and estimation part spending increasing flows of visitors coming to Santander was considered crucial to guide public and private investment needed to meet the challenge that the commissioning of new tourist megaprojects between 2012 - 2015 and plan until 2020 meant.

The lack of information on the tourism industry in the region was remarkable. The Tourism Development Plan formulated by regional government agencies did not allow properly oriented infrastructure investments and promotional activities as a tourist destination. Similarly, employers had no elements to make investments and adapt the supply of products and services to the expectations of visitors, preventing appropriately structured and direct marketing plans.

In these circumstances, knowledge and characterization of the flow of visitors to Santander, was considered one of the original purposes of the investigations undertaken by Situr, addressing the following questions:

What is the profile of visitors and characteristics of tour groups?
What is the buying behavior of purchase of tourism products and services like?
What is the spending by visitors and how is the composition taking into account the various links in the value chain?
What is the rating of the experience in Santander like?
What is the level of use of media and communication technologies before, during and after the trip?

General purpose. Due to the need of information, the general objective was stated: to characterize receptors tourist trips in Santander

Specific objectives. To achieve the main purpose of the research, the following information needs were raised:

Know the demographic profile of visitors
Determine the main reason for the trip
Estimate the average length of stay
Identify the type of visitor, hiker or tourist
Estimate the average travel party size and composition
Know the places visited
Identify the type of activities undertaken during the trip
Determine the type of accommodation used
Know the means of transport to reach and mobilize in Santander
Identify ways of organizing the trip
Know the estimated average spending per capita
Determine the level of satisfaction with the trip and assess the experience

Know the communication channels used by visitors before, during and after the trip

**Scope.** The study seeks to investigate about the behavior of visitors and the level of expenditure generated by the purchase of products and services related to the preparation of the trip and stay in various places visited in Santander.

**Framework.** The United Nations has recognized the World Tourism Organization (UNWTO) “as the appropriate organizations to collect, analyze, publish, standardize and improve the statistics of tourism and to promote the integration of these statistics within the sphere of the United Nations’ system” (World Tourism Organization (UNWTO), 2015). In this sense, from the start, the research projects related to tourism, Situr Santander has taken as work items, concepts and methodological recommendations published in various documents, obligatory reference to suit regional measurements (sub) tourism.

The main document for the conceptual and methodological guidelines implemented by Situr studies Santander is "International Recommendations for Tourism Statistics 2008" that "provides a comprehensive methodological framework for collection and compilation of tourism statistics in all countries irrespective of the level of development of their statistical systems." (World Tourism Organization, 2010). The "Methodological Notes Database to the Tourism Statistics" (World Tourism Organization (UNWTO), 2015) has been a very interesting support for defining data and indicators, seeking to harmonize them with the Compendium of Tourism Statistics published by the World Tourism Organization (UNWTO), guaranteeing international comparability.

The International Recommendations for Tourism Statistics 2008 Compilation Guide, has been a support document to "provide further clarification and practical guidance on utilizing the sources and methods needed to compile statistics on tourism. The Guide is designed to support the production of a high-quality set of basic data and indicators in each country, and to strengthen the international comparability of tourism statistics” (World Tourism Organization (UNWTO), 2014).

Also, we have studied the reports of the regional seminars on tourism organized by the International Network on Regional Economics, Mobility and Tourism (INRouTe) in 2012 and 2013 and the Conference on the Measurement and Economic Analysis of Regional Tourism (MOVE). They are all considered useful documents along with "A Closer Look at Tourism: Sub-national Measurement and Analysis - Towards a Set of UNWTO Guidelines" (World Tourism Organization (UNWTO) - INRouTe, 2013) and Subnational Tourism: Basic Glossary (World Tourism Organization (UNWTO) - INRouTe, 2015).

In the context of Colombia, the Tourism Sector Plan 2014-2018 was promulgated in 2014 as a contribution to ensure that tourism becomes a viable alternative for development and growth within the framework of the national government's vision to 2025 a 'Colombia in peace, equity and educated. 

The Tourism Sector Plan 2014-2018 is based on three key areas: responsible and sustainable tourism, tourism culture and tourism in building peace. To fulfill the purposes of the plan, the Ministry of Commerce, Industry and Tourism of Colombia developed four strategic objectives, one of which is called "Competitiveness for regional and territorial tourism development." Among its actions posed "This whole range of goods and services, only successfully inserted in tourism markets, if it has the support of quality information, based on strategies of market intelligence” (Departamento Nacional de Planeación DNP - MinCIT, 2014), besides, it highlights, "The Ministry of Commerce, Industry and Tourism, has been perfecting the CITUR tool, making it quick, friendly and accurate, as a reference tool. It He has also
perfected the strategic alliance with the DANE, for updating and managing the Tourism Satellite Account, the household survey on tourism consumption and the timely provision of key indicators for the industry knowledge, including the generation of employment” (Departamento Nacional de Planeación DNP - MinCIT, 2014).

CITUR is the tourist information center in Colombia leading the regional efforts to establish tourist information systems – Situr, at a state level. Situr Santander is the first one ever established. It has developed and implemented the methodology for measuring tourism at a regional level in Colombia.

**Questionnaire design.** The construction of questionnaires took as reference concepts, indications and variables included in the IRTS 2008 (World Tourism Organization, 2010) and Notes Methodological recommendations to the Tourism Statistics Database (World Tourism Organization (UNWTO), 2015) and The International Recommendations for Tourism Statistics 2008 Compilation Guide (World Tourism Organization (UNWTO), 2014).

The intention to gather as much data related to the tourist trip led to the recognition of the impossibility of doing so in a single questionnaire and time. The reason is that contacting the visitor is possible at any time from the date of entry to Santander. These meetings can happen when you start your tour or when it is partially made. It can also take place when you are about to finish your trip and go back to your residence place. In the first two situations, it would not be possible to completely collect the data because the travel experience is not over and it remains unclear whether the intended voyage plan is fulfilled and less anticipate the costs that may arise. If done in time to leave for the place of origin, it would be very difficult to gather all the data requested by the unwillingness of the respondent because of the normal fatigue caused by the end of a journey and the desire to reach their place of origin.

To address these circumstances and ensure the capture of the data required to meet the objectives of the investigation, the decision to build two questionnaires to be applied at different times was made:

**Moment I:** is the time of initial encounter with the visitor, in order to collect basic data and obtain authorization to send a second questionnaire to be completed by internet two days after the scheduled date of departure from Santander to his usual place of residence. Table 1 shows the parts of the questionnaire, the name of the question, the objective and the number of detailed questions. This questionnaire meets the following research objectives:

- Knowing the demographic profile of visitors
- Determine the main reason for trip
- Estimate the average length of stay
- Identify the type of visitor, hiker or tourist

**Moment II:** corresponds to the time when the visitors in their usual place of residence receive a message to their mailbox, inviting them to fill out a questionnaire in electronic form. Table 2 shows the parts of the questionnaire, the name of the question, the objective and the number of detailed questions. The data collected allow the fulfillment of the following research objectives:

- Estimate the average travel party size and composition
- Know the places visited
- Identify the type of activities undertaken during the trip
Determine the type of accommodation used
Know the means of transport to reach and mobilize in Santander
Identify ways of organizing the trip
Estimate average spending per capita
Determine the level of satisfaction with the trip and assessment of the experience
Know the communication channels used by visitors before, during and after the trip

Table 1. Structure of the questionnaire interview – Moment I

<table>
<thead>
<tr>
<th>Part</th>
<th>Name</th>
<th>Objective</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Characteristics of the visitor Length of stay and places visited</td>
<td>Know the sociodemographic characteristics of the visitor estimate the average length of stay and identify the places visited and the activities done.</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Transport used</td>
<td>Know the type of transport used to travel from the source and in the destination sites</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>Group travel</td>
<td>Know the characteristics and conformation of the travel group</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Costs of preparation and during the trip Perception of the trip to Santander Use of means of communications before, during and after the trip</td>
<td>Estimate the average per-capita spending classified by categories Know the perception related to the trip to Santander Determine the level of use of the media for getting information or sharing travel experiences</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2. Structure of the electronic questionnaire - Moment II

<table>
<thead>
<tr>
<th>Part</th>
<th>Name</th>
<th>Objective</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Characteristics of the visitor Length of stay and places visited</td>
<td>Know the sociodemographic characteristics of the visitor estimate the average length of stay and identify the places visited and the activities done.</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Transport used</td>
<td>Know the type of transport used to travel from the source and in the destination sites</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>Group travel</td>
<td>Know the characteristics and conformation of the travel group</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Costs of preparation and during the trip Perception of the trip to Santander Use of means of communications before, during and after the trip</td>
<td>Estimate the average per-capita spending classified by categories Know the perception related to the trip to Santander Determine the level of use of the media for getting information or sharing travel experiences</td>
<td>10</td>
</tr>
</tbody>
</table>

Norms and validation rules

For each part of the questionnaire validation rules were structured. These specifications are organized in a document that provides information about the organization of the parts of the questionnaires in logical order. Each part is structured into groups of questions arranged in a logical sequence. The validation rules for the collection and processing of data are also defined. The maximum ranges to be taken as variables and relationships between variables are established.

For the design of the questionnaires Divipola Administrative Policy Division - Dane (DANE, 2013), uniforms country codes for statistical use of the United Nations (Naciones Unidas, 1998) and classification of the types of housing Colombian
technical Standard RNT- NTSH 006 sectorial classification of accommodation and lodging establishments (Instituto Colombiano de Normas Técnicas y Certificación (ICONTEC), 2009).

**Design of basic data and indicators.** The basic data and indicators are representative of the specific objectives in measures that summarize the statistical information gathered. Situr Santander has defined a set of indicators described presented in Table 3 and a group of basic data described in Table 4 estimated as on data collected, documented with formulas for calculation, measurement unit and usefulness. Its formulation is based on recommendations of the UNWTO (World Tourism Organization (UNWTO), 2015). Others considered key basic data are included to study the behavior of visitors from a holistic perspective.

### Table 3. Indicators inbound tourism

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Estimation formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average size of tour groups</td>
<td>Total sum of members of tour groups / number of tour groups</td>
</tr>
<tr>
<td>Average length of stay</td>
<td>Sum of all nights visitors stayed in Santander / Traffic observed</td>
</tr>
<tr>
<td>Average length of stay in commercial accommodation</td>
<td>Total nights of visitors who used services of commercial / Number of visitors who used commercial accommodation services</td>
</tr>
<tr>
<td>Average length of stay in non commercial accommodation services</td>
<td>Total nights of visitors who used non-commercial service / Number of visitors who used non-commercial accommodation services</td>
</tr>
<tr>
<td>Average expenditure per day</td>
<td>Total amount of visitor spending / number of nights spent in Santander</td>
</tr>
</tbody>
</table>

### Table 4. Basic data inbound tourism

<table>
<thead>
<tr>
<th>Basic information</th>
<th>Estimation formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total visitors to Santander</td>
<td>Estimate based on secondary data and measurement data inbound tourism</td>
</tr>
<tr>
<td>Total visitors who stop over in Santander (Tourists)</td>
<td>Total visitors to Santander X Percentage of visitors who stay in Santander (Tourists)</td>
</tr>
<tr>
<td>Total visitors of the day in Santander (Hikers)</td>
<td>Total visitors to Santander X Percentage of visitors a day (Hikers)</td>
</tr>
<tr>
<td>Total visitors residing abroad</td>
<td>Total visitors to Santander X Percentage of visitors residing abroad</td>
</tr>
<tr>
<td>Total of visitors who came to Santander for personal reasons</td>
<td>Total visitors to Santander X Percentage of visitors who came for personal reasons</td>
</tr>
<tr>
<td>Total of visitors who came to Santander for business or professional reasons</td>
<td>Total visitors to Santander X Percentage of visitors who came for business or professional reasons</td>
</tr>
<tr>
<td>Total of visitors who came to Santander by air transport</td>
<td>Total visitors to Santander X Percentage of visitors who used air transport to come to Santander</td>
</tr>
<tr>
<td>Total of visitors who came to Santander by land transport</td>
<td>Total visitors to Santander X Percentage of visitors who used land transport to come to Santander</td>
</tr>
<tr>
<td>Total visitor who organized the trip to Santander by tour package</td>
<td>Total visitors to Santander X Percentage of visitors who organized the trip to come to Santander by a tour package</td>
</tr>
<tr>
<td>Total visitor who organized the trip to Santander without purchasing a tour package</td>
<td>Total visitors to Santander X Percentage of visitors who organized the trip to Santander to come without buying package tour</td>
</tr>
<tr>
<td>Total guests in Santander</td>
<td>Total visitors who came to Santander X Percentage of overnight visitors</td>
</tr>
<tr>
<td>Total overnight stays in Santander</td>
<td>Total overnight visitors Santander X Average nights stay</td>
</tr>
<tr>
<td>Total guests in Santander in commercial accommodation</td>
<td>Total overnight visitors X Percentage of visitors who stayed overnight in commercial accommodation services</td>
</tr>
<tr>
<td>Total overnight stays in commercial establishments</td>
<td>Total overnight visitors commercial establishments X Average nights stay</td>
</tr>
<tr>
<td>Total travel expenses incurred by visitors to Santander</td>
<td>Total visitors to Santander X average per capita expenditure</td>
</tr>
<tr>
<td>Total costs of the trips made by visitors with personal reasons</td>
<td>Total visitors to Santander for personal reasons X average per capita spending of visitors who came to Santander for personal reasons</td>
</tr>
<tr>
<td>Total travel expenses incurred by visitors to Santander with business and/or professional reasons</td>
<td>Total visitors to Santander for business or professional X average per capita spending of visitors who came to Santander for business or professional</td>
</tr>
<tr>
<td>Total visitors who used Internal search before coming to Santander</td>
<td>Total visitors to Santander X Percentage of visitors who used the Internet to search for information of Santander</td>
</tr>
<tr>
<td>Total visitors who shared experiences through social networks</td>
<td>Total visitors to Santander X Percentage of visitors who used social networks to tell about their experience in Santander</td>
</tr>
<tr>
<td>Total visitors who sought information during their stay in Santander in commercial establishments</td>
<td>Total visitors to Santander X Percentage of visitors who sought information from Santander in commercial establishments</td>
</tr>
<tr>
<td>Total visitors who valued the experience as pleasant in Santander</td>
<td>Total visitors to Santander X Percentage of visitors who considered the visit to Santander as pleasant</td>
</tr>
<tr>
<td>Total visitors who would return to visit Santander</td>
<td>Total visitors to Santander X Percentage of visitors who return to Santander</td>
</tr>
<tr>
<td>Total visitors who would recommend visiting Santander</td>
<td>Total visitors to Santander X Percentage of visitors who would recommend coming to Santander</td>
</tr>
<tr>
<td>Total visitors who have visited Santander more than twice in the last two years</td>
<td>Total visitors to Santander X Percentage of visitors who have come over twice to Santander in the last two years</td>
</tr>
</tbody>
</table>
Plan of Results. To ensure the quality of the data collected, various tests such as frequency tables, cross-tabulation, estimation of measures of central tendency, extreme values of the variables and the construction of graphics are performed to verify that the data are correct and consistent. The design of the output tables took into account levels, properly labeled, headers and referenced thematic and geographical breakdown.

2.2 Statistical Design
The statistical design sought more representativeness of the population under study in order to ensure the accuracy of statistical estimates.

Universe. It corresponds to the people who travel from their usual environment to the department of Santander, for less than one year, for any main purpose (leisure, business or other personal reason) who are not employed by a resident entity or enterprise in the territory of study. These people are called receptors visitors.

Target population. Visitors receivers older than 15. Receivers, who are 15 or younger, are excluded from the study based on the criterion of responsibility for physical processing of the questionnaire (place of interview) and address (after their departure from Santander). Moreover, the application personal protective measure prevents data collection from a minor.

Sampling frame. It is defined as the set of people who are in the reference period for collecting data in places of greatest concentration of visitors, excluding those under fifteen (the interviewer directly asks the age). Identifying people who do not meet the characteristics of a visitor receiver is done by taking the data recorded in the questionnaire applied in the first contact.

Santander is a department located in eastern Colombia with an area of 32,000 km² and is composed of 87 municipalities characterized by its natural beauty and a rich historical and cultural heritage. The most important tourist activity is localized in two clearly defined territories where 90% of visitors are concentrated. Preliminary experiments show that visitors are more willing to be interviewed indoors. Eight sites where there is the highest concentration were identified: five theme parks, a tourist information office at Palonegro International Airport and the transport terminal in Bucaramanga. The data collected can confirm that at least 90% of tourists visited at least one of the sites selected in the sampling frame. (See Fig. 1.)

Fig. 1. Location of data collection sites
Definition of variables. The basis of the research variables took as reference the ones recommended in IRTS 2008 (World Tourism Organization (UNWTO), 2014). Two groups of variables were considered relevant and added to complete the knowledge of the behavior of the flow of visitors to Santander. Given that the data collection is done in two stages, each questionnaire addresses different groups of variables. (See Table 6)

Table 6. Study variables

<table>
<thead>
<tr>
<th>Personal Interview Questionnaire</th>
<th>Online questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>•Sociodemographic characteristics</td>
<td>•Places visited</td>
</tr>
<tr>
<td>•Main reason for trip</td>
<td>•Activities during the trip</td>
</tr>
<tr>
<td>•Average length of stay</td>
<td>•Accommodation used</td>
</tr>
<tr>
<td>•Type of visitor: hiker or tourist</td>
<td>•Transportation to reach and move in Santander</td>
</tr>
<tr>
<td>•Average travel party size and composition</td>
<td>•Forms of organizing the trip</td>
</tr>
<tr>
<td></td>
<td>•Average expenditure per capita</td>
</tr>
<tr>
<td></td>
<td>•Level of satisfaction with the trip and assessment of the experience</td>
</tr>
<tr>
<td></td>
<td>•Communication channels used by visitors before, during and after the trip</td>
</tr>
</tbody>
</table>

To maintain the privacy and confidentiality of personal data of the study participants, microdata are anonymous, therefore phone and e-mail captured in the interview are not be included in the database for public use.

Statistical Units. They are defined as:

Observation unit: receiver visitor over 15

Unit of analysis: inbound tourism trip

Sampling Unit: Group of travelers who are receivers

Reference period and data collection. The reference period is determined by the entry of visitors to Santander who are receivers corresponding to visitors 2 and 3 of Table 7. The period of data collection is monthly.

Table 7. Determination of the reference period

<table>
<thead>
<tr>
<th>Flow of visitors</th>
<th>Period (t -1)</th>
<th>Period of reference (t)</th>
<th>Period (t +1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Visitor arrives before and leaves during the period of reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 2</td>
<td>Visitor arrives before the period of reference and leaves after it has ended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 3</td>
<td>Visitor both arrives and leaves during the period of reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 4</td>
<td>Visitor arrives during the period of reference and leaves after it has ended</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Sampling type. Due to the characteristics of the study population, that is, the impossibility of knowing the number of members in advance, the sampling design proposed is a non-probabilistic design. To care for the reliability and accuracy of the data, strict protocols for sample selection have been developed so that standardized procedures to ensure the representativeness of the study population are maintained.
**Sample size definition.** In order to achieve adequate geographical disaggregation, each of the eight sites identified as the best places to interview visitors, is considered as a subset of study. A sample of tour groups for each site was calculated using the formula for an infinite population, with an expected accuracy up to one relative standard error of 5% and a maximum variance for a distribution of proportions. It is important to highlight that the samples are not the same for each of the subpopulations, due to the variability in the number of visitors, which means an adjustment to keep the representativeness of each element of the sample is required.

In May 2015 a new phase of the project begins. The total sample of tour groups until May 2016 will be of 24,000 corresponding to the sum of the samples of each subpopulation, a fact that guarantees a relative standard error of less than 3%. From each tour group one or two members are selected, therefore, it is estimated that around 43,200 visitors are interviewed during June 2015 and May 2016. Table 7 shows the distribution of the sample group travel, the estimated number of respondent visitors and the number of electronic surveys carried out.

<table>
<thead>
<tr>
<th>Table 7. Sample Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Bucaramanga Aeropuerto</td>
</tr>
<tr>
<td>Bucaramanga</td>
</tr>
<tr>
<td>Cerro del Santísimo</td>
</tr>
<tr>
<td>Parque Gallineral San Gil</td>
</tr>
<tr>
<td>Barichara</td>
</tr>
<tr>
<td>Sample of travel groups</td>
</tr>
<tr>
<td>Response estimate for the electronic survey</td>
</tr>
</tbody>
</table>
* For previous studies on average between 1/2 visitors are interviewed in a travel group

2.3 Design of execution

The processes associated with the collection of data have been specially examined, which has implied the construction of manuals that allow the standardization of procedures to ensure the accuracy and objectivity of the data.

**Training system.** The training processes are carried out at the headquarters of Situr Santander. Thematic instruction, operational, sampling and monitoring procedures and control are shared. Later, in the places where visitors are interviewed, workshops are done by taking real situations where the feedback is given based on the experiences of the interviews conducted.

**Budget and schedule.** To comply with the guidelines defined for the fieldwork, an operating schedule is made. Dates, tasks and people in charge are defined.

**Selecting the operating personnel.** Operational roles of supervisors, enumerators and clerks are defined. The profiles, the amount of human talent required and the remuneration tables are included.

**Awareness.** Achieving the willingness of visitors to participate in the research is one of the very important aspects considered in order to achieve the accuracy and objectivity of the data. An atmosphere of trust and closeness is enhanced to make the objectives of the research well known among visitors. As respondents are required to participate in an electronic survey when they reach their normal place of residence, a card with a number that allows visitors to participate in a raffle for a trip back to Santander with all expenses paid has been designed. This action has been very effective in achieving response rates of over 25% in the online survey.
**Tools Design.** To study the behavior and the measurement of expenditure flows of visitors who come to Santander, the following questionnaires were designed:

**Questionnaire to be applied by personal interview (Moment I):** It is divided into ten parts with twelve questions. See Annex A (questionnaire format).

**Questionnaire to be applied to visitors via electronic survey (Moment II):** It is divided into seven parts with thirty three questions. See Annex B (questionnaire format).

As support to fieldwork, an operational manual, a supervisor manual and a manual for filling out forms have been designed.

**Data collection.** These activities refers to the process of obtaining the required data to visitors according to established procedures and it is performed at first by interviewers under the direction of field supervision with the aim of caring for the processing of the questionnaire and quality of the data. The second moment refers to sending a questionnaire to be filled by online access. It is sent two days after the departure of visitors to the email address. The supervisor follows up the arrival of questionnaires filled out in order to identify the parts that were not answered and proceed with the telephone contact to complete the missing data every day. Similarly, he monitors surveys that have not been completed or bounce due to any problems or incorrect email address in order to make a call to encourage the visitors to take the survey and/or check that the mail shipment is made.

**Automation tools for the fieldwork process.** A tool with internet access that seeks to automate all processes related to the collection, monitoring and data processing has been designed. It has meant significant progress in allowing validation activities and introducing consistency from the moment data are captured to ensure the quality and availability of data, eliminating the possibility of generating errors. Likewise, it works as an administrator for the automatic sending of electronic surveys according to predefined parameters. You can monitor and evaluate the quality of the data, and automatically generate calls to visitors to encourage the processing of the survey or recover incomplete data.

**2.4 Data analysis design**

The statistical analysis of the data is done from absolute values used to create relative frequencies and percentages of the categories and variables in each of the parts of the questionnaires. In order to guarantee the quality of the data, there are indicators measuring the coverage, the quality of data collection and the errors and inconsistencies.

An achievement of this process is that once the automation tool generates the database, descriptive statistical analysis of the data is automatically made on the website of Santander Situr - [www.sitursantander.co](http://www.sitursantander.co) (preliminary version, will be ready in November 2015) and it is available for users. This software tool has been designed with the purpose of having access to data to do cross-tabulation between the variables under study. (See Fig. 2.)
2.5 Evaluation design

Situr Santander has implemented two regional technical committees directly involved in the processes of planning, implementing and delivering results of the study aiming to characterize the flow of visitors to Santander and using spending (inbound tourism). The first committee corresponds to the working group led by the Chamber of Commerce of Bucaramanga. The second is integrated by representatives of the unions associated with the tourism industry, secretaries of regional tourism, PROCOLombia, academic institutions and researchers. At meetings the processes and results achieved are evaluated, the recommendations are to be considered in the development of studies.

Nationally, Situr Santander participates in the Statistical CITUR-SITUR Technical Committee formed by the Ministry of Commerce, Industry and Tourism, the National Tourism Fund (Fontur), the National Administrative Department of Statistics (DANE) and Situr from other regions of Colombia initiating research projects to measure the impact of tourism activities in their territories. In September 2015 the first meeting was held. It was determined by consensus that the statistical operation implemented by Situr Santander must be the role model in all departments of Colombia where there are similar projects.

Analysis of context. The expanded data are used to draw conclusions from the behavior of the variables studied with reference to different geographical areas. The purpose is to find statistical evidence of the changes observed.

2.6 Design Broadcast

Situr Santander has provided several mechanisms for disseminating the results of the studies. The main medium is the Portal Situr Santander www.visitasantander.co that becomes the essential tool in the processes of regional and local planning, program design and the joint promotion of private and public investment required to meet the growing flows of visitors expected for the coming years. Similarly, research results are shared through newsletters to all stakeholders related to the tourism industry at regional and national level, tests are done on the blog and are available on the Internet and broadcasted on social networks. Also, participation is granted in academic and union local, regional, national and international events.
3. Results
From December 2012 to September 2015, Situr Santander has interviewed 54,163 visitors receptors (Moment I) and 9,526 have filled out the online survey (Moment II). This experience has allowed to document the methodology used in the statistical operation standardizing processes to ensure data quality.

Tests on the collected data confirm the soundness of the methodology implemented. Designing and building a tool that allowed from June 2015 to automate manual processes involved in the capture, collection and processing of data, including also the supervision and control of fieldwork is considered a breakthrough. The most important benefits: reduce errors, speed up the processing of data and ensure the reliability and accuracy of the information. It also ensures the delivery of results in a time no longer than 15 days after the end of the collection period (monthly). The data are available at Portal Situr Santander www.visitasantander.co.

Measuring the activity of tourism from the perspective of demand, facilitated bringing together local and regional government bodies, associations of tourism industry, academia, entrepreneurs and researchers to reflect on the importance of this industry in the region. The result, improve the ability to identify market opportunities to attract new flows of visitors, understand the behavior of visitors and buyers of tourism products and services and meet the economic impact, accounting for the spending of visitors in each link of the value chain.

4. Discussion
The information available has deepened the knowledge of visitors. The basic data and indicators have been used to understand how tourism becomes a key to the development and growth of the region's economic sector. In this sense, it is interesting to note the most valuable results of the measurements taken and their use in order to make tourism a competitive long-term bet.

Although simple observation had provided some reference of the progressive growth of visitor arrivals to Santander, it had always been hard to gauge its impact on the regional economy. The construction of a methodology for obtaining these data is recognized as a significant advance, especially when it becomes the basis for estimating the total expenditure incurred by the visitors or the volume of visitors by origin or purpose of travel, for example.

Generally, promotional efforts to make Santander a tourist destination were only supported by the intuition of those who made this decision. The information gathered since December 2012, allows employers to target their marketing efforts and explore new segments to identify the origin of visitors, measure the importance of the Colombian market and the participation of foreigners and to describe countries, regions, representative cities and municipalities.

Traditionally, visitors to Santander came to do business. The implementation from 2007 of four theme parks, potentiated the natural, historical and cultural heritage, promoting the arrival of new groups of holidaymakers and leisure visitors. However, there was no reference of their participation. From May 2015, some other measurement sites have been incorporated. This will facilitate circumstances such as timely observation of changes in the reasons for the trip due to the commissioning of two special free zones devoted to health and the completion of a modern Convention Center.

The importance of improving the air and land connectivity in an area only becomes visible when you have data related to the means of transport used by visitors. The amount of visitors coming to Santander by their own vehicle (65%) is significant. Their comments reaffirm the urgency of improving the current access roads from their place of origin and expand the coverage of services to make the trip more pleasant.
Similarly, the gradual increase in visitor arrivals through the international airport has raised awareness to government authorities of the need to expand its operation with new domestic and international routes.

The growth of tourism activity gradually causes the changes in its productive vocation. One of the main ones is the creation of new businesses as a natural response to the opportunities created by the growing demand. However, this growth is not planned; it may cause long-term deficit saturation of some products or services. In this regard, knowing the economic contribution that tourism makes to each link in the value chain, allows employers to identify where to invest and the region becomes aware of the importance of ensuring an excellent experience for visitors.

The new communication technologies have changed the way tourists seek information about the places they want to visit, buy services and share the experience while in a destination. Knowing the use made by visitors of the new technologies of communication when visiting Santander, encourages tourism businesses to implement digital marketing strategies and regional government is also encouraged to improve digital connectivity in sites with better tourist attractions.

5. Conclusions
Information is a vital input for the destination management, it makes visible the benefits generated by tourism activities for the regional economy represented by among others, more jobs, better incomes for families, investment opportunities and creation of new companies. It is definitely a significant contribution to the Gross Regional Product. Also, the information can identify problems and areas for improvement, valuable inputs to make tourism a competitive industry.

The experience of undertaking the construction of a Tourist Information System has been a major challenge. Therefore, it is valuable to share the difficulties that had to be overcome in order to maintain over time measurement processes related to regional tourism:

Convene government agencies, unions associated with the tourism industry, entrepreneurs, support organizations, academia and researchers around a measurement project has not been an easy task. In general, the importance of information is recognized, however, it is considered more useful to join efforts and resources in promoting the destination for research. The call Situr Technical Committee Santander, has been a means to raise awareness among tourism stakeholders to reflect on the future of tourism based on the results of the investigations.

Significant and valuable progress in the world on the sub-national measurement of tourism, INRouTe supported by UNWTO is recognised. It is a great example and has been the benchmark since the start of the project. However, taking the characteristics of our environment and succeeding at designing research processes seeking to adapt the methods and procedures of the national level to subnational levels has required a judicious task of a working group whose purposes were to make a correct identification of the study variables, consider how to measure and properly select target population, sampling frame, statistical units and sample size. They also aimed at choosing the best design parameters for the execution of fieldwork and the support systems and methods as well as the mechanisms for monitoring and implementing pilot testing, results analysis, evaluation and dissemination of results. The final result is the construction of a methodology to be used as reference for implementation in other Colombian regions.

Implementing research projects aimed at measuring tourism requires a significant investment of financial resources. Getting them is a complex task, because it is first required to convince the government and regional authorities of the importance of assigning them for measurement activities. This situation requires demonstration of the utility that the implementation of a Tourism Information System – Situr
represents. Although it was difficult to obtain resources from the Ministry of Commerce, Industry and Trade for the first phase, once results were shown, support for 2015 was very significant. The Chamber of Commerce of Bucaramanga offered its resources as well. This ensures sustainability for the Situr Santander long-term project.

Making Situr Santander a reality represents an undeniable achievement for the work team. It demanded the support of all institutions related to tourism for the continued implementation since December 2012 when the characterization measurement of flows of visitors and measurement spending was made. Besides, the experiences in other measures such as domestic and outbound tourism, the characterization of tourism and the estimate of jobs created in tourism activities in the region became an asset. More recently, the construction of indicators of sustainable tourism, a currently running pilot project, will make a contribution to the region to overcome the problems already evident and enterprise the quality certification as a goal along with the supplying of products and tourist services in the region.

Building a tool to allow the automation of most manual processes, has become a great achievement to ensure the quality of the information. The availability of two websites is another great achievement. The portal Situr Santander (under construction) www.sitursantander.co facilitates the dissemination of research results. The Portal Tour Santander www.vistasantander.co provides information to potential visitors and is a tool for the promotion of Santander as a tourist destination.

In short, Situr Santander will become the essential tool for planning processes of tourism at regional and local level, it is also a valuable tool to make this industry an activity of great benefit to the communities involved and a significant contribution to the development and growth of our department.

6. Bibliography
DANE. (2013). Codificación de la división Política-Administrativa de Colombia DIVIPOLA. Bogotá: DANE.
Annex A Inbound Tourism Questionnaire

Features of the Trip to the Department of Santander

This information will be used for statistical purposes and to compare ourselves with other regions in our country and the world. It will also be used to design development plans for the sector.

Part A. Features of the Visitor

The questions about place residence have already been asked by one of our pollsters. They will be asked again for verification purposes.

A1. What is your country of residence? ______

Help: It is the place where you have been normally resident for the last year and where you consider to be 'home'.

A1.1 What is your state/province of residence? ______

A2. What is your city or town of residence? ______
Part B. Duration of Stay and places visited

B1. How many nights did you spend in Santander? [If it is 0, select 0 nights] _____

The following questions invite you to register the towns you visited during your stay in Santander. If you visited a town twice or more times during your stay, record it once and add up the nights you stayed there.

B2. How many town did you visit during your stay in Santander? ___

B3.1 First Town: ______

B3.1.1 How many nights? _____

B3.1.2 Type of accommodation? ?

1. (___) With relatives or friends
2. (___) Hotel
3. (___) Inn
4. (___) Tourist Inn ?
5. (___) Hostel/Shelter/Haven
6. (___) Agrotourist Farm/Rural accommodation
7. (___) Resort
8. (___) Own holiday house/cabin ?
9. (___) Rented holiday house/cabin
10. (___) Aparthotel?
11. (___) Rented apartment
12. (___) Own house/Apartment
13. (___) Rented room in homestead
14. (___) Free room in unrelated homestead ?
15. (___) Camping
16. (___) No accommodation

Other, which one? ____________________________

Help Type of accommodation: If you used more than one type of accommodation in this town, select the one you stayed in the longest.

Help 4. Tourist Inn: Homestead located in a rural area being used as an accommodation place. It has a native architecture and its main purpose it to generate employment and income to the resident family by offering the service.

Help 8. Own holiday house/cabin: Homestead used for leisure, vacation or any other type of amusement.

Help 10. Aparthotel: Building used for accommodation.

Help 14. Free room in unrelated homestead: Free accommodation service through a third party at a homestead you are not related to at all.
B3.2 Second town: _____
   B3.2.1 How many nights? _____
   B3.2.2 Type of accommodation?

B3.3 Third town: _____
   B3.3.1 How many nights? _____
   B3.3.2 Type of accommodation?

B3.4 Fourth town: _____
   B3.4.1 How many nights? _____
   B3.4.2 Type of accommodation?

B3.5 Fifth town: _____
   B3.5.1 How many nights? _____
   B3.5.2 Type of accommodation?

B3.6 Sixth town: _____
   B3.6.1 How many nights? _____
   B3.6.2 Type of accommodation?

B3.7 Seventh town: _____
   B3.7.1 How many nights? _____
   B3.7.2 Type of accommodation

B4. Which one was the main destination out of the towns visited in Santander? ___

Help: Main destination that was key to make the decision of travelling to Santander. If there wasn’t any, select the one where you stayed the longest.

B5. What activities did you do in Santander?

1. [___] Attend performing arts not being part of festivals.
2. [___] Attend performing arts festival (Music, film, dance).
3. [___] Attend fairs and festivals in towns.
4. [___] Visit museums, houses of culture, churches, sanctuaries, monuments.
   4.1 Which ones?
   
   1. [___] Cathedrals, churches
   2. [___] Houses of culture
   3. [___] Art museums
   4. [___] Archaeological museums
   5. [___] Farms and/or Historic houses
6. [___] Historic bridges
7. [___] Monuments
8. [___] Cemeteries
9. [___] Sanctuaries
Other, which one?

Help: Sanctuaries: It is a sacred place where an image or relic of a special saint is venerated. Examples: The health virgin, The Cross hill, etc.

5. [___] Visit to theme/amusement parks
   5.1 Which ones?
   
   1. [___] Parque Nacional del Chicamocha
   2. [___] Acuaparque Nacional del Chicamocha
   3. [___] Neomundo
   4. [___] Parque del Agua
   5. [___] Ecoparque Cerro del Santísimo
   6. [___] Acualago
   7. [___] None of the above

Help: Theme Park: It is an amusement park in which landscaping, buildings, and attractions are based on one or more specific themes. Examples: Acuaparque, Neomundo.

Help: Amusement Park: It is a commercially operated enterprise that offers rides, games, and other forms of entertainment. Example: Parque Nacional del Chicamocha

6. [___] Visit to natural parks, waterfalls, rivers, wells, spas, zoos and botanic gardens.
   6.1 Which ones?
   
   1. [___] Gallineral Park
   2. [___] Reservations/natural parks
   3. [___] Scenic lookouts
   4. [___] Waterfalls
   5. [___] Rivers, wells, spas
   6. [___] Zoos
   7. [___] Botanic gardens
   8. [___] Caves
   Other, which one?

Help: Reservations: Santurbán, Yarigüies, Guanentá Alto Rio Fonce
Help: Caves: Just visit, without exploring the cave.

7. [___] Stroll the streets and parks of the town.

8. [___] Visit to farms or factories where the process of making coffee, brown sugar, candies, etc. is taught.
   8.1 Which ones?
   
   1. [___] Coffee process
   2. [___] Brown sugar process
   3. [___] Candy process
9. [___] Visit to casinos and other gaming places
10. [___] Sports practice
   10.1 Which ones?
   1. [___] Rafting
   2. [___] Speleology (recreational exploration of caves)
   3. [___] Rappel in waterfalls
   4. [___] Paragliding
   5. [___] Hiking
   6. [___] Rock climbing
   7. [___] Bungee jumping
   Other, which one? __________________________
11. [___] Attend competitions or sports events.
12. [___] Visit to discos, bars, karaoke and dance floors
13. [___] Visit to shopping centers
14. [___] Shopping in stores not located in shopping centers.
15. [___] Religious activities (Processions, mass, attendance to holy week ceremonies)
16. [___] Make investments/Attend business meetings
17. [___] Attend conferences/Congresses/commercial fairs
18. [___] None
Other, which one? ________
Parte C. Transport used

C1. What means of transport did you use to get to Santander? (Select only the one you used the most)

1. (___) Own vehicle
2. (___) Friend or relative’s vehicle
3. (___) Ground transportation tour and/or tour plans
4. (___) Air transport
5. (___) Car rental
6. (___) Land passenger transport (bus, minibus, taxi, car)
Other, which one? ____________________________________________________________

C2. Which means of transport did you use most of the time in Santander?

1. (___) Own vehicle
2. (___) Friend or relative’s vehicle
3. (___) Ground transportation tour and/or tour plans
4. (___) Land passenger transport between towns
5. (___) Car rental
6. (___) Land passenger transport (bus, minibus, taxi, car)
Other, which one? ____________________________________________________________

Next
Parte D. Travel group

D1. How many people including yourself, made the trip together since your arrival until your departure? [If you traveled alone write 1] ________

(If answer is 1, go to question E1)

D2. The people mentioned above are:

1. [ ] My date/boyfriend/girlfriend/spouse
2. [ ] My children
3. [ ] Other relatives
4. [ ] Friend(s)
5. [ ] Coworkers
6. [ ] Classmates
7. [ ] Other tourists (Includes all unknown people or without any link to you) D7.1 How many were other tourists? ______
Other, which one? ________________________________

Next
Parte E. Preparation costs and expenses during the trip to Santander

E1. Was the trip to Santander part of a package tour/ tourism plan or excursion?

It includes: Plans offered by hotels (vacation plans, weekend plan, wedding night plan, etc.). In general, it refers to plans including not only accommodation, but also other complementary services such as meals, drinks, activities, etc.

1. (___) Yes

E1.1 What other cities did it include?

[___] None
[___] Barranquilla
[___] Bogotá
[___] Cartagena
[___] Cúcuta
Other, Which? __________

2. (___) No

E2. How much did you pay for the package tour or excursion? [If the answer is 0, write 0]

Colombian Pesos __________

E2.1 How many people were included? _______ people

E3. The package tour/ tourism plan or excursion was purchased from:

1. (___) Travel Agency/Tour operator

E3.1 Where is it located? 1. (___) Santander 2. (___) A Colombian city (not located in Santander)
3. (___) Abroad

2. (___) Accomodation place (Hotel, hostel, inn ...)

E4. What products and services did the package tour or excursion include?

1. [___] International air transport  (Round trip)
2. [___] Air transport from a Colombian city to Santander (Round trip)
3. [___] Land passenger transport from a Colombian city to Santander (Including round trip)
4. [___] Land passenger transport to travel in Santander
7. [___] Accommodation
8. [___] Meals and drinks
9. [___] Recreational, cultural and sport activities
13. [___] Attendance to conferences, seminars, congresses, commercial fairs, exhibitions
[___] Other services, Which ones? __________
E6. Select the trip expenses paid by another person or organization/ company different from you or your trip group:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>99.</td>
<td>[___]  This situation was not present during the trip</td>
</tr>
<tr>
<td>1.</td>
<td>[___]  International air transport  (Round trip)</td>
</tr>
<tr>
<td>2.</td>
<td>[___]  Air transport from a Colombian city to Santander (Round trip)</td>
</tr>
<tr>
<td>3.</td>
<td>[___]  Land passenger transport from a Colombian city to Santander (Including round trip)</td>
</tr>
<tr>
<td>4.</td>
<td>[___]  Land passenger transport to travel in Santander</td>
</tr>
<tr>
<td>5.</td>
<td>[___]  Car rental</td>
</tr>
<tr>
<td>6.</td>
<td>[___]  Fuel</td>
</tr>
<tr>
<td>7.</td>
<td>[___]  Accommodation</td>
</tr>
<tr>
<td>8.</td>
<td>[___]  Meals and drinks</td>
</tr>
<tr>
<td>9.</td>
<td>[___]  Recreational, cultural and sport activities</td>
</tr>
<tr>
<td>10.</td>
<td>[___]  Crafts (including clothes and/or hand-made foot wear), souvenirs</td>
</tr>
<tr>
<td>11.</td>
<td>[___]  Valuables (Jewelry, artworks)</td>
</tr>
<tr>
<td>12.</td>
<td>[___]  Durable goods (Clothes, footwear, sports equipment, etc.)</td>
</tr>
<tr>
<td>13.</td>
<td>[___]  Attendance to conferences, seminars, congresses, commercial fairs, exhibitions</td>
</tr>
<tr>
<td>14.</td>
<td>[___]  Courses/teaching workshops</td>
</tr>
<tr>
<td>15.</td>
<td>[___]  Medical services (Including plastic surgery)</td>
</tr>
<tr>
<td></td>
<td>[___]  Other expenses, Which ones? __________</td>
</tr>
</tbody>
</table>

E7. What is the name of the land passenger transport company used from a Colombian city to Santander?: __________

(This question is displayed if E5 or E6 is 3)

E8. The car rental service was purchased: 1.(__) in Santander  2.(__) Out of Santander

(This question is displayed if E5 or E6 is 5)

E9. Where did you spend the most on clothes, foot wear, sports equipment, etc. (durable goods) before and during your trip to Santander:

1.(__)  In a town in Santander  2.(__)  In a town or city in Colombia different from Santander 3.(__)  Abroad

(This question is displayed if E5 or E6 is 5)
E10. The expenses of the people in the travel group were paid by:

1. [___] by myself
2. [___] My date/boyfriend/girlfriend/spouse
3. [___] Each person paid for his/her own expenses
4. [___] All expenses were added and split equally
5. [___] By other(s) relative(s)/friend(s)
6. [___] Each family paid for their own expenses
7. [___] All expenses were paid by everybody but not equally split
8. [___] By the company I work with or a member of the group works with
9. [___] Part of the expenses were paid by the company I work with or a member of the group works with
10. [___] An Enterprise which is not the company I or any member of the group works with

Other, which one? __________________
### Parte F. Perception of the trip to Santander

**F1. Did you use accommodation service during your trip?**

1. (___) Yes  2. (___) No

On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), how would you rate the following aspect: Accommodation service.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physical condition of the building</td>
<td>( )</td>
<td>( )</td>
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<td>2. Furniture condition</td>
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<td>3. Sheets and towels conditions</td>
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<td>4. Hygiene and cleaning</td>
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<td>5. Treatment of Staff</td>
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<td>6. Catering</td>
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<td>7. Accommodation prices</td>
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</table>

**F2. Did you use the restaurant service during your trip?**

1. (___) Yes  2. (___) No

On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), how would you rate the following aspect: Catering service (restaurants).

<table>
<thead>
<tr>
<th>Aspect</th>
<th>1</th>
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<tr>
<td>8. Taste of the dishes</td>
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<td>9. Variety of the cuisine</td>
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<td>10. Treatment of Staff</td>
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<td>11. Hygiene and cleaning</td>
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<td>12. Prices of the dishes</td>
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</table>

On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), how would you rate the following aspect: **Environmental Factors**.

<table>
<thead>
<tr>
<th>Aspect</th>
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<th>11. Does not apply</th>
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</thead>
<tbody>
<tr>
<td>13. Cleaning and cleanliness of the towns</td>
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<tr>
<td>14. Cleaning and conservation of the visited places (theme parks, natural parks, natural places (waterfalls, rivers)</td>
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<tr>
<td>15. Hospitality</td>
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</table>
On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), how would you rate the following aspect: Leisure, recreation and free time.

<table>
<thead>
<tr>
<th>Aspect</th>
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<th>11. Does not apply</th>
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<td>16. Cultural Activities</td>
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<td>17. Sports Activities</td>
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<td>18. Parks</td>
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<td>19. Discos, bars, casinos</td>
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</table>

On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), how would you rate the following aspect: Infrastructure.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>1</th>
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<th>10</th>
<th>11. Does not apply</th>
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<tbody>
<tr>
<td>20. Road conditions</td>
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<td>21. Local transport</td>
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<td>22. Security</td>
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</tbody>
</table>

F3. What would you recommend to attract more tourists to Santander (Highlight in detail the aspects you really disliked).

F4. On a scale of 1 to 10 (in which 1 = very unsatisfactory and 10 = very satisfactory), rate the experience of your visit to Santander in general.

<table>
<thead>
<tr>
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</tbody>
</table>

F5. Would you come back to Santander? 1. ( ) Yes 2. ( ) I am not sure 3. ( ) I wouldn’t come back

F6. Would you recommend Santander as a tourist destination?

1. ( ) Yes 2. ( ) I am not sure 3. ( ) No

F7. How many times have you visited Santander in the last two years? ___

Next
Parte G. How visitors hear about Santander

G1. Before coming to Santander, how did you hear about the tourist destinations visited?

1. [___] I had already learned about them
2. [___] Friends and/or relatives
3. [___] Internet search
4. [___] Mass Media (newspaper, radio, television.)
5. [___] The website VisitaSantander
6. [___] Travel agency
7. [___] Tour guide company
8. [___] Twitter
9. [___] Facebook
10. [___] Other social networks
11. [___] Email
12. [___] Online adds
13. [___] Blog
Other, which one? ____________________________________________________

G2. During your stay in Santander, how did you get more information about tourist destinations?

1. [___] Relatives
2. [___] Hotel
3. [___] Other tourist
4. [___] Internet search
5. [___] Social networks
6. [___] Blog
7. [___] Friends
8. [___] The website VisitaSantander
9. [___] Tour guides (person)
10. [___] Travel agencies or operating agencies
11. [___] Inhabitants of the towns visited
12. [___] Printed tour guides, magazines
13. [___] Public service drivers (taxi, bus, minibus)
14. [___] I did not look for any other information
Other, which one? ____________________________________________________

G3. After your trip to Santander, what social networks did you share your travel experience on (Comments, photos, etc.)?

1. [___] I did not share on social networks
2. [___] Facebook
3. [___] Twitter
4. [___] Linkedin
5. [___] Pinterest
6. [___] TripAdvisor
7. [___] Google+
8. [___] Youtube
9. [___] Flickr
10. [___] Messenger (Skype, Whatsapp, messenger)
11. [___] Instagram
Other, which one? ____________________________________________________
G4. Would you like to get information about Santander in your email account?
1. Yes (___) 2. No (___)

G5. Would you like to get an invitation on social networks to follow Santander?
1. Yes (___) 1.1 How can we search for you on Facebook? ____________________________
   1.2 How can we search for you on Twitter? ____________________________
2. No (___)

Your responses were saved successfully. The results of this research will be shared in Situr Santander.
SANTANDER VISITOR QUESTIONNAIRE

7 parts:
A. Features of the Visitor
B. Duration of Stay and places visited
C. Transport used
D. Travel group
E. Preparation costs and expenses during the trip to Santander
F. Perception of the trip to Santander
G. How visitors hear about Santander

CONVENTIONS

Following the conventions that guide the user are explained the questionnaire:

- B5
- B5
- FINAL

Jump question. The numbering indicates the oval interorder that question should continue. The arrow pointing up or down indicates where is the question

(-)

[ ]

?:

Continued on next question

Ends questionnaire

Questions parentheses single response

Key questions multiple choice

Explanation to question or category

Response categories

Help Contents

MOVE 2015 International Conference – Measuring Tourism and Sustainable Development at subnational levels
<table>
<thead>
<tr>
<th>A1</th>
<th>A1.1</th>
<th>A1.2</th>
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</thead>
<tbody>
<tr>
<td>What is your country of residence?</td>
<td>What is your state/province of residence?</td>
<td>What is your city or town of residence?</td>
</tr>
</tbody>
</table>

 Italics: It is the place where you have been normally resident for the last year and where you consider to be 'home'.
### Part B: Duration of Stay and places visited

**B1** How many nights did you spend in Santander? (If it is 0, select '0 nights')

**B2** The following questions invite you to register the towns you visited during your stay in Santander. If you visited a town twice or more times during your stay, record it once and add up the nights you stayed there.

**B3**

- **B3.1 First town:**
  - B3.1.1 How many nights? If answer is 0 go to question B3.2.1 Type accommodation?
  - B3.1.2 Type accommodation?

- **B3.2 Second town:**
  - B3.2.1 How many nights? If answer is 0 go to question B3.2.2 Type accommodation?
  - B3.2.2 Type accommodation?

- **B3.3 Third town:**
  - B3.3.1 How many nights? If answer is 0 go to question B3.3.2 Type accommodation?
  - B3.3.2 Type accommodation?

- **B3.4 Fourth town:**
  - B3.4.1 How many nights? If answer is 0 go to question B3.4.2 Type accommodation?
  - B3.4.2 Type accommodation?

- **B3.5 Fifth town:**
  - B3.5.1 How many nights? If answer is 0 go to question B3.5.2 Type accommodation?
  - B3.5.2 Type accommodation?

- **B3.6 Sixth town:**
  - B3.6.1 How many nights? If answer is 0 go to question B3.6.2 Type accommodation?
  - B3.6.2 Type accommodation?

- **B3.7 Seventh town:**
  - B3.7.1 How many nights? If answer is 0 go to question B3.7.2 Type accommodation?
  - B3.7.2 Type accommodation?

**B4** Which one was the main destination out of the towns visited in Santander?

**B5** What activities did you do in Santander?

- 1. Visit to museums and monuments
- 2. Visit to beaches or lakes
- 3. Visit to festivals or fairs
- 4. Visit to parks and gardens
- 5. Visit to religious sites
- 6. Visit to shops and markets
- 7. Visit to restaurants or bars
- 8. Visit to natural areas
- 9. Visit to other places
- 10. Other (please specify)

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### Parte C. Transport used

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
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</thead>
<tbody>
<tr>
<td><strong>What means of transport did you use to get to Santander? (Select only the one you used the most)</strong></td>
<td></td>
</tr>
<tr>
<td>1. [ ] Own vehicle</td>
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<tr>
<td>2. [ ] Friend or relative’s vehicle</td>
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<tr>
<td>3. [ ] Ground transportation tour and/or tour plans</td>
<td></td>
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<tr>
<td>4. [ ] Air transport</td>
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<tr>
<td>5. [ ] Car rental</td>
<td></td>
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<tr>
<td>6. [ ] Land passenger transport (bus, minibus, taxi, car)</td>
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<tr>
<td>Other, Which one?</td>
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<tr>
<td><strong>Which means of transport did you use most of the time in Santander?</strong></td>
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</tr>
<tr>
<td>1. [ ] Own vehicle</td>
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<tr>
<td>2. [ ] Friend or relative’s vehicle</td>
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<tr>
<td>3. [ ] Ground transportation tour and/or tour plans</td>
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<tr>
<td>4. [ ] Land passenger transport between towns</td>
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<tr>
<td>5. [ ] Car rental</td>
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<tr>
<td>6. [ ] Land passenger transport (bus, minibus, taxi, car)</td>
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<tr>
<td>Other, Which one?</td>
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</tbody>
</table>

### Parte D. Travel group

**D1**

How many people including yourself, made the trip together since your arrival until your departure? [If you traveled alone write 1]

If answer is 1 go to question E1

**D2**

The people mentioned above are:

1. [ ] My date/boyfriend/girlfriend/spouse
2. [ ] My children
3. [ ] Other relatives
4. [ ] Friends
5. [ ] Coworkers
6. [ ] Classmates
7. [ ] Other tourists (includes all unknown people or without any link to you)

DT:1 How many were other tourists? 
Other, Who was?
### Parte G. How visitors hear about Santander

<table>
<thead>
<tr>
<th>G1</th>
<th>G2</th>
<th>G3</th>
<th>G4</th>
<th>G5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before coming to Santander: how did you hear about the tourist destinations visited?</strong></td>
<td><strong>During your stay in Santander: how did you get more information about tourist destinations?</strong></td>
<td><strong>After your trip to Santander: what social networks did you share your travel experience on (Comments, photos, etc.)?</strong></td>
<td><strong>Would you like to get information about Santander in your email account?</strong></td>
<td><strong>Would you like to get an invitation on social networks to follow Santander?</strong></td>
</tr>
<tr>
<td>6. Other</td>
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<tr>
<td><strong>How did you hear about Santander?</strong></td>
<td><strong>How did you get information about tourist destinations?</strong></td>
<td><strong>What social networks did you share your travel experience on?</strong></td>
<td><strong>Would you like to get information?</strong></td>
<td><strong>Would you like to follow Santander?</strong></td>
</tr>
<tr>
<td><strong>Would you like to get information about Santander in your email account?</strong></td>
<td><strong>Would you like to get an invitation on social networks to follow Santander?</strong></td>
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<td><strong>FINAL</strong></td>
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</tbody>
</table>
Measuring Intra-Regional Tourist Behaviour: Towards Understanding Visitor Expenditure Dynamics, by Stienmetz, J. and Fesenmaier, D.

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Daniel R. Fesenmaier

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Abstract
An important objective of tourism policy makers is to understand the economic value of regional activities within the context of a larger tourism destination system. We propose a network analysis approach to measuring the marginal impact of regional tourism behaviors on total visitor expenditure within a destination. Using the Northern Indiana region of the United States as a case study, we demonstrate that a network paradigm accurately represents actual tourist behavior and, importantly, that seasonal fluctuations in visitor expenditure patterns can be easily modelled. It is argued that a network approach to sub-national economic analysis will enable policy makers and practitioners to increase destination competitiveness by identifying the strategic value in intra-regional tourism links.

Keywords: network analysis; intra-regional tourism; destination metrics.

1. Introduction
Accurate and reliable measurement of tourism at the sub-national level is necessary for the effective management of regional tourism development (Jansen-Verbeke & Spee, 1995, p. 148). However, tourism regions (defined here as geographic areas at a sub-national level) can be difficult to characterize as tourists rarely understand the sub-national political boundaries within which their activities are located (Beritelli, Bieger, & Laesser, 2013). Because tourism policies and Destination Management Organizations (DMOs) remain structured primarily around such political and largely rigid boundaries (despite the uninhibited intra-regional crossing of these boundaries and the frequent combination of activities from multiple jurisdictions into a travel itinerary) a solution to modeling regional patterns of tourist behavior is needed. Therefore, this paper proposes a method of measuring tourist behavior at the local/attraction level and then aggregating to a regional level in order to analyze patterns of tourist flows so as to estimate the economic impacts generated by tourism. Using the Northern Indiana region of the United States as a case study, the specific goals of this study are to: 1) identify the network structure of visitor movements within a regional tourism system, 2) identify the economic impact of visitor movements given the network structures of a regional tourism system, and 3) determine if seasonal variability in the marginal economic value of intra-regional tourist flows can be identified and modelled.

2. The Destination Value System
The ubiquitous presence of Information Communication Technologies (ICT), especially through the expanded use of mobile devices such as smartphones, has led to a revolution in traveler behavior that is dramatically changing the ways in which
we understand tourism destinations and the tourism product (Daniel R. Fesenmaier & Xiang, 2014; Gretzel, 2010). One key consequence of ICT has been lowered traveler information search costs and the increased ability of travelers to make autonomous decisions and better control how they experience their destination in terms of which accommodations, restaurants, attractions, etc. that they visit (Buhalis & O’Connor, 2005). This in turn, has led to the disintermediation of tourism products, more diverse destination experiences, and a need to reevaluate how value is created during travel (Krackt & Wang, 2010).

The traditional modelling of a tourism destination as a value chain, where value is added as visitors prepare for, and then experience and move through the destination before eventually returning home (Poon, 1993; UNWTO, 2007) is no longer appropriate given the huge role of ICT in tourism. Stienmetz and Fesenmaier (2013) have proposed the Destination Value System (DVS) that reconsiders the model of destination value creation from the paradigm of a networked and dynamic system, rather than a linear and static process chain. As such, a tourism destination can be conceptualized as a constellation of visitor-centric networks that represent core value creation processes. Importantly, DVS networks are argued to exist in both physical and virtual space, are focused on capacity, are constantly evolving, and are occurring simultaneously as part of an integrated system (Stienmetz & Fesenmaier, 2013).

Key among the value creation processes of a destination is the flow of travelers from one tourist activity (or region) to another, wherein visitors combine experiences in unique sequences that represent traveler-activated paths taken through a destination (Zach & Gretzel, 2011). Traveler-activated paths create a network structure where key destination touchpoints (attractions, events, etc.) represent network nodes, and the ties connecting nodes represent the exchange of tourists between destination touchpoints and reveal the structure of a DVS network. Additionally, network ties can be assigned weight values, which represent the volume of visitor movement between the value creating activities within the destination (Shih, 2006; Stienmetz & Fesenmaier, 2013).

2.1. Network Metrics

The nature of a DVS network can be understood by using traditional network analysis metrics that quantify structure. Importantly, the structures of DVS networks have numerous implications for the performance and competitiveness of destinations. Metrics describing key structural characteristics include measures of node importance (such as weighted node degree centrality and weighted node betweenness centrality), and measures of sub-community embeddedness (such as modularity), and an accounting of all network ties (triad census).

2.1.1. Degree Centrality

Node degree centrality is a measure of the connectedness of a node within the network. Within networks where ties have a weight value, weighted node degree centrality, sometimes referred to as node strength ($S_i$), is defined in Equation 1 as the sum of the weight of all ties a focal node $i$ shares with all other nodes $j$ in the network, where $N$ is the total number of nodes and $\omega$ is the weighted matrix in which $\omega_{ij}$ is greater than 0 if node $i$ is tied to node $j$, and the value is the weight of the tie.

$$S_i(\omega) = \sum_{j}^{N} \omega_{ij}$$

The more central the position of a node, the greater the node’s power (Borgatti & Halgin, 2011). A node of high centrality is usually considered more influential than other nodes because centrality gives a node access to more information and results in the node performing coordination functions within the network (Bhat & Milne, 2008). Therefore, touchpoints with high centrality within a DVS network should be
considered especially important in determining the overall performance of that destination, as supported by the Stienmetz and Fesenmaier (2015) finding of a positive correlation between weighted degree centrality of a node and the marginal economic impact of that node within a DVS network.

2.1.2. Betweenness

Node betweenness is a measure of the extent to which a particular node lies between various other nodes within the network. The equation for calculating weighted betweenness centrality \( B^\omega \) is shown as Equation 2, where \( i \) is the focal node, \( j \) and \( h \) are all other nodes in the weighted matrix \( \omega \) in which \( \omega_{ij} \) is greater than 0 if node \( i \) is tied to node \( j \), and the value is the weight. Within the weighted matrix \( g_{jh} \) is the number of shortest path(s) between node \( j \) and node \( h \), and \( g_{jh}(i) \) is the number of those paths that go through the focal node (Opsahl, Agneessens, & Skvoretz, 2010).

\[
B^\omega(i) = \frac{g_{jh}(i)}{g_{jh}}
\] (2)

Nodes with high betweenness (often considered “boundary spanners”) occupy important points in the structure of the network and can play critical roles. The flow of resources (such as knowledge) within the network may depend on the ability of boundary spanners to create relationships between other nodes within the network (Easterby-Smith, Lyles, & Tsang, 2008). Touchpoints with high betweenness indicate bridges within the DVS network whereby large numbers of visitors pass through before interacting with other clusters of destination touchpoints (Borgatti & Halgin, 2011). Further, the more diverse touchpoints are within a network, the more critical the role of a boundary spanner is for the management of resources between touchpoints (Carlile, 2002).

2.1.3. Modularity

It is important to understand how nodes cluster together and form sub-communities within a network, as sub-communities are often more cohesive due to reciprocal obligations that foster trust (Scott, Baggio, & Cooper, 2008, p. 81). Sub-communities within a network can be identified through modularity analysis. As shown in Equation 3, the modularity of a cluster \( Q_c \) is a comparison of the density of links inside the cluster as compared to the density of links between clusters, where \( \omega_{ij} \) represents the weight of the tie between nodes \( i \) and \( j \), \( s_i \) is the sum of the weights of the ties attached to node \( i \), and \( c_i \) is the community to which node \( i \) is assigned, the \( \delta \) function \( \delta(c_i,c_j) \) is 1 if \( c_i = c_j \) and 0 otherwise, and \( m = \frac{1}{2} \sum_{i,j} \omega_{ij} \). Thus, cluster modularity \( Q_c \) is a scalar value between -1 and 1 that measures the density of links inside communities as compared to links between communities (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008). Based on Equation 3, the number of distinct clusters and each node’s assignment to a cluster can be determined.

\[
Q_c = \frac{1}{2m} \sum_{i,j} \omega_{ij} \frac{s_i s_j}{2m} \delta(c_i,c_j)
\] (3)

2.1.4. Triad Census

Within a network, a triad is a set of three actors and the possible ties among them. Triads, of which dyadic ties are embedded, form the core structure of all high order networks, and represent a valuable layer of meaning that can be used to understand networks (Madhavan, Gnyawali, & Jinyu, 2004; Wasserman, 1977). Importantly, the patterns and structures of triads within a network can be useful in identifying competitive and cooperative relationships (Madhavan et al., 2004). Previous research has demonstrated that the accounting and analysis of relationships between actors in a network can be applied to increase visitor satisfaction, destination visitation, and
2.2. Regional Dynamics

Stienmetz and Fesenmaier (2015) have recently demonstrated that visitor itineraries and total visitor expenditures can be deconstructed through a network analysis paradigm in order to determine the marginal economic value of individual attractions within a city. Notably, value creating synergies and strategic links between individual destination attractions can be identified as having the potential to generate greater economic impact within the destination. Expanding the level of analysis beyond that of a city, these techniques might also be applied to identify intra-regional relationships, and the economic impacts of those relationships, so as to determine tourism destination management policies regarding whether to either cooperate or compete at a regional level (Wang, 2008). Importantly, it is also expected that DVS networks, like most other types of social networks, are dynamic, in that patterns of visitor behavior fluctuate over time, due to both external and internal factors (McGlohon, Akoglu, & Faloutsos, 2011; Pavlovich, 2003). As a key step in understanding these regional dynamics, seasonal changes in regional network structure must also be considered, as it is expected that the marginal economic value of intra-regional flows will modulate.

3. Methodology

This case study examines the traveler-activated network of Northern Indiana regional tourism in order to answer three key research questions: 1) what is the DVS network structure of visitor movements within Northern Indiana 2) what are the economic impacts of visitor movements given the DVS network structures of the Northern Indiana regional tourism system and 3) can seasonal variability in the structure of intra-regional tourist flows be identified and modelled to predict seasonal changes in economic impact.

3.1. Study Sample

Data used to describe Northern Indiana traveler behavior were generated using an online survey of individuals that had requested information from eight regional tourism offices (seven county level offices and one office representing the entire Northern Indiana region). Data were collected approximately every 4 months between October 2011 and October 2014; 67,209 survey invitations were emailed and 6,058 usable responses were obtained for a response rate of 9.0%. Of these responses, data analysis is based on the sub-sample of 2,565 individuals who actually visited the Northern Indiana region. Data were also reweighted using a stratified propensity score adjustment technique in order to control for non-response bias in the sample (Choe & Fesenmaier, 2015; Park & Fesenmaier, 2012; Rosenbaum & Rubin, 1984). The weighted sample sizes used for this study are reported in Table 1.

<table>
<thead>
<tr>
<th>Season</th>
<th>Weighted Sample Size</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Season 1: New Year’s Day to Memorial Day</td>
<td>537.67</td>
<td>21.4%</td>
</tr>
<tr>
<td>Season 2: Memorial Day to Labor Day</td>
<td>1248.70</td>
<td>49.8%</td>
</tr>
<tr>
<td>Season 3: Labor Day to New Year’s Day</td>
<td>723.41</td>
<td>28.8%</td>
</tr>
<tr>
<td>Total</td>
<td>2520.01</td>
<td>100%</td>
</tr>
</tbody>
</table>

Respondents were asked about the basic characteristics of their trips, including when they traveled, their length of stay, the size of their travel party, and the amount of money they spent within Northern Indiana. Respondents were also asked detailed questions about their travel itineraries including if they had visited each of the seven counties in Northern Indiana and if they had visited 62 unique attractions or events.
within the Northern Indiana region. These 62 attraction touchpoints were then aggregated and recoded to the seven counties in which they were located. Two attractions listed in the survey were trails that spanned multiple counties, and respondents that indicated taking these trails were assumed to have visited all counties included in the trail route. The distribution of attractions within the counties is reported in Table 2.

Table 2. Composition of the Northern Indiana Regional Activities Network

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Touchpoint (attractions &amp; events)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>17</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>5</td>
</tr>
<tr>
<td>LaGrange</td>
<td>14</td>
</tr>
<tr>
<td>LaPorte</td>
<td>8</td>
</tr>
<tr>
<td>Marshall</td>
<td>6</td>
</tr>
<tr>
<td>Porter</td>
<td>7</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
</tr>
</tbody>
</table>

3.2. Network Creation

A seven node regional activity matrix based on places visited was created for each respondent whereby each matrix cell was defined by coding a 1 (otherwise 0) when two Northern Indiana counties were visited by the same respondent. As an example, Figure 1 illustrates the resulting matrix for Respondent X who visited counties A, C, and D. The final matrix for the Northern Indiana activities network was then calculated by multiplying each individual respondent’s matrix by that respondent’s propensity score weight and then summing all 2,565 individual respondent matrices. In this way, the rows and columns of the weighted matrix represent each of the 7 counties within Northern Indiana (network nodes) and each cell value indicates the number of travelers shared between counties (tie weights).

Fig. 1. Example of an Individual Response Matrix

In addition to the matrix representing all visitors to the Northern Indiana region, an analysis of seasonal network structure requires the creation of weighted matrices representing the travel behaviors of visitors for each season. Northern Indiana tourism is divided into three main seasons (New Year’s Day to Memorial Day, Memorial Day to Labor Day, and Labor Day to New Year’s Day), and an activity matrix for each season was created by summing the individual matrices for respondents that visited the region during each season. Additionally, in order to control for sample size, all matrices were normalized by dividing cell values (tie weights) by the total number of respondents for each season. In this way, each cell value is converted to a value between 0 and 1 representing the percent of travelers shared between counties.
4. Results
4.1. Destination Characteristics

The basic characteristics of the Northern Indiana regional tourism system are described in Tables 3a-3d. As can be seen, the number of touchpoints and visitors to each county are not evenly distributed. However, about 71% of all visitors on an annual basis stay overnight, the average length of stay (including day trip excursions) is 2.1 nights, and average total spending for all visitors to the region is $569.61. Tables 3a-3d also illustrate that the counties within the region are inter-connected. On average, 2.3 counties are visited and 5.3 attraction touchpoints are experienced per Northern Indiana trip. The level of intra-regional movement among county visitors varies greatly. For example, visitors to LaPorte County travel on average to 3.4 counties in total, while visitors to LaGrange County only travel to 2.7 counties in total.

Table 3a. Annual Characteristics of the Northern Indiana Regional Tourism System

<table>
<thead>
<tr>
<th>County</th>
<th>% of Visitors</th>
<th>% ON</th>
<th>Party Size</th>
<th>Nights</th>
<th>Counties Visited</th>
<th>Touch points (county/total)</th>
<th>Total Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>58.8</td>
<td>77.5</td>
<td>3.6</td>
<td>2.3</td>
<td>2.8</td>
<td>3.2/6.9</td>
<td>$626.07</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>12.3</td>
<td>72.6</td>
<td>3.5</td>
<td>2.4</td>
<td>3.4</td>
<td>1.4/8.0</td>
<td>$498.77</td>
</tr>
<tr>
<td>LaGrange</td>
<td>59.0</td>
<td>76.2</td>
<td>3.7</td>
<td>2.2</td>
<td>2.7</td>
<td>2.4/6.6</td>
<td>$630.55</td>
</tr>
<tr>
<td>LaPorte</td>
<td>35.4</td>
<td>69.4</td>
<td>3.6</td>
<td>2.3</td>
<td>3.4</td>
<td>1.9/6.4</td>
<td>$596.63</td>
</tr>
<tr>
<td>Marshall</td>
<td>14.9</td>
<td>77.4</td>
<td>3.5</td>
<td>2.5</td>
<td>3.0</td>
<td>1.2/8.9</td>
<td>$644.16</td>
</tr>
<tr>
<td>Porter</td>
<td>37.0</td>
<td>66.2</td>
<td>3.5</td>
<td>2.1</td>
<td>2.8</td>
<td>2.0/5.8</td>
<td>$514.73</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>30.9</td>
<td>74.6</td>
<td>3.6</td>
<td>2.5</td>
<td>3.2</td>
<td>1.8/7.3</td>
<td>$587.97</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>71.3</td>
<td>3.6</td>
<td>2.1</td>
<td>2.3</td>
<td>5.3</td>
<td>$569.61</td>
</tr>
</tbody>
</table>

Table 3b. Season 1 Characteristics of the Northern Indiana Regional Tourism System

<table>
<thead>
<tr>
<th>County</th>
<th>% of Visitors</th>
<th>% ON</th>
<th>Party Size</th>
<th>Nights</th>
<th>Counties Visited</th>
<th>Touch points (county/total)</th>
<th>Total Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>61.2</td>
<td>75.5</td>
<td>3.7</td>
<td>2.2</td>
<td>2.9</td>
<td>2.9/6.8</td>
<td>$631.35</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>14.2</td>
<td>72.2</td>
<td>3.0</td>
<td>2.5</td>
<td>3.5</td>
<td>1.4/8.3</td>
<td>$455.72</td>
</tr>
<tr>
<td>LaGrange</td>
<td>63.3</td>
<td>72.0</td>
<td>3.9</td>
<td>2.1</td>
<td>2.7</td>
<td>2.4/6.6</td>
<td>$609.15</td>
</tr>
<tr>
<td>Marshall</td>
<td>15.8</td>
<td>78.4</td>
<td>2.9</td>
<td>2.5</td>
<td>3.3</td>
<td>1.2/8.2</td>
<td>$655.48</td>
</tr>
<tr>
<td>LaPorte</td>
<td>35.4</td>
<td>70.8</td>
<td>3.4</td>
<td>2.0</td>
<td>3.1</td>
<td>1.9/6.8</td>
<td>$605.19</td>
</tr>
<tr>
<td>Porter</td>
<td>35.0</td>
<td>65.7</td>
<td>2.9</td>
<td>1.8</td>
<td>3.0</td>
<td>1.9/6.5</td>
<td>$503.10</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>31.7</td>
<td>73.4</td>
<td>3.4</td>
<td>2.6</td>
<td>3.2</td>
<td>1.7/7.3</td>
<td>$563.78</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>69.0</td>
<td>3.6</td>
<td>1.9</td>
<td>2.4</td>
<td>5.3</td>
<td>$550.54</td>
</tr>
</tbody>
</table>

Table 3c. Season 2 Characteristics of the Northern Indiana Regional Tourism System

<table>
<thead>
<tr>
<th>County</th>
<th>% of Visitors</th>
<th>% ON</th>
<th>Party Size</th>
<th>Nights</th>
<th>Counties Visited</th>
<th>Touch points (county/total)</th>
<th>Total Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>59.4</td>
<td>79.8</td>
<td>3.8</td>
<td>2.5</td>
<td>2.7</td>
<td>3.3/6.8</td>
<td>$654.08</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>10.2</td>
<td>77.5</td>
<td>4.2</td>
<td>2.8</td>
<td>3.3</td>
<td>1.3/7.9</td>
<td>$581.36</td>
</tr>
<tr>
<td>LaGrange</td>
<td>60.4</td>
<td>79.7</td>
<td>4.0</td>
<td>2.5</td>
<td>2.6</td>
<td>2.4/6.5</td>
<td>$671.81</td>
</tr>
<tr>
<td>Marshall</td>
<td>14.0</td>
<td>82.8</td>
<td>4.1</td>
<td>2.8</td>
<td>3.3</td>
<td>1.1/9.1</td>
<td>$659.01</td>
</tr>
<tr>
<td>LaPorte</td>
<td>33.6</td>
<td>73.5</td>
<td>4.1</td>
<td>2.6</td>
<td>2.9</td>
<td>1.8/6.2</td>
<td>$656.19</td>
</tr>
<tr>
<td>Porter</td>
<td>35.8</td>
<td>69.6</td>
<td>4.0</td>
<td>2.4</td>
<td>2.6</td>
<td>2.0/5.3</td>
<td>$536.57</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>28.0</td>
<td>80.2</td>
<td>4.0</td>
<td>2.8</td>
<td>3.2</td>
<td>1.7/7.3</td>
<td>$637.15</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>74.5</td>
<td>3.8</td>
<td>2.3</td>
<td>2.3</td>
<td>5.3</td>
<td>$613.43</td>
</tr>
</tbody>
</table>
Table 3d. Season 3 Characteristics of the Northern Indiana Regional Tourism System

<table>
<thead>
<tr>
<th>County</th>
<th>% of Visitors</th>
<th>% ON</th>
<th>Party Size</th>
<th>Nights</th>
<th>Counties Visited</th>
<th>Touch points (county/total)</th>
<th>Total Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>56.4</td>
<td>75.3</td>
<td>3.0</td>
<td>2.1</td>
<td>2.9</td>
<td>3.2/7.1</td>
<td>$571.74</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>14.4</td>
<td>66.7</td>
<td>3.0</td>
<td>1.9</td>
<td>3.6</td>
<td>1.4/7.9</td>
<td>$422.77</td>
</tr>
<tr>
<td>LaGrange</td>
<td>53.5</td>
<td>73.8</td>
<td>3.1</td>
<td>2.0</td>
<td>2.8</td>
<td>2.2/6.9</td>
<td>$572.33</td>
</tr>
<tr>
<td>Marshall</td>
<td>15.6</td>
<td>69.0</td>
<td>3.0</td>
<td>2.0</td>
<td>3.7</td>
<td>1.2/9.2</td>
<td>$613.31</td>
</tr>
<tr>
<td>LaPorte</td>
<td>38.7</td>
<td>62.8</td>
<td>3.1</td>
<td>1.9</td>
<td>3.1</td>
<td>2.0/6.6</td>
<td>$503.50</td>
</tr>
<tr>
<td>Porter</td>
<td>40.9</td>
<td>61.9</td>
<td>3.2</td>
<td>1.8</td>
<td>2.8</td>
<td>2.0/6.0</td>
<td>$492.10</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>35.2</td>
<td>67.9</td>
<td>3.0</td>
<td>2.0</td>
<td>3.2</td>
<td>2.0/7.4</td>
<td>$537.63</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>67.8</td>
<td>3.2</td>
<td>1.9</td>
<td>2.4</td>
<td>5.4</td>
<td>$511.51</td>
</tr>
</tbody>
</table>

Clear differences between destination seasons are also observed in Tables 3b-3d. Average visitor spending is generally highest during Season 2 ($613.43) and lowest during Season 3 ($511.51). Other indications of strong seasonal differences include a higher proportion of overnight visitors during Season 2 (74.5%) compared to Season 1 (69.0%) and Season 3 (67.8%), and corresponding higher average trip lengths (2.3 nights for Season 2 compared to 1.9 nights for both Seasons 1 and 3). Party size also fluctuates seasonally, with Season 2 having the largest average party size (3.8) and Season 3 having the smallest average party size (3.2). Interestingly, Tables 3b-3d also reveal that the percent of visitors to each county (i.e. tourist flows) change seasonally. For example, during Season 2 Kosciusko County receives a low of only 10.2% of the visitors to the Northern Indiana region, and during Season 3 Porter County receives its highest share of regional visitors (40.9%).

4.2. Network Analysis

To quantify the DVS network structures of Northern Indiana regional tourism and further examine potential seasonal effects, a series of network analyses were conducted using Equations 1, 2, and 3 (i.e. weighted degree centrality, weighted betweenness centrality, and cluster group metrics for each county). The results are reported in Tables 4a-4d. Examination of the weighted degree centrality values reveals that Elkhart ($s = 1.186$), and LaGrange ($s = 1.108$) are the most connected, and therefore the most important counties in determining destination competitiveness. Interestingly, while LaGrange is the most visited county, Elkhart is the more central (i.e. connected) county within the system. Marshall ($s = 0.490$) and Kosciusko ($s = 0.380$), with the lowest centralities, are less connected to the rest of the regional network system. While the node strength of each county fluctuates from season to season, there is also clear evidence that the ranking of node strengths within the network is relatively stable.

Modularity analysis of annual visitor patterns reveals that there are two clusters of counties (Porter and LaPorte to the East, and Elkhart, Kosciusko, LaGrange, Marshall, and St. Joseph to the West). However, seasonal shifts in sub-community structure are observed as Elkhart and LaGrange form their own cluster during Seasons 1 and 3. Examination of the betweenness metric reveals that Elkhart is the only “boundary spanner” within the Northern Indiana regional DVS network, which suggests that Elkhart has an important role as a cross roads that connects the region via the flow of tourists. However, Elkhart’s function as an intermediary between regional clusters is not stable. Interestingly, the strength of the betweenness metric is observed to fluctuate between season, with Elkhart’s position as a boundary spanner strongest during Season 2 ($B^{w} = 7$) and non-existent during Season 3 ($B^{w} = 0$).

DVS metrics are also represented visually by network graphs superimposed over a map of the Northern Indiana region in Figure 2. Each county is represented by a
circle, and the larger circles represent counties that have higher weighted degree centrality. Lines connecting circles represent the paths with the highest volume of visitor flows (only tie weights greater than .10 are shown) with thicker lines representing ties with higher weights. Finally, the colors of the circles in Figure 2 correspond to the sub-communities within the network identified by modularity analysis, with each of the three county clusters represented by a different color. These visualizations illustrate the existence of a relatively stable core within the network and a periphery that fluctuates seasonally.

**Table 4a. Annual Network Metrics for Northern Indiana Regional Activity**

<table>
<thead>
<tr>
<th>County</th>
<th>Weighted Degree Centrality</th>
<th>Weighted Betweenness Centrality</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>1.187</td>
<td>5</td>
<td>A</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>0.380</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaGrange</td>
<td>1.108</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaPorte</td>
<td>0.789</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>Marshall</td>
<td>0.490</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>Porter</td>
<td>0.725</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>0.762</td>
<td>0</td>
<td>A</td>
</tr>
</tbody>
</table>

**Table 4b. Season 1 Network Metrics for Northern Indiana Regional Activity**

<table>
<thead>
<tr>
<th>County</th>
<th>Weighted Degree Centrality</th>
<th>Weighted Betweenness Centrality</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>1.300</td>
<td>5</td>
<td>C</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>0.456</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaGrange</td>
<td>1.228</td>
<td>0</td>
<td>C</td>
</tr>
<tr>
<td>LaPorte</td>
<td>0.841</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>Marshall</td>
<td>0.512</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>Porter</td>
<td>0.809</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>0.818</td>
<td>0</td>
<td>A</td>
</tr>
</tbody>
</table>

**Table 4c. Season 2 Network Metrics for Northern Indiana Regional Activity**

<table>
<thead>
<tr>
<th>County</th>
<th>Weighted Degree Centrality</th>
<th>Weighted Betweenness Centrality</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>1.126</td>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>0.300</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaGrange</td>
<td>1.063</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaPorte</td>
<td>0.704</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>Marshall</td>
<td>0.438</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>Porter</td>
<td>0.617</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>0.671</td>
<td>0</td>
<td>A</td>
</tr>
</tbody>
</table>

**Table 4d. Season 3 Network Metrics for Northern Indiana Regional Activity**

<table>
<thead>
<tr>
<th>County</th>
<th>Weighted Degree Centrality</th>
<th>Weighted Betweenness Centrality</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>1.213</td>
<td>0</td>
<td>C</td>
</tr>
<tr>
<td>Kosciusko</td>
<td>0.470</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>LaGrange</td>
<td>1.098</td>
<td>0</td>
<td>C</td>
</tr>
<tr>
<td>LaPorte</td>
<td>0.902</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>Marshall</td>
<td>0.563</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>Porter</td>
<td>0.857</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>0.883</td>
<td>0</td>
<td>A</td>
</tr>
</tbody>
</table>
Overall Regional System

Season 1: New Year’s Day to Memorial Day

Season 2: Memorial Day to Labor Day

Season 3: Labor Day to New Year’s Day

Fig. 2. The Northern Indiana Regional DVS Network
Triad analysis was also conducted to quantify the structure of the Northern Indiana regional system. In this analysis, tourists’ movements from county to county represent the unique path segments taken by each traveler through the regional network that can be analyzed through a triad census to identify all of the pairs and triads of counties visited by travelers. When sequence is not considered, there are 21 ($C_2$) possible paths that can connect pairs of counties and 35 ($C_3$) possible paths that can connect triads of counties within the Northern Indiana regional network.

The results indicate that the average number of counties visited is 2.3. Frequency analysis of county dyads and triads reported in Table 5 shows the top traveler-activated paths within the Northern Indiana regional DVS network. This analysis indicates that the most popular pair of counties is Elkhart + LaGrange (49.8%), which has nearly twice the volume of the second most popular pair of LaPorte + Porter (25.2%). The most popular triad is Elkhart + LaGrange + St. Joseph (16.6%), followed by Elkhart + LaGrange + LaPorte (12.4%). Examination of dyad and triad frequencies for each season reveals that the top paths remain stable, but that there is variation in the frequencies in which less common paths between counties are taken.

### Table 5. Top Activated Paths with the Northern Indiana Regional Network

<table>
<thead>
<tr>
<th>Season</th>
<th>County Pairs</th>
<th>Freq.</th>
<th>County Triads</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Elkhart + LaGrange</td>
<td>49.8%</td>
<td>Elkhart + LaGrange + St. Joseph</td>
<td>16.6%</td>
</tr>
<tr>
<td></td>
<td>LaPorte + Porter</td>
<td>25.2%</td>
<td>Elkhart + LaGrange + LaPorte</td>
<td>12.4%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + St. Joseph</td>
<td>20.3%</td>
<td>Elkhart + LaGrange + Marshall</td>
<td>11.1%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + St. Joseph</td>
<td>18.4%</td>
<td>Elkhart + LaGrange + Porter</td>
<td>10.2%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + LaPorte</td>
<td>15.9%</td>
<td>Elkhart + LaPorte + Porter</td>
<td>10.0%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + LaPorte</td>
<td>13.9%</td>
<td>Elkhart + LaPorte + St. Joseph</td>
<td>9.1%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + Porter</td>
<td>13.8%</td>
<td>Elkhart + Porter + St. Joseph</td>
<td>8.1%</td>
</tr>
<tr>
<td>Season 1</td>
<td>Elkhart + LaGrange</td>
<td>52.9%</td>
<td>Elkhart + LaGrange + St. Joseph</td>
<td>17.4%</td>
</tr>
<tr>
<td></td>
<td>LaPorte + Porter</td>
<td>23.4%</td>
<td>Elkhart + LaGrange + LaPorte</td>
<td>14.6%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + St. Joseph</td>
<td>20.6%</td>
<td>Elkhart + LaGrange + Porter</td>
<td>13.6%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + St. Joseph</td>
<td>18.9%</td>
<td>Elkhart + LaGrange + Marshall</td>
<td>11.3%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + LaPorte</td>
<td>17.9%</td>
<td>Elkhart + LaPorte + Porter</td>
<td>11.1%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + Porter</td>
<td>16.9%</td>
<td>Elkhart + Kosciusko + LaGrange</td>
<td>10.1%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + LaPorte</td>
<td>15.8%</td>
<td>Elkhart + LaPorte + St. Joseph</td>
<td>9.7%</td>
</tr>
<tr>
<td>Season 2</td>
<td>Elkhart + LaGrange</td>
<td>50.7%</td>
<td>Elkhart + LaGrange + St. Joseph</td>
<td>15.8%</td>
</tr>
<tr>
<td></td>
<td>LaPorte + Porter</td>
<td>24.2%</td>
<td>Elkhart + LaGrange + Marshall</td>
<td>11.1%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + St. Joseph</td>
<td>19.3%</td>
<td>Elkhart + LaGrange + LaPorte</td>
<td>11.1%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + St. Joseph</td>
<td>17.6%</td>
<td>Elkhart + LaPorte + Porter</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + LaPorte</td>
<td>14.3%</td>
<td>Elkhart + LaGrange + Porter</td>
<td>8.0%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + LaPorte</td>
<td>12.7%</td>
<td>Elkhart + LaPorte + St. Joseph</td>
<td>7.6%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + Marshall</td>
<td>12.3%</td>
<td>LaGrange + LaPorte + St. Joseph</td>
<td>6.9%</td>
</tr>
<tr>
<td>Season 3</td>
<td>Elkhart + LaGrange</td>
<td>46.0%</td>
<td>Elkhart + LaGrange + St. Joseph</td>
<td>17.5%</td>
</tr>
<tr>
<td></td>
<td>LaPorte + Porter</td>
<td>28.4%</td>
<td>Elkhart + LaGrange + LaPorte</td>
<td>13.2%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + St. Joseph</td>
<td>21.9%</td>
<td>Elkhart + LaPorte + Porter</td>
<td>11.7%</td>
</tr>
<tr>
<td></td>
<td>LaGrange + St. Joseph</td>
<td>19.2%</td>
<td>Elkhart + LaGrange + Porter</td>
<td>11.7%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + LaPorte</td>
<td>17.3%</td>
<td>Elkhart + LaPorte + St. Joseph</td>
<td>11.2%</td>
</tr>
<tr>
<td></td>
<td>LaPorte + St. Joseph</td>
<td>16.7%</td>
<td>Elkhart + LaGrange + Marshall</td>
<td>11.0%</td>
</tr>
<tr>
<td></td>
<td>Elkhart + Porter</td>
<td>16.1%</td>
<td>Elkhart + Porter + St. Joseph</td>
<td>10.6%</td>
</tr>
</tbody>
</table>

### 4.3. Marginal Economic Impact of Regional Visitor Flows

Multiple regression analysis was used to estimate the impact of traveler-activated paths on destination value creation within the tourism system for each of the three main tourism seasons of the region, as well as for all seasons combined. The regression model was constructed following D.R. Fesenmaier and Lieber (1988) and Lieber and Fesenmaier (1988) where each county visited and each activated path between two counties was dummy coded (0/1). In total, 28 network elements (7 county nodes and 21 connecting paths) were used as independent variables while the
log (LN) of total trip expenditure was used as the dependent variable to model value creation within the Northern Indiana region. Additionally, the moderating variables of Trip Length, Party Size, and Number of Activities were included in the regression model.

The results of the regression analyses are presented in Tables 6a-6d as a series of matrices. Party size, Number of Nights, and Number of Activities are found to be significant in all models with the exception of Party Size being non-significant in the Season 3 model. Positive and negative network coefficients are highlighted in green or red respectively. The diagonal elements of each matrix can be interpreted as the main effects that visiting each county has on total spending. The off diagonal elements are the interaction effects and represent the marginal change in total expenditure caused by connecting any two counties within the system. These models explain between 30.4% and 40.4% of the variation in total trip expenditures.

Because the dependent variable is measured in LN dollars, a reverse log function must be applied to each coefficient to identify a variable’s marginal contribution to total trip expenditure. Using the overall model as an example, the coefficient for the constant is 4.972, which is transformed to $e^{4.972} = $144.32. Further, the regression coefficients should be interpreted as having either a strong (i.e., significant) or a weak (insignificant) relative impact on total trip spending as compared to other network elements that could comprise a Northern Indiana trip. For example, the marginal impact of LaGrange appears to be much more than average (i.e., there is a significant positive coefficient on total spending), while Porter has a marginal impact that is significantly less than average (as indicated by the significant negative coefficient on total spending). Additionally, interpreting the marginal value of tie variables is analogous to interpreting interaction effects where the marginal values of the connected county nodes (main effects) must also be considered. Equation 4 illustrates the application of the overall regression model for estimating total visitor spending in a scenario where a party of 3 spends 2 nights visiting 4 different touchpoints in both Kosciusko and Porter counties.

\[
\ln(y) = 4.972 + .203(3) + .231(2) + .065(4) - .228 - .267 + .329 = $462.66
\]  

(4)

Notably, differences between the regression coefficients for each model indicate that seasonal effects are present and that seasonal changes in visitor flows throughout the regional system are related to changes in the marginal economic value of intra-regional connections between counties. For example, visitation to Elkhart only has a positive effect during Season 3, while the negative effect of Porter is present during Seasons 1 and 2. Furthermore, paths connecting Porter to the rest of the region are only significant in Season 1, while the value-creating connection of Elkhart and LaPorte is only significant during Season 2.

<table>
<thead>
<tr>
<th>Constant: 4.972***</th>
<th>Party Size: .023***</th>
<th># Nights: .231***</th>
<th># Activities: .065***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>.044</td>
<td>- .228*</td>
<td></td>
</tr>
<tr>
<td>Kosciusko</td>
<td>-.041</td>
<td>-.041</td>
<td></td>
</tr>
<tr>
<td>LaGrange</td>
<td>-.005</td>
<td>.094</td>
<td>.313***</td>
</tr>
<tr>
<td>LaPorte</td>
<td>.223</td>
<td>-.194</td>
<td>-.248*</td>
</tr>
<tr>
<td>Marshall</td>
<td>.018</td>
<td>-.010</td>
<td>-.108</td>
</tr>
<tr>
<td>Porter</td>
<td>-.200</td>
<td>.329**</td>
<td>.142</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>-.180</td>
<td>-.210</td>
<td>-.183</td>
</tr>
</tbody>
</table>

Activity Matrix

<table>
<thead>
<tr>
<th>Elkhart</th>
<th>Kosciusko</th>
<th>LaGrange</th>
<th>LaPorte</th>
<th>Marshall</th>
<th>Porter</th>
<th>St. Joseph</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.10, **p<.05, ***p<.001
Table 6b. Regression Results: Season 1 \[ n=485, R^2=0.399 \ (p<0.001) \]

<table>
<thead>
<tr>
<th>Constant: 5.151***</th>
<th>Party Size: .046***</th>
<th># Nights: .247***</th>
<th># Activities: .063***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>-1.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kosciusko</td>
<td>-0.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaGrange</td>
<td>-0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaPorte</td>
<td>-0.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall</td>
<td>-0.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter</td>
<td>-2.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Joseph</td>
<td>-0.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.10, **p<.05, ***p<.001

Table 6c. Regression Results: Season 2 \[ n=1070, R^2=0.404 \ (p<0.001) \]

<table>
<thead>
<tr>
<th>Constant: 4.994***</th>
<th>Party Size: .037***</th>
<th># Nights: .254***</th>
<th># Activities: .061***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>-1.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kosciusko</td>
<td>-0.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaGrange</td>
<td>-0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaPorte</td>
<td>-0.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall</td>
<td>-0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter</td>
<td>-0.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Joseph</td>
<td>-0.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.10, **p<.05, ***p<.001

Table 6d. Regression Results: Season 3 \[ n=642, R^2=0.304 \ (p<0.001) \]

<table>
<thead>
<tr>
<th>Constant: 4.794***</th>
<th>Party Size: .001</th>
<th># Nights: .191***</th>
<th># Activities: .067***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elkhart</td>
<td>-0.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kosciusko</td>
<td>-0.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaGrange</td>
<td>-0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaPorte</td>
<td>-0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall</td>
<td>-0.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter</td>
<td>-0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Joseph</td>
<td>-0.19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.10, **p<.05, ***p<.001

4.4. Modelling Regional DVS Network Seasonality

The final analysis conducted for this study used multiple regression to model the seasonal effects that DVS network structure (weighted degree centrality) has on the marginal economic value of travel between counties. Weighted degree centrality metrics for each county during each season, as well as the overall estimates were pooled, and log-transformed to meet regression assumptions (Hair, Anderson, Tatham, & Black, 1998, p. 148) for this analysis. A series of dummy variables were coded for each season. The dependent variable for this regression was the marginal impact of each county on total spending (measured in LN dollars) as estimated in the previous analysis (see Tables 6a-6d). Results of the regression are shown in Table 7.
Table 7. Linear Regression Results for Seasonal Impact of County Centrality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.093</td>
<td>.092</td>
<td>.320</td>
</tr>
<tr>
<td>LN Wt. Degree Centrality</td>
<td>.242</td>
<td>.112</td>
<td>.041**</td>
</tr>
<tr>
<td>Season 1</td>
<td>-.242</td>
<td>.120</td>
<td>.055*</td>
</tr>
<tr>
<td>Season 2</td>
<td>.028</td>
<td>.120</td>
<td>.819</td>
</tr>
<tr>
<td>Season 3</td>
<td>.154</td>
<td>.120</td>
<td>.212</td>
</tr>
</tbody>
</table>

Dependent Variable = LN Marginal Direct Spending
Model Fit Statistics: $R^2=.411$, Adjust $R^2=.308$, F=4.007, p<.013

Note: n=28, *p<.10, **p<.05

This regression model explains over 41% of the variation in counties’ marginal impact on visitor spending within the regional DVS system of Northern Indiana ($R^2=.411$, Adjust $R^2=.308$, F=4.007, p<.013). The results are consistent with the finding of Stienmetz and Fesenmaier (2015) that weighted degree centrality of DVS nodes can be a good indicator of that node’s marginal impact on visitor spending with the system. These results also demonstrate that seasonal effects in marginal economic impact due to modulations in network structure can be modelled. Table 8 shows the linear equations for predicting the marginal economic impact of a county based on its centrality for each season, where $y$ is the LN dollar marginal impact and $x$ is the LN weighted degree centrality.

Table 8. Seasonal Linear Models for Predicting Marginal Impact

<table>
<thead>
<tr>
<th>Season</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>$y = 0.2667(x) + 0.1000$</td>
</tr>
<tr>
<td>Season 1</td>
<td>$y = 0.1189(x) - 0.2184$</td>
</tr>
<tr>
<td>Season 2</td>
<td>$y = 0.1561(x) + 0.0885$</td>
</tr>
<tr>
<td>Season 3</td>
<td>$y = 0.5165(x) + 0.3074$</td>
</tr>
</tbody>
</table>

With both $x$ and $y$ being log transformations, the slope of each equation represents an ‘arc elasticity,’ that is, the percent change given a connection between two destinations. For example, the slope for Season 3 is .5165, which indicates that for a one percent change in a county’s weighted degree centrality there will be a corresponding .51 percent increase in that county’s marginal impact on total visitor spending.

5. Discussion

It is argued that the deconstruction of the DVS activities network of a sub-national tourism system can inform both policy makers and practitioners of potential gains that can be made through the formation of new, innovative, and strategic collaborations by understanding how travelers create value. In the case study of Northern Indiana, examination of network metrics reveals that the region is a well-connected system. Elkhart County, the second most visited county in the region, is identified as the most central (i.e. connected) county within the system, which suggests that Elkhart has greater influence over the overall performance and competitiveness of the regional tourism destination. Network cluster analysis based on common traveler behavior identifies three distinct sub-communities of counties within the region which may enjoy advantages in cooperative management (McPherson, Smith-Lovin, & Cook, 2001). Elkhart is also shown to be the lone boundary spanner of the region, indicating it has an additional function of bridging the sub-community clusters found within the region. The results of this study also indicate that there are opportunities to strengthen the integration of some counties (i.e. Kosciusko and Marshall).
The quantification of a regional destination network was used to identify the individual areas having the highest marginal impact on destination spending. In particular, key traveler-activated paths between counties that significantly increase or decrease destination value can be ascertained, enabling policy makers to invest more efficiently in regional partnership development. In particular, the results of the regression analyses demonstrate that the effects of changing the regional DVS network structure (i.e. weighted degree centrality of counties) on economic impact can be modeled.

Seasonal analysis of network metrics clearly shows that, similar to other types of social networks, DVS networks have a stable core structure while periphery structures tend to modulate. While analysis has demonstrated that the structures of regional value creation networks modulate over time, it is possible to integrate these seasonal fluctuations into predictive network models. Importantly, variation in the marginal impact of regional visitor flows suggests that policy and management practices can be timed for maximum effect on destination competitiveness.

This study also sets the foundation for further research focusing on the dynamic structure of value creation networks. An important question remains regarding how other external or internal changes to the system (such as a decrease in demand due to economic recession or an increase in supply due to the creation of new destination attractions) can be modelled to predict changes to both individual nodes as well as the overall network system.

References


Tourism and the Environmental Dimension

Measuring tourism and sustainable development at sub-national levels: the complexity of operationalizing a policy concept such as sustainable tourism by INRouTe

Tourism and the environmental dimension: adapting a R-TIS to sub-regional extensions and the UN proposed Ecosystem Approach to Environmental Economic Accounting by INRouTe

The Community People’s Quality Of Life And Support For Tourism Development: A Structural Equation Analysis by Oladeji, K.I., Mbaiwa, J.E. and Mmopelwa, G.

Puerto Rican residents' attitudes toward tourism development and destination marketing by Mary Ann Dávila Rodríguez and Ulrike Gretzel
Measuring tourism and sustainable development at sub-national levels by INRouTe

The complexity of operationalizing a policy concept such as "sustainable tourism"

Tourism and the environmental dimension

Adapting the Regional Tourism Information System (R-TIS) to subregional extensions

The INRouTe agenda and the UN proposed Ecosystem Approach to Environmental Economic Accounting

As part of the agreement held between UNWTO & INRouTe, INRouTe will submit to UNWTO in 2016 a document entitled “A Closer Look at Tourism: Handbook on Sub-National Measurement and Economic Analysis of Tourism: UNWTO Guidelines” (provisional title). The present document constitutes part of the current draft of such handbook.

INRouTe strongly recommends to read first section 2/C Measuring tourism and sustainable development: setting the focus of the document presented to Session 1 Tourism and Territory: taking sub-national tourism seriously In fact, such text should be understood as a presentation to this document.
A. THE COMPLEXITY OF OPERATIONALIZING A POLICY CONCEPT SUCH AS “SUSTAINABLE TOURISM”

A.1. OVERVIEW

1.1. The focus of INRouTe’s work during its first phase (2012/2016) has been on three main priorities identified as strategic policy issues regarding the measurement and analysis of tourism at subnational levels:

- In order to bring credibility to regional tourism as a key driver of economic development there is a need for developing a proper conceptual design of a Regional Tourism Information System (R-TIS)
- For comparability purposes (which is UNWTO responsibility as UN specialized agency for tourism) such R-TIS should have as its basic core official statistics
- Tourism activity impact environmental sustainability and consequently, those basic statistical data and indicators derived from such R-TIS should be applicable first of all to a regional level but also, in due time, to a regional/sub-regional breakdown such as tourism destinations/cities

1.2. The connection of such priorities should be based not only on the statistical framework of tourism statistics international standards (IRTS 2008 and TSA:RMF 2008) but also on other standards related to environment statistics and the system of environmental economic accounting (UNSD et al., 2014: SEEA_CF 2012). The link of all these UN international standards has been supported by a common approach: a “systems approach”. In statistics, applying a systems approach to organize information in any particular thematic area means the application of concepts, definitions, classifications, accounting rules and principle of recording consistent with those of the System of National Accounts (SNA 2008)

1.3. In order to operationalize such connection and allow for the conceptual design of the proposed R-TIS, INRouTe uses agreed statistical concepts and definitions, suggests new ones and proposes some other type of statistical initiatives. For such endeavor, the following concepts and topics have been crucial:

- Articulation of national/regional basic statistical data and indicators
- Extension of such articulation to subnational levels
- Hierarchical classification of territorial entities
- Scalability
- Significance (economic importance)
- Geo-referenced data bases
- Tourism population
- Tourism destination
- Regional tourism
- Systems approach

All these terms are defined in the UNWTO/INRouTe Basic Glossary and have proved to be fundamental for adapting the IRTS 2008 conceptual framework to a subnational context.

1.4. Regarding the Economic Environmental Accounting project launched by the UN since the beginning of this century, readers should be advised that in addition to the SEEA_CF 2012 international standard, other complementary documents have been disseminated in the last years: that is the case of SEEA 2012 Applications and Extensions, SEEA Experimental Ecosystem Accounting 2014, “Framework
for the Development of Environmental Statistics –FDES 2013-” and “SEEA Experimental Ecosystem Accounting: Technical Guidance”. All along this chapter different paragraphs of such documents are quoted although in some cases only partially.

1.5. Tourism is explicitly mentioned in SEEA Applications and Extensions document as an example of SEEA extensions: such a case “involves a decomposition of existing SEEA accounts using additional information, for instance through linking to specific spatial areas, through further breakdown of the household sector, or through a focus on certain themes where there is an interaction between human activity and the environment, such as tourism…” (EC, OECD, UN & WB (2014) SEEA Applications and Extensions para. 4.2.).

1.6. The link of TSA to the SEEA (both are satellite accounting systems of SNA 2008) can be made by explicitly identifying tourism as a set of industries and of consumers within environmental combined physical and monetary flow accounts of the SEEA_CF (EC, OECD, UN & WB (2014) SEEA Applications and Extensions para. 4.4.). In fact, this approach was outlined in IRTS 2008 para. 8.40.

1.7. The link to the SEEA can then be made by focusing on (i) the residuals generated as a result of tourism consumption (either by the visitors themselves or by the enterprises supplying goods and services to visitors; and (ii) the natural inputs used in the production of tourism products. Important connections may also be possible by linking measures of tourism activity to measures of ecosystem condition and extent. For example, activity to improve the attractiveness of an area to tourists may lead to improvements in ecosystem condition. Alternatively, increasing tourism activity may increase environmental pressures and reduce ecosystem condition. Measures of ecosystem condition and extent are not well developed. Initial efforts in this area are summarized in SEEA Experimental Ecosystem Accounting. (EC, OECD, UN & WB (2014) SEEA Applications and Extensions para. 4.51.)

1.8. This new impetus arising from the international effort of setting up the System of Environmental Economic Accounting Central Framework (SEEA_CF 2012) and supplementary initiatives as previously mentioned urges UNWTO to update IRTS 2008 sub–chapter 8/D “Tourism and sustainability”. There are at least three reasons for such an initiative:

- TSA and SEEA extended approach might allow for the provision of new macroeconomic indicators besides those derived from TSA exercises; both type of indicators apply to a national context and would enrich Sustainable Development Goals (SDGs) indicators framework. In this case we would be moving from statistics international standards to an extended experimental accounting approach focusing on tourism and environmental sustainability. Some of such indicators might be applied at “finer levels of geographical detail” (SEEA_CF 2012 section 6.3.3/Data by geographical area); by so doing it would be feasible to derive modeled data useful for measurement and analytical purposes at subnational levels.

- Such an effort will require also a methodological background which presumably will enrich tourism statistic standards 2008 conceptual...
design; if that would be the case, INRouTe would be benefited by that and will also need to update the approach suggested in this document.

- Linking tourism measurement of ecosystem provision of services for “tourism and recreational purposes” would allow for new indicators focusing on the environmental pressures due to the development of tourism at different subnational territorial levels. Subnational basic statistical data as well as the list of those indicators proposed in this document (see Chapter 2/B.2) could be used if properly georeferenced, for identifying tourism in ecosystem accounting related data. By so doing, the SEEA Experimental Ecosystem Accounting framework would benefit of UNWTO/INRouTe support for subnational tourism measurement in line with the recommendations provided in this document; some of them are imbedded in the following paragraphs and will be further developed in the following sections of this chapter.

1.9. Linking tourism (operationally defined in the tourism statistics international standards) and sustainable development (a policy oriented concept without any universally accepted operational definition for its measurement) is a complex and challenging task; in fact the work carried out by INRouTe (a statistical initiative limited to a selective number of research areas) provide some background that could be helpful in clarifying the difference between tourism as an economic sector that impact the socio-economic components of sustainability and the environmental impact due to tourism infrastructure and the activity of visitors.

1.10. INRouTe’s first effort has been about the measurement of tourism as a sector of economic activity at subnational levels; consequently, there is a need to set up a classification of territorial entities to be adapted by each country according to the significance of tourism in different parts of the national territory.

This perspective of tourism, not only as a phenomenon of demand, but necessarily implying that a given territory may or may not qualify as a destination if there is in it a tourist sector itself, it is basic for public authorities regarding tourism development planning at subnational levels. On the one hand, because the very sustainability of the tourism sector is something particularly relevant in the consolidated tourism destinations (given the relentless growth of tourist flows) and, on the other hand, because tourist development in a given territory often negatively affect their own environmental sustainability.

1.11. In any case, all these UN statistical international standards and complementary documents on environmental accounting insist once and again on the need for developing integrated information systems; consequently, terms as “integrated data”, “multi-dimensional”, ”cross-cutting issues”, etc. appear systematically all along this chapter.

1.12. Such insistence is very familiar to the INRouTe project since its foundation; adapting the UN 2008 international standards for the measurement and analysis of tourism at national level to sub-national levels, has proved to be not just a mere question of semantics (changing the term —nation‖ to —region‖ or —tourism destination, for example). It is a challenging issue that requires interdisciplinary research in order to overcome what Professor Jafar Jafari6

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formulated as tourism's detrimental tendency to isolate itself, as is the case for instance, in relation to sustainability: —In the name of sustainability, we now have many models of ‘sustainable tourism development’. These boosterism molds often suggest that this [sector] in and by itself can become sustainable. However, tourism cannot be isolated from the larger contexts which structure and explain it, as many do.

A.2. TOURISM AND THE ENVIRONMENTAL DIMENSION: GENERAL BACKGROUND

2.1. Environmental indicators are used to synthesize, simplify and communicate information. Given that environment statistics are usually too numerous and detailed to satisfy the needs of policy makers and the general public, they often require further processing and interpretation, resulting in environmental indicators. Environmental indicators have the purpose of defining objectives, assessing present and future direction with respect to goals and values, evaluating specific programmes, demonstrating progress, measuring changes in a specific condition or situation over time, determining impact of programmes and conveying messages. UN policy frameworks such as the Millennium Development Goals (MDGs) or the new post-2015 Sustainable Development Goals (SDGs) indicator frameworks are typically used for the identification and structuring of indicators. (SEEA Experimental Ecosystem Accounting, 1.33)

2.2. Accounting frameworks, such as the SEEA, reorganize the relevant environment statistics according to stocks and flows within and between the environment and the economy based on national accounting principles, thus linking environment statistics with the System of National Accounts (SNA) and facilitating the analysis of relationships between the economy and the environment. (SEEA Experimental Ecosystem Accounting, 1.36)

2.3. The relationships between different types of information in the context of the SEEA are shown in Figure 1. The figure highlights that basic statistics and data are organized using accounting frameworks and that indicators can be sourced from accounts. While it is the case that indicators can be sourced directly from basic statistics, the filter of an accounting framework lends significantly to the coherence of the indicators (SEEA Applications and Extensions 2.9).
2.4. There are two issues of great relevance regarding tourism and the environmental dimension that should be highlighted in this overview section:
- Spatial analysis
- Combining physical and monetary data

**Spatial analysis**

2.5. One of the most challenging issues regarding the use of national data of the SEEA accounting framework is the ventilation of data on the different territorial entities related with such information: the term “spatial analysis” is used in the SEEA documents to refer to such issue.

2.6. The occurrence and impacts of environmental phenomena are distributed through space without regard for political-administrative boundaries. The most meaningful spatial units for environment statistics are natural units, such as ecosystems, landscape or land cover units; or management and planning units based on the natural units, such as protected areas, coastal areas or river basin districts.

2.7. Economic and social statistics are traditionally aggregated according to administrative units. This difference can complicate the collection and analysis of environment statistics. There is however a trend towards producing more georeferenced data, which would overcome some of the spatial complications of analysis.

Environmental indicators have some characteristics being the geospatial information one of great relevance for the INRouTe project as mentioned in different parts of this document (see particularly chapter 8/A Analytical territorial units for subregional measurement and analysis). The following paragraphs highlight different topics to better understand why the setting up of geocoded data bases is crucial for measuring and analyzing subnational tourism activity; they also allow to understand how the measurement of tourism at subnational levels can provide useful inputs for a better design of national policy initiatives.

2.8. Geographically referenced information that includes digital maps, satellite and aerial imagery, and other sources of data that are linked to a location or a map...
feature, all structured in databases, will also add significantly to the quantity and quality of information that is organized within the context of environment statistics. GIS can be viewed as an integrating technology that helps to capture, manage, analyze, distribute and use a wide range of data with a spatial or locational component (SEEA Experimental Ecosystem Accounting, 1.38).

2.9. Geospatial information presents the location and characteristics of different attributes of the atmosphere, surface and sub-surface. It is used to describe, display and analyze data that have discernible spatial aspects, such as land use, water resources and natural disasters. Geospatial information allows for the visual display of different statistics in a map-based layout, which can make it easier for users to work with and understand the data. The ability to overlay multiple data sets using software, for instance on population, environmental quality, and environmental health, allows for a deeper analysis of the relationship among these phenomena.

2.10. The complexity of current environmental issues (e.g., climate change, biodiversity loss, health, natural disaster frequency and intensity, population growth, food and water shortages, etc.) increasingly calls for the integration of geospatial information, statistics and sectorial data for more effective and efficient monitoring of progress in the environmental pillar of sustainable development. Geographic Information Systems (GIS) can help establish the links between different types and layers of data by providing powerful tools for storage and analysis of spatial data and by integrating databases from different sectors in the same format and structure.

2.11. Geospatial information adds significant value and utility to environment statistics. Ideally, geographic aspects of data should always be collected, represented and analyzed at the most detailed scale possible, dependent on national capacities and priorities. Geospatial information enables better analysis of environmental issues as environmental, social and economic statistics can be aggregated or disaggregated according to a wide range of scales and zones meeting diverse analytical and policy demands, such as: natural units (e.g., watersheds, ecosystems, etc.); administrative units (e.g., municipalities, districts, counties, regions, etc.); management units (e.g., protected areas, river basin districts, etc.); planning units (e.g., coastal zones, urban areas, etc.); legal property units (e.g., cadastral units, etc.); and analytical units (e.g., land cover units, socio-ecological landscape units, eco-complexes, geo-systems, eco-zones, etc.).

2.12. The concept of “scalability” refers to the integration of information across different spatial scales with the aim of developing information sets for particular type of analysis at a level suitable for public policy purposes. Indicators, aggregates and totals may serve many purposes depending on the scale at which they are applied, on the audience to be reached, and on the quality of the underlying data. Indicators are useful tools for tracking progress with respect to different topics relevant at subnational levels, and for raising the profile of these issues in the public debate about regional tourism. This reflection upon spatial analysis is pertinent as “scalability” and “significance” are two key concepts used to adapt IRTS 2008 conceptual framework to subnational levels (please see UNWTO/INRouTe Basic Glossary).
2.13. Learning from and studying the subnational level significantly contributes to comprehend the complexity of domestic tourism at a national scale (thus, there would be feedback subnational/national). Similarly, the analysis of the links between tourism and sub-regional territorial entities (both administrative or analytical units) can be of an enormous use for subnational levels (thus for the national level).

This would be the case of using georeferenced databases within the tourism domain (both by public and private key stakeholders) as explained in 8/A Adapting the R-TIS to Subregional Extensions 8.

Combining physical and monetary data
2.14. This issue is well known in the case of tourism: not only tourism statistics development has been mainly about physical data and indicators but also the TSA:RMF2008 recommends to identify a selected number of physical type of data for the purpose of allowing for consistency analysis between both type of data in particular topics (TSA table 10 refers to such a set of data).

2.15. In environment accounting the measurement of physical flows refers to three types: the flows from the environment to the economy, flows within the economy and flows from the economy to the environment (SEEA_CF 2.14).

2.16. Physical flows are recorded in physical supply and use tables. These tables are extensions of the monetary supply and use tables used for the recording of flows of products in monetary terms in the SNA.

2.17. The presentation of information in a consistent format, which combines integrated physical and monetary data, is one of the strongest features of the SEEA Central Framework. This feature enables the provision of a wide range of information on specific themes (e.g., water, energy and air emissions), the comparison of related information across different themes, and the derivation of indicators that use both physical and monetary data.

2.18. Given the integrated accounting structures of physical and monetary accounts, it is logical to use these structures and the common underlying accounting rules and principles to present physical and monetary information at the same time. Such integrated formats have sometimes been referred to as “hybrid” presentations or accounts because they contain data in different measurement units. However, although the measurement units are different, the data sets are presented in accordance with common classifications and definitions; hence, these formats are referred to as combined physical and monetary presentations.

2.19. Combining physical and monetary data is governed at its core by the logic of recording physical flows in a manner compatible with economic transactions as presented in the System of National Account framework. This linkage ensures a consistent comparison of environmental burdens with economic benefits, or environmental benefits with economic costs. It can be examined not only at the national level but also at disaggregated levels, for example, in relation to regions of the economy, or specific industries, or for the purpose of examining the flows associated with the extraction of a particular natural resource or the emissions of a particular material.

2.20. In combined presentations, it is legitimate to include only a limited set of variables, depending on the most urgent environmental concerns to be taken into consideration, and it is not necessary to construct an exhaustive physical supply
and use table in order to be able to present combinations of physical and monetary data.

2.21. A combined physical and monetary presentation thus represents an analytical framework for showing which parts of the economy are most relevant to specific indicators and how changes in the economic structure influence the evolution of indicators over time.

2.22. It might be of interest to finalize these references to combining physical and monetary data both in TSA and SEEA_CF, reproducing those paragraphs mentioned in TSA:RMF 2008 in regard of TSA 2008 Table 10 Non-monetary indicators please see below:
Table 3: Non-Monetary Indicators. Source: Table 10 TSA 2008 UNWTO
As expressed on UNWTO (2008) TSA 2008 para 4.76 and para 4.77.: Table 10

Non-monetary indicators

4.76. Table 10 presents a few quantitative indicators that are related to the previous tables and are important for the interpretation of the monetary information presented. The indicators include number of trips by forms of tourism, classes of visitors and duration of the stay; physical indicators regarding types of accommodation; modes of transport used by non-resident visitors traveling to the economic territory of the country of reference; and number and size of the establishments belonging to tourism industries.

4.77. The SNA 1993 states explicitly that physical indicators are an important component of satellite accounts and therefore they should not be viewed as secondary items of the TSA (SNA 1993, paras. 21.5 and 21.113). However, further work will be required to improve the link between the provisional list of non-monetary indicators and the monetary tables. The data contained in this table will assist in the use non-monetary indicators as a key element in tourism analysis.

A.3. TOURISM IN THE CONCEPTUAL FRAMEWORK OF SEEA

Although referred to a national context, the following paragraphs identify potential contributions by UNWTO that should be complemented with others as explained in the following sub-section 3.A.2 “Environment statistics background and the INRouTe agenda”

3.1. The SEEA Central Framework 2012 contains a range of classifications and lists to support the understanding of the key concepts and the compilation of relevant statistics; they are intended to provide a starting point for the compilation of relevant statistics. However, this material is not at the same level of sophistication in each case and certain classifications are labeled “interim”.

A1.4 The classifications and lists covered are: (a) Classification of environmental activities: (i) Environmental protection; (ii) Resource management (interim); (b) Classification of land use (interim); (c) Land cover classification (interim); (d) List of solid waste.

Looking for tourism in such classifications, Classification of Land Use includes the category 1.4 Use of built-up and related areas defined as “land affected or adapted by man, under buildings, roads, mines and quarries and any other facilities, including their auxiliary spaces, deliberately installed for the pursuit of human activities. Included also are certain types of open land (non built-up land), which are closely related to these activities, such as waste tips, derelict land in built-up areas, junkyards, city parks and gardens. Land under closed villages or similar rural localities are included” (UNSD et al. 2014: SEEA_CF 2012). Tourism can be found in two groups of category 1.4 (UNSD et al. 2014: SEEA_CF 2012).

1.4.6 Commercial, financial and public services

Land mainly used for commerce, trade and related services, public administrations and judicial services, public order and safety services, social security and social work services, and professional and trade associations, including private roads and other auxiliary spaces located in the areas concerned. This category includes wholesale and retail trade; hotel and catering services; banks and insurance; personal services; installations for national defense; education and research/development; and land occupied by religious buildings (UNSD et al. 2014: SEEA_CF 2012).

1.4.7 Recreational facilities
Land developed for and occupied by leisure or recreational purposes, including cultural sites: archaeological sites; historic sites, classified monuments, ruins and stately homes; museums, libraries and media centres; concert halls and theatres; cemeteries, and associated areas (water, wooded areas, lawns and gardens); sport facilities: public beaches and swimming pools, gymnasiums and sports halls; stadiums and games fields; assembly and dancing halls; golf courses; riding tracks; car racing circuits; green or leisure areas: urban parks, public gardens, zoological and botanical gardens and hobby gardens; major burial grounds used as walking places with considerable vegetation; **facilities for tourism:** camping and caravanning sites; amusement parks, circuses, youth hostels and country centres; marinas; **secondary residences or vacation houses**; and casinos. Excludes areas that can be used for recreation if this is not the main utilization. (UNSD et al. 2014: SEEA_CF 2012).

3.2. **SEEA Central Framework 2012** (UNSD, EC, Food & Agriculture Organization of UN, IMF, OECD & WB., 2014) Explicitly states that the proposed classification is subject to be revised, especially when the intention is to identify more rigorously and precisely land use for tourism related purposes. It should be then possible and feasible to generate statistics far more useful for tourism key stakeholders. That is one of the objectives of the proposed classification.

The following paragraphs try to identify concrete contributions that if considered appropriate, might require a more detailed focus or presentation.

3.3. In the first place, group 1.4.7. **Recreational facilities** SEEA Central Framework 2012 (UNSD, EC, Food & Agriculture Organization of UN, IMF, OECD & WB., 2014) should be better structured because the use of such facilities affect both resident and non-resident population; it would be desirable to define the terms “recreation” and “leisure” versus tourism (because tourism is already defined in an international statistical standard).

More precisely, such clarification process should use the International Recommendations for Tourism Statistics 2008 as a starting point, where not only the term “tourism” has been defined, but also a list of purposes of the tourism trip is proposed which allows defining a classification on the main purposes of the trip. In fact, the list of related activities to the different main purposes of a tourism trip implicitly includes a clarification among the three mentioned terms. Precisely, the group of main activities undertaken during a tourism trip for the main purpose of **Holidays, leisure and recreation** includes for example, sightseeing, visiting natural or man-made sites, attending sporting or cultural events, practicing a sport (skiing, riding, golfing, playing tennis, diving, surfing, hiking, trekking, mountain climbing, etc.) as a non-professional activity; using beaches, swimming pools and any recreation and entertainment facilities, cruising, gambling, attending summer camps for youngsters, resting, honeymooning, fine dining, visiting establishments specialized in well-being (for example, wellness hotels), fitness except in the context of a medical treatment (in which case the purpose would be 1.4 health and medical care), staying in a vacation home owned or leased by the household, etc. (IRTS 2008).

3.4. Also the group 1.4.6. **Commercial, financial and public services**, includes land use for the provision of “hotel and catering services”. Consequently it would seem appropriate that the tourism connection to the classification of land use should take into account the following:

- Activities mainly performed by visitors for personal purposes: this means obviating possible uses associated to “business and professional purposes”
as well as other personal purposes different “holidays, leisure and recreation” which embodies displacements to vacation homes.

- Those buildings, infrastructures and collective equipment which are built due to the significance of tourism

UNWTO could certainly contribute to the revision of the present “interim” classification.

3.5. On a very different context, SEEA CF 2012 states that data from the accounts can be extended and integrated with other information with the objective of deriving “expanded SEEA indicators”. Such an approach involves a breakdown of existing SEEA accounts using additional information, for instance by linking to specific spatial areas, by further breakdown of the household sector, or by a focus on certain themes where there is an interaction between human activity and the environment, such as tourism or health.

The SEEA Applications and Extensions document includes explicitly a “tourism extension” exercise (see Annex 1).

3.6. Interestingly enough, such an extension to the household sector allows for a more powerful type of analysis in areas of particular interest to UNWTO such as poverty alleviation. As stated in paragraphs 4.19 and 4.20 of such document, “integrated data, including social, economic and environmental accounts based on agreed classifications and methods, are important in efforts to help countries design effective sustainable development and other cross-cutting policies. Comparable data over time and across countries are needed to track performance across a range of sustainable development related goals and objectives” (including, for example the post-2015 agenda and Sustainable Development Goals) (SEEA Applications and Extensions, 4.19)

3.7. “It is important that these common sets of data are used to inform policymaking and implementation as part of integrated planning at all levels. Such data is also integral to the systems used to define, track and achieve future national and international development objectives. Extensions into these areas are encouraged by the Rio+20 Conference Outcome Document, and are supported by several development programmes linking the collection and analysis of data to integrated policymaking” (SEEA Applications and Extensions, para. 4.20.)

A.4.TOURISM AND OTHER DIMENSIONS OF SUSTAINABLE DEVELOPMENT: A STATISTICAL INSIGHT

3.8. INRouTe has developed its work during the period 2011/2015 around a limited set of research areas being two of them (“Tourism as an economic sector” and “Tourism and sustainable development”) the most relevant ones. Both of them are mutually linked, but given that “sustainable development” is a policy-oriented concept, there is no universally accepted operational definition for its measurement.

3.9. The approach followed by INRouTe and presented in this document is rooted in a statistical approach due to the fact that INRouTe and UNWTO have signed a cooperation agreement through which INRouTe provides a technical support to UNWTO on the measurement and analysis of tourism from the subnational perspective; It should be highlighted that only statistical data might support robust type of comparability. Supplementary to national comparability of tourism
statistics, also intra-national as well as international comparability of tourism at some subnational levels requires such approach.

3.10. The focus of the work done so far and presented in this document is consistent with the recommendations referred in the Framework for the Development of Environment Statistics (FDES) 2013. As already explained, this new international statistical standard updates the FDES 1984 and in such revision it was taken into account “the increasing prominence of environmental sustainability and sustainable development issues and concepts. Existing environment statistics and indicator frameworks were analyzed, including major developments in the field of environmental-economic accounting and selected thematic developments pertinent to environment statistics” (UNSD, 2015: FDES 2013, para. 1.7).

3.11. These clear policy positions on sustainable development, taken after the publication of the FDES in 1984, have had direct relevance to the area of environment statistics. It is vitally important to take them into consideration in this revision as the concept of sustainable development has played a defining role in helping to coalesce thinking, around goals that are well-defined and representative, regarding the state of the environment.

“This concept of sustainable development has underscored the point that it is important to conserve the environment while ensuring the economic and social well-being of the world’s human population. Adequate response to these initiatives has contributed significantly to defining the statistical needs in this area. Any conceptual approaches that ensue for describing the environment must respond to them, making possible a better understanding of the sustainability of the environment as well as serving the function of assessment and decision support”. (As part of Annex B/B.8 FDES 2013)

3.12. The operationalization of the concept of sustainable development to subnational levels presented in this document implies that there are three sets of basic statistical data and indicators to be considered:
- Tourism as an economic sector
- Tourism and environmental sustainability
- Tourism economic contribution and impacts on the social and cultural dimension of the resident population

3.13. The following list of indicators are proposed, each with different periodicity (Monthly / Quarterly / Annual), to be implemented in those regions where tourism is significant for the region itself as well as for a selected number of cities and tourism destinations:

**A. Tourism as an economic sector:**

**A.1 Demand**
For each of the following set of tourists (residents from other countries, residents from another part of the country of reference, residents in the region of reference):
- number of tourists (Q)
- number of tourists classified by key characteristics of the trip (Q)
- numbers of overnights (international tourists should further be classified by main countries of residence) (M)
- daily average expenditure by tourists (A)
- average length of stay of tourists (Q)

**A.2 Supply:**
A.2.1 Tourism industries - number of enterprises/establishments (classified according to size, i.e. numbers of employees) for - Accommodation - as well as for - Other tourism industries (A)
A.2.2 Employment
- number of jobs for - Accommodation - as well as for - Other tourism industries (M)
- corresponding average wages and salary income (A)

B. Tourism and sustainable development:
B.1. Tourism and environmental sustainability
B.1.1 Urban drinking water consumption due to tourism – m³ (A)
B.1.2 Tourist pressure – visitor load
- ratio of tourism population to total population (Q)

B.2. Tourism and its impact on the social and cultural dimensions of the resident population:
B.2.1 Job creation
- rate of change in the ratio of tourism related jobs to total jobs (A)

B.3. Tourism economic contribution and impact:
B.3.1 Economic performance
- rate of change in the number of tourists (M)
B.3.2 Business demography
- birth rate of enterprises/establishments (A)
- rate of change in overall income (A)

3.14. It should be highlighted that FDES 2013 warns that “environmental indicators have the purpose of defining objectives, assessing present and future direction with respect to goals and values, evaluating specific programmes, demonstrating progress, measuring changes in a specific condition or situation over time, determining impact of programmes and conveying messages”. This recommendation makes a clear difference between B.1 Tourism and environmental sustainability related indicators and those related with the other two components of sustainable development (B.2 and B.3).

3.15. Finally, although non a statistical document, UNWTO Guide for Local Authorities on Developing Sustainable Tourism (1998) drew attention over sections 6 and 7 on a similar approach as the one presented in the precedent paragraphs.

Section 6 “Maintaining the sustainability of Tourism” states that “with good planning, development and management of tourism, negative impacts of tourism can be minimized, but tourism development must be continuously monitored, and actions taken if problems arise in order to ensure that tourism remains sustainable”. Attention is provided on the following basic topics:
- Managing environmental impacts: describes positive and negative potential impacts (the list of these last ones is significantly larger and detailed)
- Managing socio-economic impacts: refers to tourism as an economic sector and the list of positive impacts is significantly larger and detailed that negative type of such impacts
- Use of environmental indicators: refers to UNWTO indicators initiative that finally become the “Indicators of Sustainable Tourism for Tourism Destinations: A Guidebook” which includes environmental as well as other type of indicators
- Maintaining the tourism product and tourism markets: the attention is focused on “upholding the sustainability of tourism also requires preserving the quality and sometimes enhancing the tourism product of tourist attractions, facilities, services and related infrastructure”

Section 7 “Managing the tourism sector” states that “Effective management of the tourism sector by local authorities, in co-operation with the private sector and NGOs, is essential. Tourism management has several functions including policy and planning, co-ordination with other government agencies, establishing and administering standard for tourist facilities and series, marketing, education and training, maintaining the vitality of the tourism sector, monitoring and responding to crisis situations when they arise”

One of the main topics identified in such section is the setting up of a “Tourism management Information System […] according to the statistical standards recommended by UNWTO”; also “Maintaining the vitality of the Tourism Sector” is highlighted as another relevant topic. Consequently, the present document builds not just on statistical international standards (tourism and environment statistics) but also on previous UNWTO non-statistical recommended guidance documents.

B. TOURISM AND THE ENVIRONMENTAL DIMENSION: THE SUB-REGIONAL PERSPECTIVE

B.1. STATISTICAL INSIGHT

8.1. This chapter provides recommended guidelines in order to set up a particular type of statistical initiative such as the extended Regional Tourism Information System to sub-regional levels. As mentioned, the design of an operative articulation of a national / regional tourism statistics’ dataset is a key objective and should be seen as a first priority regarding the more comprehensive objective of developing a R-TIS in those countries with a developed statistical system were some regions have a very significant dependence on tourism.

8.2. The database hosting such dataset should be geo-referenced and might be by its own a medium term project being its objective to allow for tourism related initiatives on specific topics such as:

- Analyze relationships between tourism and the territory
- Provide relevant information for territorial and tourism planning
- Support investment projects
- Set up of an improved management and monitoring background by public authorities responsible for tourism development
- Provide insight for marketing design strategies
- Foster economic analysis of regional tourism adapting the TSA framework
- Allow for a multidisciplinary approach regarding tourism environmental sustainability agenda
- Consolidate a Regional inter-institutional network for the setting up of a Regional Tourism Information System: such network should be integrated by key tourism stakeholders (both at the regional and subregional levels) and supported technically by a multidisciplinary group of experts in statistics, geography, economics and tourism as well as other practitioners and researchers. Such a group might request the cooperation of any type of national or subnational institution
- Such a network should be understood as the support for a proper governance structure decided by those stakeholders in order to guarantee the sustainability of such medium-long term initiative.
- Contribute to develop ecosystem accounting initiatives
- Etc.

8.3. The recommended conceptual design of the R-TIS uses the following six sources (all of them national sources) to provide most of those basic statistical data and indicators that would be the core of R-TIS:

- Border survey
- Domestic tourism household survey
- Accommodation survey
- Statistical business register
- Structural business survey
- Population census

8.4. A Regional Tourism Information System should also include a third dataset and indicators not necessarily of official and/or statistical nature (such as electricity consumption by households, credit card expenditure records, transport authorities control, business cycle indicators, early warning indicators, etc.), considered to be relevant not only for the measurement/monitoring of tourism (carried out by the regional tourism authority or other regional entities, other entities of supra-regional scope or even by national bodies), but also for analytical purposes (such as analysis of the performance of certain subsectors and foresee their evolution, the perceptions of the demand of a certain destination, etc.). Such dataset should also include information on sub-regional levels because some of these statistical surveys allow for such breakdown including the municipal level; in a later stage the regional/sub-regional dataset should be completed with available regional official statistical surveys.

8.5. In fact, it is recommended that for sub-regional territorial entities, the main issues to focus on could be, in a first instance:

- Define a minimum set of statistical information both from the demand and supply side (principally concerning accommodation services for visitors, numbers of establishments and the corresponding associated employment) completed by a broader set of administrative information (generated basically by the municipality or tourism destination) that could identify some characteristics of tourism activity considered to be of special interest for most if not all key stakeholders (such as vacation homes, same-day visitors, impact of special events, identifying visitors behavior at destination, etc.)
- Check if such territorial entities have or not the necessary resources to filter such data with the appropriate statistical insight (see chapter 4) and to properly use such administrative records for analysis and the design of policies.
- It is recommended to consider the opportunity to launch demand side surveys in order to supplement national/regional data regarding the following key variables: main characteristics of visitors and trips, average daily expenditure by visitors and satisfaction during their stay. Such surveys
would allow for geo-referencing such demand data using as a proxy the name of the accommodation establishment/s used by visitors.

8.6. Such approach should follow the recommended guidelines to create a regional inter-institutional network for the setting up of a Regional Tourism Information System (R-TIS): such network should be integrated by key tourism stakeholders (both at the regional and subregional levels) and supported technically by a multidisciplinary group of experts in statistics, geography, economics and tourism as well as other practitioners and researchers. The proposed group might request the cooperation of any type of national or subnational institution not just for launching such initiative but also to allow for potential cooperation efforts in order to progressively complete the R-TIS data set (for instance, by complementing accommodation for visitors establishments lists, available attractions, infrastructure and collective equipment related to tourism), extend such dataset to those territorial entities where tourism is particularly significant and provide technical assistance to those sub-regional entities in order to include or use sub-regional geo-reference data so that all data would have the same formal structure.

8.7. It is recommended that the set up of a R-TIS should focus, as a first step, on no more than 15 information items; because part of such data are also available for some territorial entities at the subregional level, the proper articulation of region/subregions should be developed and consequently, all or part of the proposed 15 indicators could also be associated to them. Such objective will require to identify the physical space of such entities and define such units according to a Classification of Territorial Entities (see UNWTO & INRouTe Subnational Tourism Basic Glossary, 2015).

8.8. INRouTe will suggest UNWTO to start asking by 2018 subnational data and indicators (no more than 15) to be provided by a number of National Tourism Authorities that would volunteer to participate in such initiative, to select one or more regions and for each of them, main tourism destinations and cities for which tourism is significant. Such proposal (the articulation of a common set of basic data and indicators for the nation/region-s/tourism destination-s/city-ies) has the potential of enlarging economic analysis as well as foster international and intra-national comparability.

It should also be noted that such articulation of information implies a first step in the integration of general economic, tourism and environmental information considered useful for main tourism stakeholders at regional and subregional levels.

B.2. ADAPTING THE REGIONAL-TOURISM INFORMATION SYSTEM (R-TIS) TO SUBREGIONAL EXTENSIONS

This document provides recommended guidelines in order to set up a particular type of statistical initiative: the Regional Tourism Information System (R-TIS).

8.9. To properly understand the nature of the recommended R-TIS system and its extension to include a sub-regional dataset, the following remarks have been highlighted all along this document in order to provide proactive arguments to support such medium-long term initiative:

- This initiative has been conceived and developed as the adaptation of 2008 international standards for tourism statistics (the International Recommendations for Tourism Statistics –IRTS 2008- and the Tourism
Satellite Account: Recommended Conceptual Framework –TSA 2008-) to subnational levels

- It is recommended that the basic core of such system refer to basic statistical data and indicators; most of them should be derived from official statistical surveys at the national level (six main sources have been identified) and eventually, also from the regional level.

- Such national sources are available in practically all EU member countries as well as in non-European countries pertaining to the G.20 international community (all of them statistically developed countries).

- The conceptual design of the R-TIS follow a system approach: a set of concepts, operational definitions, accounting rules and principles of recording and classifications consistent with those of the System of National Accounts.

- This initiative requires also a particular type of governance structure: a regional inter-institutional network integrated by key tourism stakeholders (both at the regional and sub-regional levels) and supported technically by a multidisciplinary group of experts in statistics, geography, economics and tourism as well as other practitioners and researchers. Such a group might request the cooperation of any type of national or subnational institutions.

- The database of such a system is recommended to be geo-referenced and include an articulated set of basic data at the national/regional/sub-regional/city level as well as a limited number of no more than 15 statistical indicators.

- The initiative of setting up a R-TIS is recommended as a necessary prerequisite for comparing nationally and internationally main tourism destinations and cities where tourism is significant, as well as to rigorously measure territorial, environmental and other economic and social impacts of tourism activity.

- Etc.

Other countries with a lower level of statistical development might find inspiring this document and might also request UNWTO for technical assistance in order to set up a planning work schedule for those regions were tourism is particularly significant, to be in line with the recommended guidelines.

**Basic and supplementary information**

8.10. At the sub-regional level (and particularly at the city level), it should be highlighted that even for those territorial entities where tourism is significant, it may not always be appropriate to adapt the conceptual design of the R-TIS due to organizational and financial arguments that such initiative would require. In other words, it seems more feasible and appropriate that the Regional Tourism Information System should also include sub-regional basic statistical data and indicators from national and regional statistical survey if available.

8.11. Nevertheless, it might be the case that sub-regional tourism requires for policy design as well as for management purposes, supplementary information obtained from ad hoc statistical surveys or other type of information (non official and/or non statistical) derived from administrative records. In this case, the following paragraphs included in the DCMS Allnutt report (2004) are still pertinent:
“Those requiring local statistics need – and should pay for – supplementary local surveys that should follow nationally set standards. Usual residence based sampling frames are not appropriate for surveys measuring tourism in a locality. If adequate lists of accommodation providers are developed they could provide a sampling frame for local surveys to supplement national domestic tourism and inbound tourism surveys with the sample formed by those staying in sampled accommodation on sampled nights. Such surveys would not cover the visitor nights spent in friends and relatives’ homes. To cover these, one would need to include relevant questions in household surveys conducted in the locality – or if there were no such surveys purposefully conduct a household survey. Pilots would be needed to investigate whether adequate data could be collected from the host or contact would be needed to be made through the host with the visitors” (DCMS Allnutt report, 2004, para. 6.3.1 to 6.3.5.)

8.12. Therefore, irrespective of what type of subregional territorial entity, it is recommended to develop a feasibility study to properly evaluate whatever possibilities of improving and expanding basic statistics and indicators would be more appropriate.

8.13. Demand side measurement cannot rely exclusively on national surveys ventilation. In fact, it is recommended that in order to supplement sub-regional basic data and indicators (both statistical or not) already available, tourism destination and municipal authorities might consider appropriate to carry on different type of surveys; ideally, such surveys should address the measurement of different topics not usually identified in official statistical demand side surveys such as tourism behavior, activities carried on while at destinations, itineraries undertaken, etc.

8.14. Nevertheless, the nature of such potential supplementary data is not just demand side data but also supply side one. Due to the nature of data obtained from statistical surveys, the territorial entities for which such data might be available are administrative entities and have, almost in all countries, the municipality as their lower level of ventilation.

8.15. Because tourism is a transient situation by which resident and non-resident population might become “temporary residents” in those locations where they stay when travelling away from their usual residence, such municipalities might suffer of seasonal overcrowding with the consequence that basic collective equipment and infrastructure for hosting such enlarged population requires adequate investments. In such situations, which is the case of a good number of consolidated tourism destinations, there is progressive evidence and consensus that more detailed territorial units might prove to be useful for measuring tourism behavior at destination, setting up different typologies of visitors and analyzing the economic and social territorial impacts.

8.16. Such units (small areas or small territorial units) would qualify as analytical units and could be labeled as small tourism destination area (STDA); next subsection Analytical territorial units for sub-regional measurement and analysis of tourism will focus particularly on consolidated tourism destinations using a case study supported by the regional statistical department of Spain’s Canary Island Region.
Analytical territorial units for subregional measurement and analysis

8.17. INRouTe’s proposed hierarchical classification of territorial entities include administrative and analytical units (see UNWTO & INRouTe (2015) Basic Glossary); because tourism destination is part of such classification as well as a basic unit for tourism measurement and analysis at subnational levels, the following paragraphs will focus on such units particularly in the case of consolidated tourism destinations linked to statistically developed countries (see Basic Glossary/ Territorial entities).

8.18. More specifically, these paragraphs refer to a new area of statistical development called “neighbourhood statistics” based on analytical units instead of administrative units; such approach has a great potential for tourism destination breakdown in order to better understand tourism behavior, economic impact and analysis, as well as to serve for improving management and monitoring in such territorial entities.

8.19. Analytical units usually refer to considerations of size and shape of territorial entities in order to allow for comparability of particular social research; in fact, the rise of “neighbourhood statistics” in England, Wales, Scotland and some areas of Canada (the city of Calgary and the island of Montreal) and USA and its use for “improving the way in which policies can be developed and monitored at the small area level” points to the need for analytical units due to the fact that “it now seems clear that global “off the shelf” measures derived from censuses and other surveys provide truncated information about the context of small territorial areas and therefore offer only limited potential for studying neighbourhoods and health” (Gauvin et al., 2007)

8.20. Besides health (which has been a particular research area requiring small units information for public health purposes), data on neighbourhoods (also referred as small areas or small territorial units) cover a wide range of topics, including population, social conditions, housing, crime, education, etc.; data are all of them georeferenced (Flowedew, Manley and Sabel, 2008).

8.21. Data zone construction requires that data be georeferenced and implies the use of GIS software supplemented with ad hoc programs for aggregation purposes.

8.22. The aim of this new area of statistical work is to define small territorial units with the required homogeneity for any of such particular research areas being zone definition (a fundamental procedure in geographical information science involving comparisons of several spatially distributed variables in addition to consideration of size and shape) the key challenge.

8.23. There are a number of criteria that have to be considered in the construction of a zonal coverage being population size, compactness of shape, homogeneity of the population in terms of social and economic variables, and elements of the physical and social environment that might affect how meaningful the zones would be to local people, etc. the most common ones used in the construction of such zones (Flowedew, Feng and Manley, 2007). All of such small territorial units are not administrative units but analytical ones build on using statistical data and criteria.

8.24. Population and Housing census –a decennial statistical initiative- are the key reference for neighbourhood statistics supplemented with other administrative
type of statistics; in fact, the computerization of administrative and other records over the last few years has resulted in an increasing amount of data being potentially available at the local level.

8.25. Because zonal construction should care about its stability over time, of all the criteria already mentioned, homogeneity of the population deserves special attention regarding such design. Usually homogeneity is defined using a socio-economic definition and is measured using some type of statistical procedure (Townsend, Philimore & Beattie, 1988) based on Census data (household type data as well as other personal data).

8.26. This brief reference to “neighbourhood statistics” wants to highlight the potential for adapting such approach in those regions where tourism is significant in order to allow for improved analysis of tourism and economic as well as territorial impacts at sub-regional levels, particularly (at least in a first stage) in those consolidated tourism destinations.

8.27. As mentioned, INRouTe refers to the project *Tourism micro-destination in the Canary Islands* as a case study for providing guidance on extending the R-TIS to subregional levels; based on it and in order to illustrate the analytical potential of developing small tourism destination areas (STDA) as a new analytical type of territorial entity, the following four topics have been identified from such a project as all of them seem particularly relevant in line with the previous paragraphs:

- Tourism is unevenly distributed in most regional territories
- Defining territorial boundaries for setting up a small tourism destination area (STDA) zone design
- The concept of homogeneity applied to such STDA
- Linking subregional tourism and experimental ecosystem accounting (see also section B.3.)

8.28. Needless to say that there are other topics that might be relevant in such consolidated tourism destination that are not referred in this document such as same-day visitors (irrespective of the complexity of its measurement, this flow of visitors might be relevant as well as their average daily expenditure), the exclusion of disseminated accommodation establishments, the use of private accommodation by tourist, etc.

8.29. Before identifying how such case study provides knowledge on operationalizing each of these four topics, it should be mentioned the relevance of tourism in the overall economic activity in the Canary Islands.

The tourism sector is of the utmost importance for the Canary Islands economy. The results obtained by the 2002 TSA produced by the Canary Islands Statistics Institute (ISTAC) indicate that tourism generates 32% of the Canary Islands GDP and the 30% of jobs. When comparing these figures with the information provided by the UNWTO concerning tourism revenues in 2003, the Canary Islands is located within the first 15 countries, the 11th or the 15th position depending on the methodology applied. Countries such as Greece, Canada or Mexico and regions such as South America obtain revenues similar to the ones by the Canary Islands. According to Eurostat data, within the document *Tourism statistics at regional level*, the Canary Islands was the European region that in
2012 led the number of overnights within tourism accommodation establishments, reaching the 87.5 million nights.

8.30. Regarding the first topic mentioned (tourism is unevenly distributed in most regional territories), the Canary Islands case study is a good example that warns about the implications of accuracy and proper measurement for analytical purposes in those consolidated tourism destinations where tourism activity is highly concentrated geographically:

- Around 12 million tourists every year. First European region (NUTS 2) regarding overnights in hotels
- 1.7% of the territory include 92% of bed places and account for 94% of tourist overnights
- Such concentration of tourism activity refers to 16 municipalities out of 88 (18% of the total)
- Resident population around 2.1 million

This lack of homogeneity in terms of administrative type of territorial entities has also relevant implications in monetary terms as there is clear evidence based on data provided by the Canary Islands Regional Tourism Information System (R-TIS) main indicators such as

- Average expenditure at destination: differences between nationalities
- Tourist of the main countries of origin have their own geographically concentration in such municipalities
- REVPAR differences in these 16 municipalities are relevant
- Etc.

These and other type of relevant differences of those 12 million tourists can be analyzed in terms of main variables measuring tourism activity, such as:

- Accommodation establishments
- Beds
- Overnights
- Visitors
- Occupancy rates
- Average daily rate (ADR)
- REVPAR
- Employment associated to accommodation establishments
- Personal characteristics of tourists
- Characteristics of tourism trips
- Average daily expenditure
- Tourism expenditure profile

8.31. All these basic data and indicators are provided by the Canary Islands R-TIS which has been developed focusing on the articulation of national / regional official statistics (what INRouTe identifies as the basic core of a R-TIS); such a system, as will be referred in the following paragraphs include different type of statistical sources being the frame of accommodation establishments its basic support. Such Directory (named ALOJATUR) is georeferenced and the way it explains that all those variables already mentioned are also georeferenced (see paragraphs 8.37 and beyond)

8.32. The Canary Islands Statistics Institute (ISTAC), adopting 2008 international tourism statistics standards, has developed a research strategy with the aim of
providing more and better tourism information at the sub-national level. However, public administrations and economic agents request information at a higher level of specialization and territorial disaggregation in order to address both tourism promotion activities and tourism excellence plans at the micro level.

8.33. In this sense, the Regional Tourism Information System (R-TIS) of the Canary Islands Government focuses not only on providing subnational macroeconomic tourism data, but also on providing data for the tourism management in all its dimensions, as a necessary input for the Canary Islands to become a Smart Tourism Destination. This term is understood as a given destination that is innovative, consolidated over a forefront technological infrastructure which guarantees the sustainable development of the tourism territory for all, and facilitates the integration of the visitor within the environment and increases the quality of the experience within the destination. Moreover, the Canary Islands R-TIS is aligned with the Smart Specialization Strategy of the Canary Islands 2014-2020 fostered by the Regional Government which stresses the smart leadership of tourism, identifying two general objectives: (1) Improving the competitiveness and productivity of the Canary tourism product; (2) Productive diversification of the tourism based economy.

Components of Canary Islands R-TIS

8.34. Canary Islands R-TIS consist of different statistical operations. These operation combine different data gathering methods: in addition to conventional methods such as surveys, census, and administrative records also new methods such as sensors or other renowned sources embodied in BIG DATA are part of such a system. The following table gathers a classification of the statistical operations according to analysis dimensions and data gathering methods:

<table>
<thead>
<tr>
<th>Statistical operations</th>
<th>Data gathering methods</th>
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<tbody>
<tr>
<td>Tourism demand operations</td>
<td>Surveys / Administrative records</td>
</tr>
<tr>
<td>Tourism supply operations</td>
<td>Census / Administrative records / Sensors</td>
</tr>
<tr>
<td>Tourism employment</td>
<td>Administrative records</td>
</tr>
<tr>
<td>Synthesis operations</td>
<td>Secondary information</td>
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</tbody>
</table>

8.35. R-TIS aims at not only providing regional tourism macroeconomic figures for the seven islands, but mainly at responding different questions that arise when managing tourism destinations in all its dimensions, such as: Where do tourists obtain information and motivates them to visit Canary Islands? Which shopping channels do they use?, Where do they overnight and what influences their choice? What activities do they do within the destination and how do they move therein? How much do visitors and excursionist spend and how is this expenditure distributed? What image do tourists have of the destination and what do they project to others? What is the tourists’ opinion on the destination and how many recommend it? What is the social and environmental pressure level of tourism?
8.36. In order to respond to these questions, the launching of a extensive set of data gathering tools is needed, including:

- statistical information obtained as a disaggregation of the operations officially conducted for the national level
- official statistical operations conducted by regional public entities

The statistical activities, both main and secondary, which today are part of the action plan of the Canary Islands R-TIS are those gathered in the following table:

<table>
<thead>
<tr>
<th>Statistical Operation</th>
<th>Data gathering methodology</th>
<th>Analysis Dimensions</th>
<th>Time and Space Disaggregation</th>
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<tbody>
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<td><strong>DEMAND</strong></td>
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<tr>
<td>Monitoring Survey</td>
<td>Survey</td>
<td>Tourism market</td>
<td>Aperiodic</td>
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<td>Canary Islands</td>
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<td>Position of the</td>
<td>Canary Islands, 20 issuing</td>
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<td>Tourism Brand</td>
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<td>Canary tourism brand</td>
<td>markets</td>
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<td>(TRACKING-Canarias)</td>
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<tr>
<td>Collection of Air</td>
<td>Administrative</td>
<td>Passengers</td>
<td>Months</td>
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<tr>
<td>Transportation</td>
<td>records</td>
<td>Cruise ship</td>
<td>Islands, airports, ports</td>
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<tr>
<td>Statistics</td>
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<td>passengers</td>
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<td>Collection of</td>
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<td>statistics</td>
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<td>Survey of Tourist</td>
<td>Monthly survey</td>
<td>Tourists</td>
<td>Months, years</td>
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<td>Movements in Canary</td>
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<td>(forecasts)</td>
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<td>Borders (FRONTUR-</td>
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<td>Excursionists</td>
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<td>Canarias)</td>
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<td>Cruise ship</td>
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<td>passengers</td>
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<td>Tourism Expenditure</td>
<td>Monthly survey</td>
<td>Tourist expenditure</td>
<td>Months, quarters, years</td>
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<td>Survey</td>
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<td>Profile</td>
<td>Microdestination, tourism</td>
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<td>Satisfaction</td>
<td>towns, islands</td>
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<td>Trip characteristics</td>
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<td><strong>SUPPLY</strong></td>
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<td>Occupation</td>
<td>Days, special</td>
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<td>Tourism Accommodation</td>
<td>Census, every establishment,</td>
<td>(passengers entered,</td>
<td>periods, months, years</td>
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<td>Survey on Hotel</td>
<td>every day</td>
<td>travelers staying,</td>
<td>Microdestination, tourism</td>
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<td>Establishments</td>
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<td>Employment</td>
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<td>Tourism Accommodation</td>
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<td>Survey on Non-</td>
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<td>Hotel Establishments</td>
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<td>Waste</td>
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<td>Renewal range of accommodation</td>
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<td>Infrastructure</td>
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<td>Equipment</td>
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<td>Services</td>
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<th>Hotel Outlook Survey</th>
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<td>Quarters</td>
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<td>Islands</td>
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<th>Statistics Companies Registered to Social Security (tourism companies)</th>
<th>Administrative record, the last day of the quarter</th>
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<td>Companies with employees in tourism characteristic activities</td>
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<td></td>
<td>Towns, Islands</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Directory of Economic Units of the Canary Islands (DUE)</th>
<th>Census prepared by combined methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collective Tourist Accommodation Directory (ALOJATUR)</td>
<td>Companies and establishments in tourism characteristic activities</td>
</tr>
<tr>
<td></td>
<td>Month, yea</td>
</tr>
<tr>
<td></td>
<td>Georeferenced</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMPLOYMENT</th>
<th>Statistics of Social Security Affiliation</th>
<th>Administrative record, the last day of the quarter</th>
<th>Registered employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Quarter</td>
<td></td>
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<td></td>
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<td>Towns, Islands</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Movement Labor Statistics Joined</th>
<th>Administrative record, the last day of the month</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Registered unemployment</td>
</tr>
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<td></td>
<td>Registered contracts</td>
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<td></td>
<td>Month</td>
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<td></td>
<td>Towns, Islands</td>
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<table>
<thead>
<tr>
<th>SYNTHESIS</th>
<th>Synthetic Index of Tourism Activity</th>
<th>Secondary source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicators</td>
<td>Quarter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Islands</td>
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<table>
<thead>
<tr>
<th>Indicator System Tourism Situation</th>
<th>Secondary source</th>
</tr>
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<tr>
<td></td>
<td>Indicators</td>
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<td></td>
<td>Quarter</td>
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<td></td>
<td>Towns, Islands</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Simplified Tourism Account</th>
<th>Secondary source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAB GDP Employment</td>
</tr>
<tr>
<td></td>
<td>Aperiodic</td>
</tr>
<tr>
<td></td>
<td>Canary Islands</td>
</tr>
</tbody>
</table>

**Table 4 SET OF MAIN AND SECONDARY OPERATIONS BY THE CANARY ISLANDS R-TIS. Source ISTAC**
8.37. The second topic (defining territorial boundaries for setting up a small tourism destination area – STDA- zone design) refers to the use of those tourism related productive establishments to be used for defining such territorial boundaries between “small tourism destination areas” and “non-tourism areas”. It is proposed to use as the main criterion “Accommodation for visitors” ISIC Rev.4 class, which includes the following categories:
- 5510 Short term accommodation activities
- 5520 Camping grounds, recreational vehicle parks and trailers parks
- 6810 Real estate activities with own or leased property
- 6820 Real estate activities on a fee or contract basis

8.38. In practically all EU member countries as well as in non-European countries pertaining to the G.20 international community (all of them statistically developed countries), the corresponding establishments provide regular data on accommodation, other provision of services to guests, equipment, any other type of information to National and/or Regional Statistical Offices (either monthly or annual); also data provision of any physical improvement of such establishment (or the construction of new ones) are administratively recorded and might be included in the frame of accommodation units held by such Offices. Also bed capacity associated to such establishment is a stable parameter along the medium term for such consolidated tourism destination and consequently, the STDA zone design also benefit of such spatial type of stability.

8.39. As might seem obvious, economic territorial impact derived from expenditure associated to visitors lodged in a given STDA will be associated to such territorial entity unless itinerary type surveys or IT records could allow for distributing such expenditure all along the different territorial entities visited during the stay (see UNWTO & INRouTe Subnational Tourism Basic Glossary / Tourism trip and tourism visit).

8.40. In addition to the main criterion (type of accommodation establishments for tourists), other complementary ones could be used for zone design if required, depending on the type and location of the tourism destination:
- The existence of different main tourism products in such spatial area
- Proposals received after consultation with tourism key stakeholders at such tourism destination
- Visual inspection of the proposed zone design

8.41. In the case of the Canary Islands, this main criterion was used complemented with the existence or not of some other type of tourism industry establishments. (see Hernández-Martín et al., 2014, p. 8-11)
What is interesting to highlight is that the Directory of accommodation establishments (ALOJATUR) is georeferenced and regularly updated including legal and not fully legalized facilities. More specifically,” in order to improve the directory, the Regional Statistical Office (ISTAC) utilises a very useful source - the Tourism Expenditure Survey. In this monthly survey around 37,000 tourists are asked every year for the name of the collective accommodation establishment (if applicable) in which they have stayed. If the name provided is not already in the directory, then research begins in order to clarify the situation and, eventually, to ensure its inclusion. In June 2012 there were 716 tourism accommodation establishments in Tenerife, including 250 hotels, 199 apartments and 267 rural houses. The average size of each hotel is bigger than that of apartments and, of
course, of rural houses. Therefore, 61% of bed-places correspond to hotels, 38% correspond to apartments and 1.6% to rural houses”. (Hernández-Martín et al., 2014, p. 12)

8.42. It must be highlighted two different issues regarding the central role played by the Directory of accommodation establishments in the setting up of the Canary Islands R-TIS:

-Linking the main demand side surveys to ALOJATUR requires the inclusion of a question in the questionnaires used about the identification of the name of the establishment where the tourist overnighted; by so doing, it is not only possible to update such Directory but also to georeference the answers of such tourists.

Consequently, because being georeferenced, the database including both demand and supply side basic data and indicators allows for expanding the original regional set of data (by articulating national/regional main national statistical sources) with proper regional surveys so as to include in the database sub-regional extensions of official statistical data.

- As visualized in the following graphic, ALOJATUR is the basic core of such a system; the way this Directory is being updated and the fact that it is georeferenced explains the difference with the conventional way such directories are designed and updated.

8.43. What is also relevant in this case study is that the main operations described in the Canary Islands R-TIS includes a spatial set of basic data and indicators duly checked (looking for coherence) and properly linked (seeking for a proper integration of the same or related data provided by different sources). For instance, data obtained from tourists using ships and airplanes are coherent with the number of total arrivals, which are also coherent with data of guests in

![Figure 2 Alojatur. Source: ISTAC](image)
accommodation establishments. Also data on employment provided by accommodation establishments can be checked for coherence with administrative registers.

8.44. INRouTe strongly supports and recommends that in order to advance in the measurement and analysis of tourism at subnational levels (particularly at sub-regional levels), the corresponding authorities (mainly at the regional level) should assume the design and management of the Directory of accommodation establishments (starting with hotel but expanding to all type of ISIC categories as previously mentioned –see 8.37) and guarantee the proper georeference of the supporting database; this recommendation is a sort of a necessary condition to allow for territorial scalability regarding the measurement and analysis of tourism at subnational levels.

8.45. Such recommendation is very much supported by the potential to improve tourism economic analysis at destinations. For instance, the distribution of tourists by nationality does not follow a regular pattern through the micro-destinations as can be seen in the following graph; consequently, aggregate figures for municipalities do not necessarily represents what is happening in such lower units (and this is something that key tourism stakeholders at destination really care about).

Figure 3 Overnights according to place of residence. Source: ISTAC
The third topic refers to homogeneity, a complex concept that can be defined in different ways according to what the area of research might be; in the case of tourism such complexity relates to the fact that there are different possible typologies of visitors that ideally could be obtained from available data in order to address different type of analysis (for instance, tourism behavior, main activities undertaken while at destination, etc.). Therefore it is recommended that such zone design should allow for the provision of a reasonable amount of existing statistical data to be used in addressing relevant analysis for such key stakeholders. Once created STDAs, also non-official and/or non-statistical data should be georeferenced and added to the R-TIS data base being mobile phones records a particularly relevant source.

This kind of “critical mass of information” criteria for zone design should also assist improving management and monitoring in such tourism destinations by allowing for a more focused and efficient market designed initiatives.

As already mentioned, the main criteria used in the case study has been the type of accommodation establishments for tourists. The following paragraphs explain the process followed: starting with a pilot study in two municipalities in the south of the island of Tenerife and extending the methodology used to all the seven islands of the archipelago.

The spatial area chose for the pilot study can be seen in figure and the definition of the different areas to be identified in those two municipalities (Adeje and Arona) labeled as “micro-destinations” (nine of them have been identified)
A micro-destination is defined as a small geographical unit that is highly dependent on tourism. It comprises a wide range of tourism facilities and has a differentiated image and tourism typology (tourism products). In addition, a micro-destination is a useful individual unit for the purposes of decision making in tourism management and planning. For a more operational definition, a micro-destination is a spatial unit of statistical analysis characterised by a high density of establishments of tourism characteristic industries, tourism homogeneous statistical information, and a spatial continuity. Note that because micro-destination are small areas specialised in tourism, they show a high concentration or density of tourists and tourism activities.

8.50. The application of the criteria for delimiting the tourism micro-destinations in both municipalities of South Tenerife has led to the identification of nine different micro-destinations, each with their own characteristics. The following figures illustrate the complexity of the work process carried out for the pilot study by the Canary Islands Statistical Institute (ISTAC).
Figure 6 Location of Pilot Study - Density of Tourist Beds. Source: ISTAC
Figure 7 Tourism Entity Las Americas Los Cristianos. Source ISTAC
These micro-destinations represent around 1% of the island’s surface area, but inside their boundaries 63.8% of the island’s tourism collective accommodation bed-places can be found here (accounting for 22.6 millions of overnights in 2011). In December 2011, there were a total of 93,620 tourism bed-places in the nine micro-destinations while the population living in the two municipalities in the same year reached an official total of 120,473 inhabitants.

8.51. “The statistical data obtained for the nine micro-destinations allow us to affirm that each of the resulting units exhibit a sufficient number of differential
characteristics to justify producing specific tourism information for them, such as illustrated in Table 3.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Overnights</th>
<th>Average daily expenditure per tourist (E)</th>
<th>% of British tourists</th>
<th>% repeat tourists ( \geq 5^a )</th>
<th>% all-inclusive packages</th>
<th>% satisfaction(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cañadas Salvaje</td>
<td>467,300</td>
<td>95.74</td>
<td>43.9</td>
<td>33.8</td>
<td>15.6</td>
<td>90.0</td>
</tr>
<tr>
<td>Costa Adeje</td>
<td>5,373,303</td>
<td>122.32</td>
<td>41.5</td>
<td>28.3</td>
<td>28.0</td>
<td>92.6</td>
</tr>
<tr>
<td>Costa del Silencio</td>
<td>406,450</td>
<td>87.71</td>
<td>36.9</td>
<td>37.3</td>
<td>35.3</td>
<td>93.8</td>
</tr>
<tr>
<td>Las Américas 1</td>
<td>4,959,210</td>
<td>131.11</td>
<td>43.2</td>
<td>32.6</td>
<td>24.4</td>
<td>93.8</td>
</tr>
<tr>
<td>Las Américas 2</td>
<td>2,989,851</td>
<td>122.50</td>
<td>43.8</td>
<td>20.3</td>
<td>15.8</td>
<td>88.2</td>
</tr>
<tr>
<td>Los Cristianos</td>
<td>2,281,942</td>
<td>106.18</td>
<td>55.6</td>
<td>39.4</td>
<td>11.6</td>
<td>94.0</td>
</tr>
<tr>
<td>Playa Paraiso</td>
<td>1,623,828</td>
<td>125.23</td>
<td>40.0</td>
<td>21.0</td>
<td>79.0</td>
<td>93.0</td>
</tr>
<tr>
<td>Playa de El Duque</td>
<td>3,151,379</td>
<td>164.63</td>
<td>33.7</td>
<td>23.4</td>
<td>20.7</td>
<td>93.7</td>
</tr>
<tr>
<td>Turviscas y Fajabé</td>
<td>1,323,727</td>
<td>104.94</td>
<td>59.0</td>
<td>27.4</td>
<td>18.7</td>
<td>89.4</td>
</tr>
</tbody>
</table>

\(^a\)Tourists having been more than five times in the Canary Islands.  
\(^b\)Overall impression of the trip being good or very good.  
Source: Canarian Islands Institute of Statistics.


8.52. As already mentioned (see 8.48), the methodology used in the pilot study was extended to all the seven islands of the archipelago allowing for a more precise analysis of tourism impacts and contributions at sub-regional levels. For instance, a characteristic of the tourism model of the Canary Islands is the high ratio of tourism expenditure that is spent in countries of origin (on air transport, packages, excursions) and the small amount of money spent once at the destination. The figures on the ratio of tourism expenditure made once at the destination reflect that tourists staying in micro-destinations with more obsolete accommodation facilities and a predominance of apartments tend to have a higher ratio of expenditure at the destination. This is also true in the case of the total expenditure made at restaurants, for example.

![Concentration of the tourism activity in the Canary Islands](image)

Figure 9 Concentration of the tourism activity in the Canary Islands. Source: ULL.
8.53. Finally, the existence of small tourism destination areas (STDAs) will greatly contribute to the forth topic previously mentioned: linking recommended guidelines included in this document with a more holistic approach regarding tourism and environmental sustainability.

8.54. In the case of the Canary Islands, the actual database should be supplemented with georeferenced information on water and electricity consumption as well as with other data useful for connecting tourism and environmental sustainability analysis (see figure in 8.42). There are also many other topics at destination levels that could greatly benefit from more data and analysis. Just as an example, a relevant issue to be addressed is the place where tourists stay and the places visited because they explain the mobility of tourists and consequently, allows for environmental impact analysis. Therefore, the available information on places visited by tourists is still not related to geolocated information on accommodation establishments in the case study used; when this could be achieved, the information on the mobility of tourists while at destination will be significantly improved.

8.55. As already mentioned, the Framework for the Development of Environmental Statistics (FDES) 2013 was approved by the UN Statistics Commission as part of their 44th session period. FDES (2013) recognizes that the environmental statistics gather a wide range of information and are interdisciplinary in nature. Their sources are different data producers, likewise for their compilation numerous methods are used. FDES (2013) enumerates the most important environmental statistics for the description of statistical topics, thus being useful for the guidance of countries developing national programmes of environmental statistics. The minimum set of environmental statistics is conceived with enough flexibility so that it can be adapted to the concerns, priorities and resources of each country within the environmental field, and therein diverse indicators are defined for which breakdowns linked to tourism are recommended. These indicators are as follows:

1. Final consumption of energy
2. Water use
3. Total emissions of direct greenhouse gases (GHGs), by gas
4. Consumption of ozone depleting substances (ODS), by substance
5. Emissions of other substances
6. Volume of wastewater generated
7. Amount of waste generated

On the other hand, from the point of view of human pressure, tourism population is a tourism statistics concept proposed by INRouTe for tourists, as a subset of visitors, and for the measurement and analytical purposes linked to concentration/diffusion of tourism activity indexes as well as for setting up tourism environmental indicators.

Finally, for island territories, with a vast surface under environmental protection, coinciding with a land shortage, it is important to measure the amount of land used by the tourism supply.

8.56. The measurement of many of the cited indicators is not a minor issue. The Canary Islands Statistics Institute (ISTAC) strategy implies providing data from the accommodation supply and for tourism micro-destinations, which is valuable for the sustainable management of tourism destinations. The data gathering
strategy within the Tourism Accommodation Survey embodies different types of methods: survey, cross check of administrative records and sensorization. The indicators that will be dealt with as part of the first phase are:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Data gathering methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final consumption of energy</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>Intake sensorization</td>
</tr>
<tr>
<td>Water use</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>Intake sensorization</td>
</tr>
<tr>
<td>Amount of waste generated</td>
<td>Sensorization by waste type</td>
</tr>
<tr>
<td>Tourism population (already published)</td>
<td>Survey</td>
</tr>
<tr>
<td>Land use</td>
<td>Administrative record (Cadastre)</td>
</tr>
</tbody>
</table>

8.57. If it could be accepted that the Canary Islands Tourism micro-destination project as well as other similar initiatives in other countries will pave the way towards more concrete and operational initiatives to support tourism stakeholders at sub-regional levels, such experience will certainly improve regional insight on those four topics already discussed which seem particularly relevant for all type of such stakeholders tourism practitioners –including tourism officials who commission surveys and research, and those who undertake such surveys- as well as public institutes and agencies, regional and local governments, universities, research centers, industry associations, trade bodies and specialized firms.

**B.3. THE INROUTE AGENDA AND THE UN ECOSYSTEM PROPOSED APPROACH TO ENVIRONMENTAL ECONOMIC ACCOUNTING**

**Background**

8.58. A number of relevant policy and conceptual developments have occurred since the original FDES was published in 1984; one of them has been the ecosystem approach.

Please note the following paragraphs are part of the publication UNSD. (2014). Framework for the Development of Environment Statistics (FDES) 2013, United Nations Statistics Division.

8.59. The ecosystem approach was originally conceived as the strategic concept for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way, as opposed to per individual parts of the systems. A more holistic approach, where parts interacting together constantly modify everything else, the ecosystem view integrally considers spatially defined units (basins, forest, marine, dry-land, etc.) at the local, national or global levels, applying appropriate scientific methodologies. (FDES 2013, paragraph B.30)

8.60. As a conceptual construct, this approach sets out to value and recognize ecosystem services that would otherwise not be explicitly acknowledged and accounted for. It is based on the application of appropriate scientific methodologies, focused on levels of biological organization, which encompass
the essential structure, processes, functions and interactions among organisms and their environment. It recognizes humans, with their cultural diversity, as an integral component of many ecosystems. As such, in principle it is realistic in promoting understanding of the environment and assessing the complex nature of interactions among the different components of the ecosystem. Delineation of the environment into spatially recognizable units that are influenced by associated seasonality and flora, along with physical data such as elevation, humidity and drainage. However, the focus of the ecosystem approach is designed to trigger management interventions, which must invariably be carried out in an economic and political context. Consequently it has also attracted economic and political significance. (FDES 2013, paragraph B.34)

8.61. The ecosystem approach is therefore an important conceptual framework that can be used in environment statistics to model the structure and contents of the information to be produced by any given country or at any scale; the concept of “scalability” refers to the integration of information across different spatial scales with the aim of developing information sets for particular type of analysis at a level suitable for public policy purposes.

As such, the ecosystem approach embodies a compelling logic to which the national and global statistical systems must respond and reverberate through the economic, social and political spheres to ensure legitimate planetary awareness. The ecosystem approach is therefore a significant input into the development of the FDES 2013. (FDES 2013, Paragraph B.35)

8.62. For the purposes of characterizing the ecosystems of a country, in the absence of an internationally agreed ecosystem classification, national classifications could be used and fully described for statistical purposes. Alternatively, the country could follow and adapt other internationally used ecosystem categories, such as the Millennium Ecosystem Assessment reporting categories. (FDES, 2013, paragraph 3.31)

8.63. Ecosystem categories are complicated to describe because of considerations of scale. Ecosystems can be alternatively grouped into biomes, bio-geographical regions, habitats, river basins/sub-basins, etc. Depending on the country, ecosystems and biomes can be subdivided into small homogenous units (in practice, land cover units which are homogenous considering provisioning ecosystem services) and broader spatial and statistical units reflecting socioecological systems. (FDES, 2013, paragraph 3.32)

8.64. Because of these challenging issues in relation to the measurement of ecosystem, the approval of the SEEA 2102 international standard opened the door to setting up an accounting framework coherent with the environmental accounting system identified as experimental.

8.65. This is precisely the focus and aim of the United Nations Statistics Division initiative proposing a first set of proposals and guidelines in order to start defining an experimental ecosystem accounting framework. Please note the following paragraphs are inspired both in chapter 2 “Principles of ecosystem accounting” of UNSD, (2013), Revision of the System of Environmental-Economic Accounting (SEEA), SEEA Experimental Ecosystem Accounting: Consultation Draft. United Nations Statistics Division, as well as in the work carried on by INRouTe in relation with possible extensions of the proposed design of Regional Tourism Information System to sub-regional levels;
it is at such territorial levels where the contribution of INRouTe to the SEEA ecosystem approach might be promising.

8.66. The SEEA Experimental Ecosystem Accounting has been developed within the broader process of revising the SEEA-2003 – a process initiated by the United Nations Statistical Commission (UNSC) in 2007. The primary objective of the SEEA revision process was the establishment of a statistical standard for environmental-economic accounting. At its 43rd meeting in February 2012, the UNSC adopted the SEEA Central Framework as an initial international statistical standard for environmental-economic accounting. The SEEA Central Framework is a multi-purpose, conceptual framework that describes interactions between the economy and the environment, and the stocks and changes in stocks of environmental assets. (SEEA_EEAv1 para 1.12)

8.67. During the SEEA revision process it became clear that there were some aspects of the SEEA2003 that could not be advanced and agreed to at the level of an internationally agreed standard. Consequently, these aspects, primarily relating to accounting for ecosystems and their degradation, were set-aside in the finalization of the SEEA Central Framework. (SEEA_EEAv1 para 1.13)

8.68. Ecosystem accounting is an approach to the assessment of the environment through the measurement of ecosystems, and measurement of the flows of services from ecosystems into economic and other human activity. Such measurement objectives should be consistent with the SEEA_CF although all of them should qualify as experimental exercises. (SEEA_EEAv1 para 1.1)

8.69. In fact, ecosystem accounting has a particular interest in linking standard measures of economic activity (provision of services) to encompass links to other human activity (such as recreational opportunities) in sub-national spatial areas. (SEEA_EEAv1 para 1.3)

8.70. Rather than focusing on the various individual environmental assets (e.g. timber resources, land, water resources), SEEA Experimental Ecosystem Accounting takes the perspective of ecosystems and, in effect, assesses how individual environmental assets interact as part of natural processes in a spatial area to provide a range of services for economic and other human activity. (SEEA_EEAv1 para 1.3)

8.71. The SEEA Central Framework consists of three broad areas of measurement (i) physical flows between the environment and the economy, (ii) the stocks of environmental assets and changes in these stocks; and (iii) economic activity and transactions related to the environment. The ecosystem accounting described in SEEA Experimental Ecosystem Accounting provides additional perspectives on measurement in these three areas. (SEEA_EEAv1 para 2.102)

8.72. First, SEEA Experimental Ecosystem Accounting extends the range of flows measured in physical and non-monetary terms. The focus in the SEEA Central Framework is on the flows of materials and energy that either enter the economy as natural inputs or return to the environment from the economy as residuals. Many of these flows are also included as part of the physical flows recorded in ecosystem accounting (e.g. flows of timber to the economy). In addition, SEEA Experimental Ecosystem Accounting includes measurement of the ecosystem services that are generated from ongoing ecosystem processes (such as the regulation of climate, air filtration and flood protection) and from human
8.73. SEEA Experimental Ecosystem Accounting provides an initial basic conceptual framework to allow testing and experimentation that will in turn allow for an inter-disciplinary improved understanding and development of the accounting framework. (SEEA_EEAv1 para 1.7)

8.74. By taking a more holistic view, information organized following SEEA Experimental Ecosystem Accounting is able to provide an indication of impacts (both positive and negative) of economic and other human activity on the environment and can highlight the trade-offs between alternative uses of ecosystems. (SEEA_EEAv1 para 1.15)

8.75. For many environmental concerns the policy response is developed and implemented at a specific local level; since ecosystem accounting requires the development of spatially specific datasets it can form a basic tool for the assessment of integrated policy responses at that level of detail. But such datasets raise some issues related with the proper units to be used and the scalability of the information needed. (SEEA_EEAv1 para 1.21)

8.76. These issues include (i) determining the appropriate scale for analysis, (ii) defining the relationship between the delineation of spatial areas (and hence ecosystem assets) and the generation of ecosystem services since ecosystem services, particularly regulating services, which may be generated over spatial areas that cross ecosystem asset types; and (iii) connecting the spatial areas relevant for measuring the generation of ecosystem services with the location of beneficiaries of those services. (SEEA EEA TG 2.29)

8.77. Another role of the units model (see Units paragraph…) is to facilitate the up scaling and downscaling of information. Since so many different data are likely to be required from national level production data to site specific condition data, an important challenge in ecosystem accounting is the integration of information to a common scale, using scaling techniques, and then re-presentation of the data to the relevant level for aggregation and communication (SEEA EEA TG 2.30)

8.78. Because the allocation of economic activity to small spatial areas can be conceptually difficult, it may be most useful to commence with identification of measures of economic activity for those industries and activities for which a clear link can be established between an ecosystem and the location of the production; this is precisely the case of tourism.

8.79. Where links between economic units and particular ecosystems can be established, it is also possible to consider integrating information on a range of other transactions that may take place in relation to the economic activity.

   For that to happen it is crucial that tourism datasets at subnational levels be geo-referenced and include not just tourism data but also supplementary data in order to allow for linking measurement and analysis between tourism and ecosystems in specific territorial entities. Such geo-referenced databases would allow for scalability of the information needed in different subregional territorial levels.

8.80. This way, *Tourism*, a knowledge field created from a multidisciplinary perspective, is ready to give back to those disciplines that have contributed to its design as a knowledge and research area (mainly sociology, statistics, economy and geography). Giving back certain type of experiences and knowledge that
might be useful as tourism measurement is strongly dependent on physical type of data (in fact, most of tourism basic statistical data and indicators are non-monetary).

8.81. For instance, Tourism can provide required information for the ecosystem proposed accounting structure in terms of organizing information on the environment from a spatial perspective describing, in a coherent manner, linkages between ecosystems and economic and other human activity.

8.82. More specifically, INRouTe already recommends an operational link between the concept of visitor/travel-party/household that could break the household sector information in order to explicitly identify the tourism connection to ecosystem services; also for international visitors population (see “Classification of ecosystem services”) From an accounting perspective ecological economics captures many relevant concepts including those relating to ecosystem capital and a flow of services. By using a broad conceptualization of services, ecological economics is able to consider trade-offs between the generation and use of different services in a more comprehensive fashion. Further, by considering the relationship between ecosystem capital and services flows, the potential for ecosystems to continue to provide services into the future becomes a direct point of analysis. Such analysis involves consideration of the carrying capacity of the environment. (SEEA_EEA v1, paragraph 1.45).

As will be mention later on (Classification of ecosystem services) INRouTe can contribute to a more precise conceptualization of “Cultural services” as referred in the SEEA Ecosystem Accounting document at different levels.

Units

8.83. In order to undertake measurement of ecosystems in a co-ordinated way and to subsequently compare and analyze information across time and between ecosystems, there must be a clear focus for measurement. Boundaries for specific ecosystems are generally drawn on the basis of relative homogeneity of ecosystem characteristics, and in terms of having stronger internal functional relations than external ones. However, these boundaries are often gradual and diffuse and a definitive boundary between two ecosystems may be difficult to establish. Further, ecosystems may be very small or very large and operate at different spatial scales. (SEEA_EEA v1 para 2.40)

8.84. Statistical units are the entities about which information is sought and about which statistics are ultimately compiled. It is the unit that provides the basis for

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7 The general approach to identifying transactions related to a particular theme or topic is described in the SNA in its discussion of satellite accounts. A satellite account is formed through the adaptation and rearrangement of the core structures of the SNA to suit particular objectives. For the objective of identifying environmental transactions, the primary rearrangement is based on consideration of the purpose underlying each transaction and using so-called functional classifications. The compilation of accounts, known as functional accounts, using these alternative classifications requires that the underlying statistics also be capable of reorganization so as to provide the requisite information. This is not exactly the case in tourism with the TSA; while the main purpose of the trip is basic in collecting tourism statistics, the accounting system used in the TSA refers to the ISIC and CPC classifications.
statistical aggregates and to which tabulated data refer. The statistical units of ecosystem accounting are spatial areas about which information is collected and statistics are compiled. (SEEA_EEA v1 para 2.41)

8.85. The units model consists of three different types of units: basic spatial units (BSU), land cover/ecosystem units (LCEU) and ecosystem accounting units (EAU). The following sub-sections describe each type of unit SEEA Application and Extension document refers to SEEA Experimental Ecosystem Accounting regarding geo-spatial analysis, the analytical relevance of the integration of environmental and economic information in geo-referenced datasets, as well as units model for spatial areas. No other SEEA complementary document focuses on sub-national levels (in fact, the SEEA Application and Extension document suggests that a “top down” approach is desirable and feasible regarding the presentation of environmental-economic accounts data by theme – in the case of tourism such assumption is far from being evident) (SEEA_EEA v1 para 2.42)

8.86. The delineation of units should be undertaken in concert with the development of spatial databases in Geographic Information Systems (GIS). (SEEA_EEA v1 para 2.68)

8.87. A basic spatial unit (BSU) is a small spatial area with a basic set of information. The most common starting point for this attribution process will be information on the location of the unit and land cover. This basic information is then extended with information relevant to the purpose of the account being compiled. (SEEA_EEA v1 para 2.43)

8.88. It should be recognized that since any given spatial area may generate a number of types of ecosystem services it is likely that a single BSU will be involved in the generation of a range of ecosystem services. In this sense there is no direct analogy between the BSU and an establishment in economic statistics that undertakes a single kind of activity. (SEEA_EEA v1 para 2.61)

8.89. The second type of unit is the land cover/ecosystem unit (LCEU). For most terrestrial areas an LCEU is defined as the set of contiguous BSU satisfying a pre-determined set of factors relating to the characteristics and operation of an ecosystem. Following standard approaches to statistical classification, BSU would be classified to particular LCEU on the basis of a pre-dominance of characteristics within the BSU. This is akin to classifying an enterprise to a particular industry based on the pre-dominance of a particular economic activity in that enterprise. (SEEA_EEA v1 para 2.47)

8.90. At any point in time, all LCEU should be mutually exclusive, i.e. all BSU should be within only one LCEU. However, over time as changes in land cover and land use occur, some BSU will need to be re-classified to different LCEU. (SEEA_EEA v1 para 2.51)

8.91. It is likely that LCEU represent the closest approximation to ecosystems in spatial terms in the way that ecosystems are commonly envisaged. (SEEA_EEA v1 para 2.53)

Types of services

8.92. Based on the definitions of environmental activities, it is possible to define environmental goods and services and environmental producers. Environmental goods and services are different from ecosystem services. “Ecosystem services” is the term used to describe the contributions of ecosystems to benefits used in
economic and other human activity (e.g., extracted natural resources, carbon sequestration and recreational opportunities (SEEA _CF, paragraph 4.31)

8.93. A fundamental aspect of ecosystem accounting is recognition that a single ecosystem will generate a range of ecosystem services thus contributing to the generation of a number of benefits. In some cases the ecosystem services may be produced “in tandem”, such as when forest areas are preserved and provide air filtration services and opportunities for recreation and walking. In other cases the ecosystem services may be in competition, such as when forest areas are logged thus providing the benefits of timber but losing opportunities for recreation. Ecosystem accounting enables the examination of these trade-offs. (SEEA _EEA v1, para 3.3.)

8.94. To support evaluation of these trade-offs ecosystem services are grouped into different types. In _SEEA Experimental Ecosystem Accounting_, building on a number of large ecosystem service measurement projects, three broad internationally agreed categories of ecosystem services are used (SEEA _EEA v1, para 3.4):

(i) Provisioning services relating to the materials that can be harvested from an ecosystem (such as the harvesting of timber from forests);
(ii) Regulating services relating to natural processes (such as the benefits from clean air that has been filtered in the environment) 11; and
(iii) Cultural services arising from human interaction with nature (such as benefits from recreation).

Such broad categories are defined in the Common International Classification of Ecosystems Services (CICES)

_Spatial location of beneficiaries_

8.95. The generation of ecosystem services is assumed to be able to be attributed to particular ecosystem assets whose spatial area is known. However, it is not necessarily the case that the users of the ecosystem services are located in the same spatial area. This is particularly true of regulating services and cultural services where the beneficiaries may often live in cities and large urban areas while the services are generated in ecosystems away from these areas. (SEEA _EEA v1 para 3.31)

Although a simple assumption regarding the location of the beneficiaries cannot be made, it is important in accounting for ecosystem services that attempts are made to understand the location of beneficiaries. This information is needed to ensure that changes in the population of beneficiaries are taken into account in measuring the volume of ecosystem services. They should also be taken into account when developing estimates of ecosystem assets since measures of expected ecosystem service flows will be related to changing populations of individuals and enterprises. (SEEA _EEA v1 para 3.31)

8.96. Irrespective of that, not all “cultural services” are tourism related, it seems obvious that tourism population associated to a particular ecosystem should be estimated. It should be highlighted that “tourism population” is a tourism statistics concept proposed by INRouTe for measurement and analytical purposes linked to concentration / diffusion of tourism activity indexes as well as for setting up tourism environmental indicators (see UNWTO/INRouTe Basic Glossary).
Classification of ecosystem services
8.97. Not all “Cultural services” are tourism related but tourism is nevertheless associated to them. INRouTe can contribute to a more precise conceptualization of Cultural services as referred in the SEEA Ecosystem Accounting document at different levels:

– at the proper structure of CICES (at least at the broad level) by clarifying the proper concepts and wording to be used
– the present text lacks of a precise understanding of present IRTS 2008 when referring to tourism (the terms “tourism destinations”, “recreation and tourism”, “recreation and tourism industries”, “number of tourists who visit certain areas”, “increased number of visitors in the tourism industry”, etc. should be properly used and defined)

8.98. Also in relation with Ecosystem Accounting Units (EAU) and tourism contribution for the generation of ecosystem services, INRouTe has already drafted guidelines in order to link at the tourism destination levels visitor (the basic unit in tourism statistics), travel party and household (the proper unit in macroeconomic statistics accounting frameworks)

REFERENCES


Annex 1 Environmental-economic accounts (SEEA) data for tourism


4.40 There are a number of perspectives on economic activity that may not be easily reflected in the structure of information on economic activity following standard international industry classifications. This may occur for two reasons. First, a particular activity may involve enterprises from a range of different parts of the economy each having different production functions and principle outputs. Consequently while the enterprises are classified to different industries they may have relationships that could be analyzed jointly. The most commonly considered activity in this regard is tourism activity. Another example would be activities around health (e.g. hospitals, pharmaceuticals, medical equipment, education, policy development, etc).

4.41 Second, there may be a particular activity that is undertaken by many enterprises in different industries but which may be difficult to identify in standard industry statistics since it is often not the principal activity of the enterprise. The most relevant example of this for environmental economic accounting is transport activity which is a significant user of natural resources and a significant contributor to air emissions. The own-production of energy is another activity that may fit this type of analysis. It is noted that for analysis of these specific activity an important aspect may be the own-account production of households in addition to production by enterprises.

4.42 This Annex presents an example of an extension of the SEEA Central Framework in relation to tourism activity: it therefore refers to the national level. In general, the same considerations as described in relation to tourism will apply to other activities. That is, it will generally be necessary to start with a standard monetary PSUT or IOT, then determine the key products and industries of relevance to measurement of the activity (this may require disaggregation of some of the standard rows and columns), and finally extend the modified table with relevant physical flow information (e.g. on flows of emissions or solid waste).

Presentation of environmental-economic accounts data for tourism

Introduction

4.43 The importance of good information on the tourism sector has been recognised within the presentation of principles and objectives in the Lanzarote Charter developed at the 1995 World Conference on Sustainable Tourism. Significantly, it was observed in that charter that tourism can contribute positively to socio-economic and cultural development, while at the same time it can cause degradation of the natural environment and loss of local identity. Integrated environmental, economic and social information is essential, then, for defining policies regarding tourism.

4.44 In the context of the SEEA it is relevant to consider links between the accounting approach that has been developed for analysis of tourism, the Tourism Satellite Account (TSA), and the SEEA_CF since both are based on the accounting principles of the SNA. A combining of TSA and SEEA would enable consideration, within an integrated dataset of both the contribution of tourism to the economy and the environmental uses and pressures of tourism activities.

4.45 The extension of the SEEA suggested here is along the lines of an approach explained in the International Recommendations for Tourism Statistics 2008 (IRTS2008) whereby tourism is incorporated as a specific set of industries and of consumers within environmental combined physical and monetary flow accounts of the SEEA Central Framework (see SEEA Central Framework Chapter 6). The document SEEA2012 Application and Extensions provides a summary of the approach and uses of information from Italy where this approach has been trialled to give an insight to the potential in this area.
4.46 The coverage of the information concerning tourism and the environment in this case is not limited to consideration of what may be referred to as “eco-tourism”, i.e. tourism activities designed to enhance the connection between the tourist and the environment. Rather the coverage here is all type of tourism activities and its use of natural inputs and generation of residuals. In principle, the approaches described here may be applied more narrowly as data permit.

4.47 It is noted that TSA fall within the general family of satellite accounts described in the SNA (2008 SNA, Chapter 29) of functionally oriented accounts. More specifically, tourism is a concept that must be defined from the perspective of the consumer rather than the producer and hence the following description should be applicable to the combination of the SEEA with other functionally oriented satellite accounts defined from the demand side, such as health.

*Key aspects of integrating tourism and environmental information*

4.48 In general terms, the focus for measurement should be on regular monitoring of tourism activity and allowing analysis of the pressures emerging from tourism activities. Within this scope aspects to be considered particularly important include: current measures of tourism activity (e.g. value added, output, consumption), number of enterprises, employment supported, visitor facilities and services, environmental conditions (air, water), relative contribution of tourism to the economy. All these elements are of interest for making assessments concerning the tourism sector inspired by a holistic approach.

4.49 Satellite accounting, within official statistics, is a specific tool that in principle best allows the integration of information on the environmental, the economic and the social systems, by focusing on the interrelationships between these three distinct spheres. One specific advantage of accounting approaches is linking data on tourism and on the environment, to the economic aggregates of the core system of national accounts (e.g. GDP), by making use of common concepts, definitions and classifications.

4.50 From a methodological point of view, compiling a TSA requires a precise definition of the boundaries of the tourism sector. This is done through a focus on the qualitative and quantitative elements observed on the demand side, i.e. to the acquisition of goods and services (products) by visitors. Tourism consumption is then a key concept for a correct identification of tourism-related activities and consumption products. From the supply perspective, the aim is to describe the productive activities that provide the tourism products that visitors acquire.

4.51 The link to the SEEA can then be made by focusing on (i) the residuals generated as a result of tourism consumption (either by the visitors themselves or by the enterprises supplying goods and services to visitors; and (ii) the natural inputs used in the production of tourism products. Important connections may also be possible by linking measures of tourism activity to measures of ecosystem condition and extent. For example, activity to improve the attractiveness of an area to tourists may lead to improvements in ecosystem condition. Alternatively, increasing tourism activity may increase environmental pressures and reduce ecosystem condition. Measures of ecosystem condition and extent are not well developed. Initial efforts in this area are summarised in *SEEA Experimental Ecosystem Accounting* document which is the basic reference for any exercise linking environmental sustainability and tourism at subnational levels (see Chapter 8).

4.52 In line with the IRTS 2008, the following tourism products are distinguished:

- tourism characteristic consumption products: those that satisfy one or both of the following criteria:
  - tourism expenditure on the product should represent a significant share of total tourism expenditure (share-of-expenditure/demand condition);
ii. tourism expenditure on the product should represent a significant share of the supply of the product in the economy (share-of-supply condition). This criterion implies that the supply of a tourism characteristic product would cease to exist in meaningful quantity in the absence of visitors."

- tourism connected products: those of lower significance to tourism analysis.

4.54 Once the relevant set of tourism products is identified, connections to relevant producing industries can be made using standard supply-use and input-output relationships. These relationships form the core of the TSA model. Tourism expenditures are usually estimated on the basis of surveys of visitors and these data form the basis to distinguish between visitor and non-visitor expenditure.

4.55 Using the defined set of economic activities and products of relevance, the connection can be made to relevant environmental flows noting that some disaggregation of industry level data normally recorded in the SEEA accounts is likely to be required. Thus, the core of the approach consists of establishing a more complex type of input/output matrix in which not only the ‘usual’ inputs are considered, but also environment inputs established in quantity, and output also includes waste, greenhouse gas emissions and other environmentally significant by-products.

4.56 Table 4.3 [as part of this document it is Table 2] shows the type of information that may organized using the type of matrix just described based on research undertaken in Italy. The main value added of the proposed framework stems from the fact that it organizes statistical information on economic and environmental aspects in a way that best enables a detailed assessment of the environmental pressures of the economic development of tourism. By making it possible to identify trade-offs between economic development and environmental pressures as far as tourism is concerned, the statistical information organized according to the framework is best suited for providing a valuable support to decision-making for sustainable tourism.
4.57 Once time series are made available, these tourism-environment accounts allow to assess, for example, whether or not decoupling is occurring and, in this perspective, they can be used as a key tool for assessing the sustainability of actions taken or policies proposed for adoption in the tourism sector.

4.58 Using the sequence of economic accounts outlined in SEEA Central Framework Chapter 6, it is also possible to consider the integration of information on relevant taxes, subsidies and similar transfer and also the connection to information on environmental protection expenditure.

4.59 Table 4.4 [within this document this table is Table 3] shows a simple way of depicting tourism related economic activity and environmental flows in contrast to other economic activities. As with the SEEA more generally, it is clear that the

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<thead>
<tr>
<th>Tourism Satellite Account (TSA) – Monetary units</th>
<th>Environmental accounts (SEEA) Physical units</th>
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<tbody>
<tr>
<td>Economic aggregates</td>
<td>Other</td>
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<td>Production</td>
<td>Intermediate consumption</td>
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<td>Residual flows</td>
<td>Natural inputs</td>
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<td>Accommodation for visitors</td>
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<td>Food and beverage serving activities</td>
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<td>Railway passenger transport</td>
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<td>Road passenger transport</td>
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<td>Water passenger transport</td>
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<td>Air passenger transport</td>
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<td>Transport equipment rental</td>
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<td>Travel agencies and other reservation services activities</td>
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<td>Cultural activities</td>
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<td>Sports and recreational activities</td>
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<td>Retail trade of country-specific tourism characteristic goods</td>
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<td>Country-specific tourism characteristic activities</td>
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<td>Accommodation services for visitors</td>
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<td>Sports and recreational services</td>
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<td>Country-specific tourism characteristic goods</td>
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<td>Country-specific tourism characteristic services</td>
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</table>

Table 6 Stylised tourism-environment accounts – specifying tourism industries and tourism characteristic consumption products. Source: SEEA Table 4.3. EC, OECD, UN & WB. (2014).
organization of information following integrated use of classifications and accounting principles can help to provide readily accessible and relevant information.

<table>
<thead>
<tr>
<th>Tourism industries (%)</th>
<th>Other industries (%)</th>
<th>Tourism industries (%)</th>
<th>Other industries (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>5 95</td>
<td>Hg</td>
<td>0 100</td>
</tr>
<tr>
<td>Intermediate consumption</td>
<td>5 95</td>
<td>N2O</td>
<td>0.2 99.8</td>
</tr>
<tr>
<td>Value added</td>
<td>7 93</td>
<td>Ni</td>
<td>5 95</td>
</tr>
<tr>
<td>Employment</td>
<td>9.5 90.5</td>
<td>NMVOC</td>
<td>1.5 98.5</td>
</tr>
<tr>
<td>As</td>
<td>0 100</td>
<td>Nox</td>
<td>16 84</td>
</tr>
<tr>
<td>Cd</td>
<td>0.3 99.7</td>
<td>Pb</td>
<td>2 98</td>
</tr>
<tr>
<td>CH4</td>
<td>0 100</td>
<td>PM10</td>
<td>8 92</td>
</tr>
<tr>
<td>CO</td>
<td>2.5 97.5</td>
<td>PM2.5</td>
<td>10 90</td>
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<tr>
<td>CO2</td>
<td>4.5 95.5</td>
<td>Se</td>
<td>3.5 96.5</td>
</tr>
<tr>
<td>Cr</td>
<td>0.5 99.5</td>
<td>S0x</td>
<td>15 85</td>
</tr>
<tr>
<td>CU</td>
<td>6 94</td>
<td>Zn</td>
<td>0 100</td>
</tr>
</tbody>
</table>

Table 7 Flows from tourism-environment accounts. Source: SEEA Table 4.3. EC, OECD, UN & WB. (2014).
The Community People’s Quality Of Life And Support For Tourism Development: A Structural Equation Analysis by Oladeji, K.I., Mbaiwa, J.E. and Mmopelwa, G.

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Abstract
Support for additional tourism development in any destination is dependent on the perceptions held by the community people on the impacts of tourism in their community. This study investigates the relationship between the community people’s quality of life and support for additional tourism development in Maun. Data were collected from 400 community people in Maun by means of face-to-face survey interview. The data was analysed using structural equation modeling with AMOS 16.0 software. The model tests were based on the covariance matrix using maximum likelihood estimation. The Cronbach’s alpha reliability analysis, explanatory factor analysis and confirmatory factor analysis were performed to determine internal consistency construct and content validity to show the robustness of the factor structure analysis. The study found a positive relationship between community people’s quality of life and support for additional tourism development. The results support the social exchange theory being the underpinning theory. The study therefore concludes that the more the community people perceive their quality of life being improved due to tourism development, the more they would support the development of tourism in their community. The implication of this study is that, the sustainability of the tourism in Maun is highly dependent on the improved quality of life among the community people.

Keywords: Quality of life, Support for Tourism Development, Local people, Structural Equation Modeling, Botswana

1.0 Introduction
Despite global challenges of economic crisis and geopolitical changes, international tourism receipts and long term forecasts performed beyond expectations (UNWTO, 2013). The unexpected receipts were noted due to a continuous significant increase in the demand for goods and services increased significantly within the tourism industry in 2013. Among the regions that showed strongest demand for touristic goods was Africa (+6%) above Europe with (+5%). This translated to mean, Africa region successfully attracted three million additional arrivals of 56 million in 2013 (UNWTO, 2013). The increasing trends of the arrivals and receipts shown by intercontinental reports confirm and demonstrate the brilliant performances of the industry. Considering the aggressive movement of people around the world, various economies are currently using the industry to diversify their economies to create
additional jobs to reduce unemployment, generate income to boost local economy, earned more foreign exchange to correct imbalance within trade in service. Based on the diversification effort by various governments, tourism industry accounted for a significant portion of the gross domestic product in various economies in the continent including Botswana. In 2013, the percentage share of direct contribution to gross domestic product was 3.2%, 4.6% to employment and 7.6% to investment contribution to total capital investment (WTTC, 2014). The share of contribution for each of the categories was above average of the competitors in Africa.

Based on the performance of the industry, tourism has become a major activity (Tichaawa and Mhlanga, 2015; Ko and Stewart, 2010; Eraqi, 2007) and one of the largest generators employments, in the world. The industry has also become a fast entry vehicle into the workforce for young people in urban and rural communities. More so, investment in tourism has translated into foreign exchange earnings for many economies. The industry also has a strong multiplier effect on other crucial sectors of the economy like manufacturing and agriculture (UNWTO, 2009). The emergence of the industry as one of the significant contributors to economic growth and regional development has lured many countries to reallocate resources to develop and improve tourism activities. According to Sinclair, (1998) and Mbaiwa (2004), airports, local transportation infrastructure and hotels have been built to attract international tourists. Despite the accrued benefits due to tourism development in any country, it is evidently documented that the development is also impact negatively on the lives of the people in the destination community (Landford and Howard, 1994). The hugeness of the costs exhibited from the development override the meagerness of the benefits deposit in the community. Therefore, the perceptions of tourism can either be positive or negative (Kala, 2008; Wang, Bickle and Harrill, 2009; Chandralal, 2010; Yu, Chancellor and Cole, 2011; Nejati, Mohamed and Omar, 2014). The identification of the impacts, the industry exhibits and the potential of the industry has attracted researchers from various discipline focusing on the issues of sustainable tourism development. This study relies on subjective approach to investigate the relationship between community people’s quality of life and support for additional tourism development in Maun, Botswana. Unlike the indicators of objective wellbeing that rely on secondary sources of information, subjective indicators are based on the information collected from the personal survey of interview (Massam, 2002). More so, the study is based on social exchange theory. Social exchange theory could be linked to the book published by the father of economics, Adam Smith, during the industrial revolution (Cropanzano and Mitchell, 2013). Social exchange theory involves social relations with regard to the exchange of resources among individuals or group of individuals wanting mutual for benefit from the exchange relationship (Ap, 1992). The theory is appropriate for this study because the development of tourism in any community is dependent on the perceptions of the local people on the benefits accrue to individual members, as well as, the whole community (Nkemngu, 2015; Soontayatron, 2013). This study split into five sections. The first section presents an introduction to the study. In the second and third sections, literature related to quality of life and support for tourism was reviewed respectively. More so, methodology including development of survey instrument measurement scale, sampling procedure and data collection, and data analysis were presented in the fourth section. In section five, results of the study were presented. The discussion and conclusion were presented in the final section of the paper.

2. Support for Additional Tourism Development
The total acceptability and support for the development of tourism activities in an area is dependent on the local people. Yoon Gursoy and Chen (2001) have indicated that tourism development is highly dependent on the goodwill of the local residents. This can therefore be translated to mean, without the residents’ acceptability of the development in the destination areas, there can be no profitable and successful
tourism operations at various levels. Tourism activities that lack support of the local people are unsustainable. There are many studies on the residents’ perceptions of the tourism development and attitudes toward tourism in the destination areas. As mentioned elsewhere, the community people’s quality of life is a function of the tourism impacts in the destination areas. If the tourism activities translate into deteriorated quality of life in the destination area, the people tend to be reluctant to support the tourism development in their community (Kim, 2002). Jurowski (1994) maintains that in order to attain sustainability within the tourism industry, local people must embrace the development of tourism in the community. In Aref (2011), quality of life was categorised into five domains; material wellbeing, community wellbeing, emotional wellbeing and health and safety wellbeing. The study discovered strongest links with emotional wellbeing and community wellbeing. The health and safety wellbeing were found to be the least favourable in terms of the effect of tourism on quality of life. Generally, the results revealed that tourism has positive effect on the quality of life of residents. In another study by (Dong-Wang and Stewart, 2002) where structural equation model was used to test the relationship between residents’ perceived tourism impacts, overall community satisfaction and the extent to which community satisfaction influences additional tourism development. Dong-Wan and Stewart (2002) found a significant relationship between perceived positive and perceived negative tourism impacts. Dyer et al (2007) also examined the relationship between five factors including negative socio-economic impact, positive economic impact, positive social impact, negative social impact and positive cultural impacts on one hand, and resident support for tourism development on the other hand. The study revealed that perceived economic benefits and perceived cultural benefits had significant positive impact on local residents’ support for tourism development. Lankford and Howard (1994) developed a multiple-item attitudinal scale to assess the effects of selected independent variables on attitude toward tourism development. The study found to be diversified on the basis of respondents’ perceptions of how tourism development has affected personal lives and the community. While the respondents who felt economically dependent on tourism generally hold positive perceptions of tourism, those who felt they had to compete with tourists in accessing recreational facilities held antagonistic perceptions of the tourism development in the community (Lankford and Howard, 1994). Jackson (2008) explored residents’ perceptions of special event tourism at Dayton in Florida, though the study revealed residents’ attitudes were favourable toward the development of additional tourism, majority of them support events that contribute socially and economically to their community. Interestingly, residents are willing to cope with the associated negative impacts of the event as long as the perceived benefits exceed negative impacts brought by the events. The majority of the studies on tourism impacts, quality of life and support for tourism development are closely related. The results were consistent with the past related studies that those who receive direct benefits from tourism are likely to hold favourable views about tourism and less likely to attribute negative social and environmental impacts of the development.

3 Measuring Quality of Life
Investigating the quality of life of a person is the determination of the well-being of that individual. Importantly, Massam (2002) maintains that the meaningful definitions of quality of life must be based on psychological and environmental dimensions. The study of quality of life can either be based on objective perspective or subjective perspective that shows individual feelings and perceptions (Yu, Chancellor and Cole, 2011). While the former relates to external conditions that kick-start the internal mechanism, the latter is concerned with the internal psychological mechanism such as sense of satisfaction or gratification with life (Greyson and Young, 1994: ii, in Massam, (2002). Sirgy (1998) also notes that, ‘the overall life satisfaction is partly determined on the standard of living’. With regard to the terminologies use in the
literature, while personal or individual quality of life, subjective wellbeing or life satisfaction are usually used in the case of those internally motivated, terms such as urban quality of life, community quality of life, quality of place or environmental quality of life used for the studies based on external conditions (Massam, 2002). As mentioned elsewhere, the main reason for quality of life study in a particular community is to understand the well-being of the people living in the community. One approach to minimize the negative impacts of tourism development according to Jackson (2008) is to monitor residents’ opinions of perceived impacts as a means of incorporating community reaction into tourism planning and development. There are many domains in a person’s life (Rojas, 2007: 261); therefore in order to assess an individual well-being or quality of life, it is expected to use those constructs that are related to the residents’ domains of life. According to Dissart and Deller (2000), subjective measures are critical to accurately evaluate community quality of life. Therefore, this study used perceived life satisfaction conception to study community people’s quality of life. The questionnaire was designed to assess the level of satisfaction with their life in Maun. The items used to measure the observable variables are modified from the works of authors such as, Cummins et al. (1994), Cummins (1996), Perdue et al. (1999), Kim (2002), Sirgy, (2001:278), Rojas (2007:259), Avgoustis et al. (2005:36), Mc Gregor et al. (2009:135), Powdthavee (2007), Eckersley (2009: 1), Drennowski (1980:15), Liao, Fu and Yi (2005). The use of both overall and life domain measures of quality of life have been shown to have a high correlation and validity and is thus meant to be a better analytical strategy. Generally there is a perception that quality of life of community people is a function of four dimensions of tourism impacts including economic, socio-cultural and environmental. Also, support for tourism development is also a positive function of quality of life of the local people in any destination. With the consideration of the underpinning theory of social exchange which preaches that community people will be interested to exchange their resources with tourists if there is tendency to acquire some benefits, the present study tested a hypothesis as structurally shown in Figure 1 below. The hypothesis for this study is stated as follows:

*There is a significant positive relationship between community people’s quality of life and support for additional tourism development.*

![Figure 1: The model for Community People’s Quality of Life and Support for Tourism Development](image)

4 Methodology

4.1 Development of Survey Instruments

This study assessed the perceptions of community people on the quality of life and support for tourism development. The development and inclusion of items used to measure the observable variables were based on the studies like (Ap, 1992; Dong-Wan and Stewart (2002), Yoon et al. 2001; Akarapong et al. 2010; Mbaiwa, 2008; Kim, 2002). While the perception of community people’s quality of life were measured by 13 items, support for tourism development measured by 16 items totaling 29 items for the two latent variables as shown in Table 1 and 2 below. A five-point Likert scale type was used for effective analysis of the data collected. For example, the response format for the items with assigned values as described in the
bracket: (strongly disagree (SD) = 1, disagree (D) = 2, neutral (N) =3, agree (A) = 4 and strongly agree (SA) = 5) were used to assess community people’s quality of life and support for additional tourism development. Items related to demographic information of the participants were at the final part of the questionnaire. More so, the questionnaires were pre-tested by piloting the items among 50 students of Tertiary Institutions but originated and still residing in Maun at the time when the questionnaires were administered. Apart from the expert review of the instrument, the information collected assisted to improve on the content validity. The adjustment assisted to have effective instrument (Nimako, Azumah, Donkor and Adu-Brobbey, 2012) and to properly administer the questionnaire.

4.2 Sampling Procedure and Data Collection

The primary data for this study were collected from Maun through face-to-face interview survey. The village of Maun is located in the North West of Botswana. It has population of 55, 784 (Central Office of Statistics, 2011). Based on the population of the village, the sampling size of 378 was scientifically determined based on (Krejcie and Morgan, 1970). Having arrived at the minimum sample size of 378 households, 400 questionnaires were distributed to allow for the possibility of uncompleted and invalid questionnaires. Maun is divided into 109 Enumeration Areas (EAs) with each of the EAs contained households ranging from 120 to 150. The enumeration areas were created for the enumerators for easy head counts in 2011. Out of 109 EAs, 15 EAs were selected using Probability Proportional to Site (PPS). Probability Proportional to Size is a system of sampling in which the probability of selecting a sampling unit is proportional to the size of its population. It is one kind of systematic sampling method where elements are picked using a systematic interval (ith) after which the first EAs is randomly selected (Blalock, 1981). The method is appropriate when the sampling units vary in sizes from one another. In such a situation, the usage of PPS guarantees that those in larger sites have the same probability of being selected, and vice versa. In addition, proportionate stratified method was used to select the proposed number of households within an Enumeration Area. This is a method whereby the number of households selected in each of the Enumeration Areas is proportionate to the number of households in the representative EAs. Blalock (1981) maintains that it is appropriate to use proportional stratified sampling especially when the strata are homogeneous, because it guarantees a more representative sample, exactly correct and reliable results. The data were collected from participants who were 18 years or older and must have been staying in Maun for at least a year at the time of data collection.

4.3 Data analysis

The structural equation model (SEM) was used to analyse data. The model is designed to simultaneously test for measurement model and structural model (Smith and Lang-Smith, 2004). The technique allows testing of hypotheses about relations among observed and latent variables. In addition, SEM technique can perform estimation of multiple and interrelated dependent relations among variables. Structural equation modeling is a comprehensive testing system that is based on the explanatory power for the structural model, measurement model and overall model. Fornell and Larcker (1981) maintain that the usage of the system reveals whether the various measures within a study have satisfactory psychometric properties via convergent validity, average variance extracted and discriminant validity. The structural equation modeling as a tool of data analysis has gained popularity among behavioural scientists. The scientists are now using SEM to test measurement and structural models in order to develop and validate theories in various areas of studies including tourism. The tool allows estimation of relationships among theoretically interesting
constructs that are free of the effects of measurement unreliability (Raykov, Tomer and Nesselroade, 1991).

5 Results

Of the 400 questionnaires carefully administered, there were 394 questionnaires completely filled up translated into 98.5% response rate. The analysis of demographic information revealed that 49.6% of the participants were female and 43.7% were male. The percentage of the age groups of the participants were, 21-30 (40.4%), followed by the age between 31 and 40 (25.1%), the age of participant less than 20 (12.2%), age between 51-60 (5.6%) and those that were more than 60 years of age at the time of data collection (2%). With regard to the marriage status of the participants, most of the participants were single (74.6%), followed by married with 18.3%, widow (2%) and only 1% were divorced. The information on educational level showed that most of the participants only attained elementary school (57.4), vocational certificate (16.2%), and diploma (15%). Only (7.1%) of the participants attained the degree level at university level. The result also revealed that most respondents who participated in this research have long stay in the community for more than 5 years (80.7%), the (15.2%) of the respondents have stayed for more than 1 year but less than 5 years. In terms of the employment status, the majority of the respondents (53%) were unemployed, 26.9% were formally employed, and the remaining 16% were self employed. Concerning the occupational distribution of the employed respondents, only 14% of the respondents were employed within the tourism industry, 30.5% were employed in other industries and the remaining large 55.6% did not specified where they were employed.

5.1 Measurement and Structural Models

The quality of life is affected by the development of tourism in Maun. Therefore, the construct of community people’s quality of life was measured using four dimensional observable variables including economic well-being, social well-being, cultural well-being and environmental well-being in this study. The items used to measure the socio-cultural wellbeing were divided into two namely, social wellbeing comprising satisfied with accessibility, satisfied with local involvement, and satisfied with social benefits; and on the other hand, cultural wellbeing comprising of satisfied with
tourists, satisfied with culture and satisfied with preservation of culture. Also economic well-being was measured using satisfied with cost of living, satisfied with family income, and satisfied with community benefits. Lastly, environmental wellbeing was measured using safety, health and conservation related items as shown in Table 1 below. The factors were well loaded with Cronbach's alpha coefficient of economic wellbeing (0.90), social wellbeing (0.81), cultural wellbeing (0.74) and environmental wellbeing (0.77) with respective items loadings as shown in Table 1. The variance explained by the variables and values of KMO and Bartlett's test of Sphericity at Eigen values more than 1 demonstrating the robustness of the results.

Table 1: Community People’s Quality of Life (CPQoL)

<table>
<thead>
<tr>
<th>Observable variables and items(questions)</th>
<th>Loading</th>
<th>Eigenvalue</th>
<th>Variance explained</th>
<th>Kaiser-Meyer-Olkin MSA</th>
<th>Bartlett’s test of Sphericity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Well-being</td>
<td>.901*</td>
<td>2.507</td>
<td>83.581%</td>
<td>.732</td>
<td>.000</td>
</tr>
<tr>
<td>Satisfied with cost of living</td>
<td>.904</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with family income</td>
<td>.939</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with comm. benefits</td>
<td>.899</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social well-being</td>
<td>.815*</td>
<td>2.191</td>
<td>73.025%</td>
<td>.707</td>
<td>.000</td>
</tr>
<tr>
<td>Satisfied with accessibility</td>
<td>.846</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with local involvement</td>
<td>.881</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with social benefits</td>
<td>.836</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural well-being</td>
<td>.741*</td>
<td>1.981</td>
<td>66.037%</td>
<td>.647</td>
<td>.000</td>
</tr>
<tr>
<td>Satisfied with tourists</td>
<td>.724</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with culture</td>
<td>.863</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with preservation of culture</td>
<td>.844</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental well-being</td>
<td>.774*</td>
<td>2.399</td>
<td>59.986%</td>
<td>.745</td>
<td>.000</td>
</tr>
<tr>
<td>Satisfied with safety</td>
<td>.761</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with health of my environment</td>
<td>.860</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with conservation</td>
<td>.734</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with cleanliness</td>
<td>.737</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The social exchange theory underpinning this study preaches that community people are likely to participate in an exchange with tourists if they believe that they are likely to benefit from the development without incurring unacceptable cost. Based on this, support for tourism development was measured using five observable variables. These include economically motivated support for tourism, socio-culturally motivated support for tourism, environmentally motivated support for tourism, level of involvement and community’s hospitality. There seems to be a natural split between ‘level of involvement’ and ‘community’s hospitality’. Therefore, the level of involvement and community’s hospitality was split into two sub-constructs of level of involvement and community hospitality. As shown in Table 2 below, while the items active participation and pride of inputs were loaded onto level of involvement, the items tourists are welcome and attracting tourists to community were loaded onto community's hospitality. In this study, the items that were loaded onto more than one factor with loadings >0.40 on each factor, or their loading was <0.40, then the item was deleted from the set used to measure the observable variable. Based on this criterion, item such as dislike tourism due to pollution was dropped because the value of the Cronbach’s alpha coefficient was low. With the exception of environmentally motivated support for tourism (0.58), the values of the Cronbach’s alpha were
impressive with economically motivated support for tourism (0.86), socio-culturally motivated support for tourism (0.80), level of involvement (0.83) and community’s hospitality (0.84) shown in Table 2.

Table 2: Support for Tourism Development in the Community

<table>
<thead>
<tr>
<th>Observable variables and items/questions</th>
<th>Loading</th>
<th>Eigenvalue</th>
<th>Variance explained</th>
<th>Kaiser-Meyer-Olkin MSA</th>
<th>Bartlett’s test of Sphericity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economically Motivated Support for Tourism</strong></td>
<td>.863*</td>
<td>2.850</td>
<td>71.249%</td>
<td>.769</td>
<td>.000</td>
</tr>
<tr>
<td>Create employment</td>
<td>.785</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create new business</td>
<td>.879</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attracts investors</td>
<td>.883</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased standard of living</td>
<td>.825</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Socio-culturally Motivated Support for Tourism</strong></td>
<td>.801*</td>
<td>2.533</td>
<td>63.320%</td>
<td>.771</td>
<td>.000</td>
</tr>
<tr>
<td>Popularity of our product</td>
<td>.728</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational Activities</td>
<td>.871</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote cooperation</td>
<td>.812</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preservation of culture</td>
<td>.764</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmentally Motivated Support for Tourism</strong></td>
<td>.586*</td>
<td>1.665</td>
<td>55.507%</td>
<td>.624</td>
<td>.000</td>
</tr>
<tr>
<td>Protect natural environment</td>
<td>.695</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community attractiveness</td>
<td>.790</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of new programme</td>
<td>.746</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level of Involvement</strong></td>
<td>.837*</td>
<td>1.720</td>
<td>86.012%</td>
<td>.500</td>
<td>.000</td>
</tr>
<tr>
<td>Active participation</td>
<td>.927</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pride of inputs</td>
<td>.927</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Community’s hospitality</strong></td>
<td>.844*</td>
<td>1.732</td>
<td>86.602%</td>
<td>.500</td>
<td>.000</td>
</tr>
<tr>
<td>Tourists are welcome</td>
<td>.931</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attracting tourists to community</td>
<td>.931</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The confirmatory factor analysis was also conducted for both constructs. The overall fits of the measurement model for the quality of life was $\chi^2(6) = 6.509 \text{ (p = .369)}$; $\text{CFI} = .999$; and $\text{RMSEA} = 0.015$, and the result of confirmatory factor analysis (CFA) for the support for tourism shows that the overall fits of the model for the support for additional tourism development were $\chi^2(6) = 7.412 \text{ (p = .284)}$; $\text{CFI} = .998$; and $\text{RMSEA} = 0.024$. These fit values met the minimum requirement and thus it can be concluded that the fit is a good fit (Hooper et al, 2008; Yanamandram, 2006). The result of the structural model used to test hypothesised relation between community people’s quality of life and support for tourism development revealed that the estimated standardised coefficient for the path from community people’s quality of life to support for tourism development is 0.37 (p<.001). The variance between community quality of life and support for tourism development is ($R^2 0.75$). This means that, the regression result revealed that 75% of the support for tourism development was explained by the community people’s quality of life.

5.2 Discussion of Results
This study reveals that the community people must be economically motivated and involved in the development of tourism sector in Maun for the industry to grow. The hypothesis supports the social exchange theory underpinning the study. The result of structural equation modeling analysis indicated a significant positive relationship between the community people’s quality of life and support for additional tourism development in the community. The study shows that the community people would
support the development of tourism if the development could improve community people’s quality of life. The economic well-being (i.e., financial benefits for both their family and community), environmental wellbeing, socio-cultural well-being and level of involvement of the people are significant determinants of support for tourism development in Maun. For example, tourism industry could be transformed to environmentally friendly industry, a situation whereby people are prepared to support tourism if the development of the industry is carefully managed (Abdoreza and Somayyeh, 2010; Aref and Redzuan, 2009). This will greatly reduce the negative impacts of tourism (i.e., destruction of natural landscape to pave way for tourism facilities, disposal waste that are hazardous to human health and safety) on the environment. The result of the test of the analysis supports the proposed hypothesis and generated a significant level of p-value. According to the theory of social exchange, the community people will support the development of tourism in their community if perceived benefits from the development of the tourism activities are more than perceived costs in their community. This study establishes that the support for additional tourism development by the community people is a positive function of the community people’s quality of life. The study shows that the more community people perceived quality of life being improved due to the development of tourism in their community; the more they are likely to support additional tourism development in their community. The study confirmed the results of the early study (Yoon, 2002) that tourism stakeholders preferences about tourism attracts or resources development are a function of perceived tourism development impacts and place attachment. Tichaawa and Mhalanga (2015) also reveal that the perceptions of tourism impacts are positively related to sense of satisfaction with the community wellbeing. While the community people that have positive perceptions of tourism impacts are likely to support additional tourism development in their community, the people who have negative perceptions are not likely to support additional tourism development. This result confirmed the value of the social exchange theory (Stylisdis, 2012; Aref, 2011; Hritz and Ross, 2010; Dyer, Gursoy, Sharma and Carter, 2007; Lee and Back, 2006) in explaining community people’s perceptions on the impacts of tourism in Maun. The items loaded in each of the constructs have found to be significant determinants of the quality of life and support for tourism development.

6 Conclusions
The result of the residents’ decisions to support tourism development is based on the expected benefits and costs of development (Yu, Chancellor and Cole, 2011; Vargas-Sanchez et al., 2009; Harrill, 2004). In addition, Lee, Kang, Long and Reisinger (2010) argue that the perceived benefits and costs from the development of tourism are predictors of the support for sustainable tourism development. This study investigates the relationship between community people’s quality of life and support for additional tourism development in Maun. The present study does not depart from the previous studies, in that the costs and benefits as perceived by the community people of Maun affect their decision to support additional tourism development in their community. The study found a significant positive relationship between community people’s quality of life and support for additional tourism development in Maun. This can be translate to mean, in other words, that the more the community people perceive their quality of life being improved due to tourism development, the more they will support the development of tourism in their community. On the other hand, the negative perception of tourism development will make the people to be hostile to the development of industry in their community. For tourism to develop in any destination especially in Maun, the community people must be economically, socio-culturally and environmentally motivated. The results of previous studies revealed that the sustainability of tourism industry is highly dependent on the involvement of the local people in the development of tourism in their areas (Andereck, Valentine, Vogt and Knopf, 2007). This study also revealed how
importance the level of involvement and community’s hospitality could be in the quest to develop tourism. The study concludes that the support for tourism development is dependent on the perceptions of the community people on the quality of life (economic well-being, socio-cultural well-being and environmental well-being). The unavailability of findings focusing on the impacts of tourism development on the quality of life of local people and support tourism development in the developing countries inhibit the development within the tourism industry (Moscardo, 2008). The essence of policy related research is to utilise the research findings to improve a certain sector. The findings of this study can be used to improve the strategies to develop sustainable tourism in the village. Jackson (2008), Diedrich and Garcia-Buades (2009) maintain that the sustainability of tourism industry is based on the understanding and assessment of the tourism impacts on the local people. Therefore, tourism developers, including government authorities, regional or district councils, local authorities, non-governmental organisations and private practitioners, should pay attention to the findings of this study, intensify effort to educate community people to understand how the tourism activities operate in their communities, understand the potential impacts on regional development, and the national output at large. In addition, apart from traditional campaign of conservation and preservation of culture and environment respectively, community people should also be actively involved in the development of tourism in their communities to achieve sustainable tourism development, the issue that clearly emerged in this study.

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Puerto Rican residents' attitudes toward tourism development and destination marketing by Dávila, Rodríguez, M.A. and Gretzel, U.

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Abstract

Many studies have researched the destination image that visitors, travel industry representatives, and consumers have; however, few studies have analyzed the perceptions local residents have of their own countries as tourist destinations. Local residents provide valuable information about their countries, and can help tourism marketers determine how to represent local culture in more sustainable ways. This study focused on understanding how destination marketing portrays the people and places of a destination, how residents interpret the visual rhetoric employed by destination marketers and how it compares to their own opinions of how the destination should be marketed. This study utilized a visual qualitative approach. The results support previous arguments that residents play an important role in tourism development and especially in destination marketing. Overall, residents have rather positive opinions of tourism in Puerto Rico, as well as positive attitudes toward the visual imagery used to market the destination.

Keywords: residents, destination image, Puerto Rico, sustainable tourism marketing, culture, visual communication.

1. Introduction

Tourism has provided economic prosperity as well as social and cultural benefits to host communities around the world. However, tourism can create problems that affect the sustainable development of a country and “can change host communities’ social, economic, and environmental well-being for the worse” (Sheldon and Abenoja 2001, p. 435). Therefore, the perceptions and opinions of stakeholders are essential to help resolve issues in support of achieving sustainability in tourism (Byrd 2007; Gunn 1994; Jamal and Jamrozy 2006). In addition, it is important to acknowledge the importance of effective marketing and promotion strategies in successful and sustainable tourism development (Pritchard 1982). Research studies have mostly studied destination image from the visitors’ perspective; however, understanding residents’ image is also important to gain their support for tourism development. Moilanen and Rainisto (2009) stated that determining how the country is seen internally among its own citizens is essential for the development and implementation of a country’s branding strategy.
2. Literature Review

2.1 Destination Image

Destination image is important to the success of tourism development (Tasci and Gartner 2007). Destination image is generally defined as the “sum of beliefs, ideas, impression, and expectations that a person has of a destination” (Crompton 1979, p. 18). Gun (1972) proposed that people’s destination image is influenced by two dimensions: an organic image and an induced image. Organic image is formed from sources not directly associated with a destination area. Induced image is formed through the consumption of information and promotional materials provided by the destination.

Destination marketers project carefully crafted images in order to effectively shape the induced image. Bramwell and Rawding (1996) defined projected images of a destination as “the ideas and impressions of a place that are available for people’s consideration” (p. 202). The projected destination image is a result of the destination’s tourism development plan, the use of narratives, expressed meaning, and produced imagination (Govers and Goo 2005). The projected destination image is created strategically by tourism marketers using communication channels targeted to specific markets (Ashworth 1988; Kotler, Haider, and Rein 1993; Middleton 1994; Baloglu and Uysal 1996; Pritchard 1998; Andreu, Bigné, and Cooper 2000). Consequently, promotional materials are important because they represent the tourism products and the destination until tourists actually visit (MacKay and Fesenmaier 1997; Sirakaya and Sommez 2000).

2.2 Residents’ attitudes toward tourism

According to Wang, King, and Heo (2009), the involvement of local communities in tourism development is an essential aspect of sustainable tourism because, without proper destination planning and development, tourism can negatively impact host communities and can cause adverse impacts on cultural and natural resources (Sirakaya, Jamal, and Choi, 2001). It is therefore important to assess the local residents’ attitudes toward tourism. Morrison (2013) stated that it is important to be sensitive to the interests of local residents. The destination marketing organizations not only represent tourism and hospitality organizations but also are responsible to the residents of their communities. Most studies regarding residents’ attitudes focus on tourism development; however, a few studies have researched residents’ attitudes toward tourism promotion and marketing (Braun, Kavaratzis & Zenker, 2010, Cho & Park, 2009; Kwon 2008; Schroeder 1996; Stylidis, Biran, Sit, & Szivas, 2014). Kwon (2008) examined attitudes and opinions of local residents regarding destination marketing and identified the role of cognitive, affective, and behavioral components in residents’ attitudes toward destination marketing. The study results revealed that “residents, who have a high level of belief, emotional experience, and involvement in decision-making of tourism development and promotion, are more likely to hold positive attitudes toward tourism marketing and promotion than those with lower levels” (p. 1).

Cho & Park (2009) study suggested that the more the resident identify with their destination brand, the more they intend to spread positive words about their destination, provide an enjoyable experience to visitors, and enjoy more tourism/leisure activities within their place. The findings recommended that tourism marketers should make sure that local residents’ perceptions of the destination brand are considered in the destination branding strategy in order to create collaborative efforts. Schroeder (1996) also commented on the importance of residents’ attitudes toward destination marketing, indicating that the image that residents have of their country as a destination is important because of its relationship with tourism development. Residents’ support may influence political support for tourism funding.
and development and it may influence how they recommend their region and the
information provided to friends, relatives and businesses. Morrison (2013) stressed
that “there is a growing recognition that destination marketing organizations need to
continuously pay attention to how local people perceive the tourism sector” (Morrison,
2013, p. 130). There is limited research conducted by destination marketing
organizations addressing this topic.

Having local residents’ favorable opinions and perceptions toward tourism are
paramount for the sustainable development of a destination (Nunkoo & Ramkisson,
2010). Sustainable development can improve the quality of life of the host
community, and maintain the quality of the environment on which both the host
community and visitors depend (McIntyre, 1993). Liu stated that involving and
rewarding the local community is essential because “the host population is itself a part
of the tourism place product” (Liu, 2003, p.466). Locals spend time and interact in
settings for tourist activities and their attitudes and behavior are part of the hospitality
resource of a destination (Smith 1994). Their attitudes and behavior can greatly
influence the satisfaction and overall experience of tourists in a destination (Chen &
Raab, 2009). According to the World Tourism Organization’s Global Codes of Ethics
for Tourism (2000), local residents should be associated with tourism activities and
share equitably in the economic, social, and cultural benefits they generate and in the
creation of employment opportunities resulting from them.

The friendliness of local residents and their contribution into local tourism
development have been identified as critical components of a successful tourism
destination (Murphy, Pritchard & Smith, 2000). Residents can have a more active role
in destination marketing and management processes (Gallarza, Saura & Garcia,
2002). They have a more comprehensive understanding of the place’s attributes and
uniqueness as well as the problems and changes caused by tourism development
(Henkel, Henkel, Agrusa, Agrusa & Tanner, 2006; Jutla, 2000; Reiser & Crispin,
2009; Ryan & Cave, 2005; Sternquist-Witter, 1985). Therefore, understanding the
residents’ perspective is important in identifying development trajectories that could
bridge incompatible demands and images of the different stakeholders (Bandyopadhyay & Morrais, 2005; Dredge, 2010).

2.3 Sustainable Tourism Marketing

Sustainable tourism marketing is an essential function of sustainable tourism
sustainable tourism marketing focusing on integrated systems, eco-cultural justice,
and ethics, in which collaboration and partnership of stakeholders is an essential
aspect. Gilmore, Carson, and Ascencao (2007, p. 255) defined sustainable tourism
marketing as “marketing that incorporates social, economic, and environmental
sustainable tourism marketing should (a) reflect corporate attitudes, (b) balance the
interests of stakeholders (residents and industry) with the long-run environmental
interests of a destination, (c) meet the demands and expectation of customers, and (d)
ensure quality of life and environments through tourism development. Considering
resident attitudes towards the projected destination image is therefore a core aspect of
sustainable tourism marketing efforts and is the focal concept researched in this study.

3 Methodology

The purpose of this study is to understand the following: how do local residents
perceive their country as a tourism destination; how do they perceive themselves and
their culture; and how, do local residents evaluate the portrayal of their culture and
places in the marketing efforts of the destination marketing organization. Few studies
have analyzed the perceptions that residents have of their own countries as tourism destinations as portrayed in marketing campaigns (Kwon, 2008). A visual qualitative research method that involved elicitation of attitudes based on visual promotional materials was chosen for this study because it allows the researcher to get inner experiences, perspectives, impressions, and opinions of participants, and to determine how meanings are formed (Strauss and Corbin, 2008).

The destination selected for this study is Puerto Rico. Puerto Rico started to emerge as a tourism destination in the 1940s. Currently, Puerto Rico is known for being a hub between Latin America, the Caribbean and the United States. Puerto Rico is a target destination for cruise ship passengers travelling to other Caribbean Islands. The Puerto Rico Tourism Company is the government agency in charge of the development and planning of the tourism industry in Puerto Rico, the marketing and promotion of the island as a tourism destination, and the regulation of tourism products and services. It is in charge of the projection of the official destination image of Puerto Rico. The government agency was created through Law #10 on June 18, 1970 (Compañía de Turismo de Puerto Rico, 1999). After its creation in 1970, PRTC acquired other responsibilities and tasks. The agency is now in charge of planning and promoting Sustainable Tourism program and projects. The Sustainable Tourism program’s goal is to ensure that the government agencies and the private sector operate areas with important ecological, cultural, and historic values using specific sustainable tourism guidelines.

3.1 Phase One: Critical Visual Analysis

The research for this study was conducted in two phases. In the first phase, a critical visual analysis was conducted in order to have a better understanding of how peoples, places, and culture are represented in destination marketing materials. For this study’s purpose, destination-marketing materials consisted of promotional materials employed by the Puerto Rico Tourism Company to promote Puerto Rico as a tourism destination to residents and tourists. Three marketing campaigns were analyzed for this study, including Puerto Rico: Explore Beyond the Shore, Through the Eyes of Elliot Erwitt, and Puerto Rico Does It Better. In all, 1,139 photographs, three TV ads, and three videos were collected. For the purpose of this study, a brief overview of three marketing campaigns will be discussed. Promotional materials stemmed from 2009 to 2010 and were current at the time the study was conducted.

The Puerto Rico: Explore Beyond the Shore campaign promoted Puerto Rico as a vibrant destination rich in natural beauty and activities beyond the beaches (Hispanic Surf 2005). It also included elements of the island’s cultural and historic heritage, and Puerto Rican music was featured in the television advertising. The ads featured “fast-moving images of activities offered by the island accompanied by Salsa music juxtaposed by snapping fingers” (Vallejavier 2005, p. 24). The main themes used in the advertising campaign were rest and relaxation, nature and sports, history and culture, entertainment and nightlife, and the regional destination of Porta del Sol located on the west region (Hispanic Surf 2005). In addition, people in the ads were portrayed as vibrant, happy, and welcoming. The campaign was designed not only to promote Puerto Rico as a world-class tourist destination, but also to reiterate a strong commitment to the environment and sustainable tourism. The advertising campaign focused on traditional markets for the destination such as New York, Los Angeles, Boston, Chicago, Dallas, and Miami. New markets in Philadelphia, Atlanta, Charlotte, and Denver were added to expand the U.S. market (Hispanic Surf, 2005). A Spanish version of this campaign (Explora Más Allá de la Playa) was launched in Latin American markets (Central and South America) focusing on culture, traditions, and attractions (Vallejavier, 2006). The U.S. campaign was also adapted for the European market. In addition, a television campaign with the theme of “Discover What’s Ours: Tourism Made in Puerto Rico” was launched to promote Puerto Rico among local
residents. This campaign utilized the endorsements of local celebrities. The campaign included print, radio, and television advertisements.

The Through the Eyes of Elliot Erwitt campaign was an integrated marketing campaign created by Ogilvy and Mather and De La Cruz Advertising, and was designed to increase awareness about Puerto Rico (Leisure and Travel Week, 2009). The campaign was designed to provide a glimpse of life in Puerto Rico as seen from an artist’s point of view. Elliot Erwitt, a celebrated photographer, depicted the “true realism” of Puerto Rico by taking photographs of the people, culture, places, natural beauty, beaches, and architecture, in order to provide an idea for travelers of what a trip to Puerto Rico could offer. The campaign consisted of “television, print, and online webisodes with messaging that evokes a personal connection with Puerto Rico and inspires people to visit the islands” (Leisure and Travel Week, 2009, para. 6). Each ad featured a specific aspect of what the island has to offer, including history and architecture, dancing, gastronomy, culture, and Puerto Rico’s various islands. The campaign ran on several television networks including Bravo, Food Network, Fine Living, Travel Channel, CNN, and CNBC. Print ads appeared in publications such as Vanity Fair, Architectural Digest, Food and Wine, In Style, Town and Country, and Travel and Leisure. Digital and out-of-home advertising were also utilized to support the campaign. Examples of out-of-home advertising are posters in commuter rail stations in Atlanta and Philadelphia, and a billboard inside the American Airlines terminal at JFK airport (Ryan, 2010a). The campaign launched in December of 2009 and ran until June of 2010. The campaign was targeted toward people “who want their vacation to be an enriching experience, who want more than just a pretty beach” (Leisure and Travel Week 2009, para. 6). They want a sophisticated experience where they can learn about culture and history. The campaign ran in New York, Philadelphia, Chicago, Washington DC, Dallas, Ft. Worth, Atlanta, and Miami.

The marketing campaign, Just Think Puerto Rico, was a destination-driven campaign “building upon the Puerto Rico Tourism Company’s strategic market positioning as the most diverse and vibrant destination in the Caribbean as well as an attractive destination for the business traveler” (Ryan 2010b, p. 28). The campaign launched in late September of 2010, and ran through mid-April of 2011. The marketing strategy was more consumer-driven and focused on digital media to keep up with the industry’s current trends. Within the marketing efforts, the destination website was revamped, mobile applications were developed, and advertising relied more on social media websites such as Facebook and the use of sweepstakes on Facebook. The campaign also utilized outdoor-media executions such as a newsstand display and a billboard placement in New York Times Squares. The campaign focused on portraying different attributes of Puerto Rico such as gastronomy, nature/adventure, history, culture, and entertainment. It targeted both leisure and business travelers from high-income demographics from mainland United States, because 80% of all tourists are from this region. The campaign targeted primarily East Coast locations. Other United States target markets included New York, Philadelphia, Miami, Washington DC, Chicago, Dallas, Atlanta, and Los Angeles.

In addition of the three marketing campaigns, the Puerto Rico Tourism Company has Que Pasa!, an official magazine for promoting Puerto Rico to tourists, the tourism industry and residents (Casiano Communications, 2011). Published every two months, the magazine provides information on accommodations, restaurants, shopping centers, casinos, attractions, and events. It serves travel agencies, wholesalers, and visitors, and it is also used extensively by locals. Visitors and locals can find a copy of the magazine in tourism information centers, newsstands and accommodations. The magazine is also distributed worldwide. The publication has sales of over 10,000 on 2,700 local newsstands and more than 20,000 paid subscribers.
The critical visual analysis procedure followed specific steps. First, a descriptive analysis was conducted. The researcher described the content of each photograph, TV ad, or video, and pointed out features contained within it. The researcher also paid attention to what was represented and what was not represented. After the descriptive analysis was completed, written notes were reviewed to identify themes and to interpret and evaluate the results. Next, the findings from the analysis were used to select the questions for the interviews and to select promotional materials that exemplified the findings of Phase I. Materials for the interviews were selected based on the themes found while analyzing the visual materials. The sample included several photographs that exemplified elements of each theme. Only photographs from magazines and brochures were selected to show to the participants.

3.2 Phase Two: Photo Elicitation Interviews

During the second phase of the study, photo elicitation interviews were conducted with twenty-nine Puerto Ricans currently living in Puerto Rico and twenty-two Puerto Ricans in Bryan/College Station, Texas, in order to gain a better understanding of residents’ attitudes toward representation of people, culture, and place in destination marketing, and their perceptions of Puerto Rico as a tourism destination. Puerto Ricans living outside of Puerto Rico were interviewed because they represent an in-between category of locals and tourists. Photo elicitation interviews are defined as interviews in which photographs are used as stimuli to initiate and guide the discussion between the interviewer and the respondent (Curry 1986; Harper 2002).

To participate in this study, subjects needed to be Puerto Ricans or people of Puerto Rican descent currently living in mainland United States and Puerto Rico for at least one year. For this study, Puerto Ricans are defined under the following characteristics: a. people of Puerto Rican parents or grandparents, b. people born in Puerto Rico or mainland United States, and c. people of Puerto Rican descent living in mainland United States. Twenty-nine interviews were conducted with Puerto Ricans currently living in Puerto Rico from late December of 2010 until mid-January of 2011. Twenty-two interviews were also conducted with Puerto Ricans living in College Station and Bryan, Texas, from late January 2011 until the middle of March 2011. In Puerto Rico, the researcher spoke with personal contacts who recommended possible participants for the study. Emails were also sent to personal contacts in order to recruit participants. These contacts were asked to recommend possible participants based on different backgrounds, age groups, and socioeconomic status in order to have a representative sample of Puerto Ricans. The researcher also asked interviewees to recommend possible participants using snowball sampling. This technique is used in studies of difficult to find populations. In College Station and Bryan, the researcher used personal contacts and spoke with the advisor of the Puerto Rican Student Association at Texas A&M University to recruit subjects. E-mails were sent to prospective participants to explain the details of the study and ask for their voluntary participation. The researcher also used snowball sampling in the United States context by asking interviewees to recommend possible participants for the study.

The local sample consisted of 29 Puerto Ricans or people of Puerto Rican descent. The sample was representative because it included participants of different socioeconomic status, age, and gender, who were from different regions of Puerto Rico and held a wide variety of occupations. There were 16 female participants (55.17%), and 13 male participants (44.83%). Twelve participants (41.38%) were from 25 to 34 years old, five participants (17.24%) were from 35 to 44 years old, and seven participants (24.14%) were 55 or older. Twenty-four (82.76%) participants were born in Puerto Rico. Five (17.24%) participants (people of Puerto Rican descent) were born in mainland United States, Central America, or the Caribbean. Twelve participants (41.38%) had a household income of $25,000-$50,000. A similar amount of
participants (6, or 20.69% respectively) had a household income of $10,000-$25,000 and $50,000-$75,000. The researcher asked participants if any of them had experience in tourism in order to have a better understanding of their perspectives. Twenty-one participants (72.41%) had no work experience in the tourism industry. However, eight participants (27.59%) did have work experience in tourism, and five currently work in the industry.

The non-local (Texas) sample consisted of 22 Puerto Ricans or people of Puerto Rican descent. Thirteen participants (59.09%) were female and nine participants (40.91%) were male. Two participants (18.24%) were 18-24 years old. Ten participants (45.45%) were 25-34 years old. Four participants (18.18%) were age 55 or older. Nineteen (86.36%) participants were born in Puerto Rico. Three (13.63%) participants (people of Puerto Rican descent) were born in mainland United States and Europe. Nine participants (40.91%) had a household income of $10,000-$25,000. Twelve participants (18.18%) had a household income of $25,000 to $50,000. Three participants (13.64%) had a household income of $50,000 to $75,000. Six participants (27.27%) had a household income of more than $75,000. Nineteen participants (81.82%) had no work experience in tourism, but three participants had a direct job in the industry. Six (27.27% respectively) of the participants have lived in United States for 1-5 years and 25 or more years respectively.

Thematic analysis with an inductive approach was chosen for the data analysis of this phase because it is well suited for analyzing individual narratives or experiences (Mahrer, 1988; Spradley, 1979; Taylor & Bogdan, 1984).

Results
In the critical visual analysis of destination marketing materials, emerging themes were derived from the data (images). The emerging themes included people (mainly Puerto Ricans), Puerto Rican culture, beach destinations, and luxury destinations. These themes exemplified the destination attributes that the Puerto Rico Tourism Company stressed in its advertising campaigns and promotional materials. The Puerto Ricans shown in the photos appeared happy, full of energy, and joy, and were portrayed as outgoing and service-oriented people. Most of the people were portrayed in stereotypical roles as tourism industry employees, wearing jibaro attire, and dancing bomba, and plena. Several aspects of Puerto Rican culture were portrayed in the pictures, including food, traditional dances, music, and heritage. Photos portrayed a variety of beaches located in different regions of Puerto Rico, including Vieques and Culebra. Puerto Rico was frequently portrayed as a luxury destination in the images. There were many photos depicting elements related to luxury such as casinos, golf courses, luxury rooms, and high-end hotels, as well as many photos of people enjoying these venues.

The results of the visual analysis illustrate that the photos reflect the destination marketing organization’s ideologies regarding the representation of Puerto Rico and their reflections of what the tourists would like to see and experience. Based on the researcher’s observations, the ideologies are in accordance with a luxury lifestyle or an active and adventure-related lifestyle for young tourists with high income. Culture and heritage are portrayed as a complement to beach and luxury destinations, not as a key element in the visual representations. The representations reflected corporate attitudes, but failed to reflect an integrated and collaborated approach that balances the interests of tourism industry, tourists, and residents regarding visual images. Many aspects of Puerto Ricans and their lifestyles were left out. The integrated approach is a key aspect of sustainable tourism marketing.

Several emerging themes were derived from the final analysis of the interview data. An unexpected finding was that when the researcher showed the pictures to the Puerto Ricans living in Puerto Rico and to those living in Bryan/College Station, they...
expressed similar opinions about the different themes. Both samples also expressed similar critical opinions about tourism in Puerto Rico. This finding illustrated how strong a culture and its ideologies can be, no matter where people were currently live. When participants discussed their perceptions and opinions of Puerto Rico as a tourism destination, they listed the favorable attributes that Puerto Rico has as a tourist destination. Some of the attributes include (a) Puerto Rico has a great variety of options to offer to tourists; (b) uniqueness of the rich culture, architecture, and history of the island; (c) people and (d) location. Participants also expressed their concerns about different aspects that affect tourism development and planning in Puerto Rico. Some of these issues include (a) social and economic problems and conditions in Puerto Rican society; (b) politics that can influence how Puerto Rico is marketed; (c) cleanliness and crime near tourism districts; (d) issues that affect the competitive advantage of Puerto Rico as a tourism destination (service and prices); (e) transportation issues; and, (f) environmental impacts.

The results revealed that residents care about the portrayal of their culture and country of residence, and that they can provide critical and thoughtful insights about how the representation should be improved in sustainable ways. Overall, the residents interviewed had rather positive opinions of tourism in Puerto Rico and also had largely positive attitudes towards the visual imagery used to market the destination. However, they felt that the portrayal was incomplete and did not reflect the modern way of Puerto Rican life well. In addition, residents argued that culture, people, and places are sometimes portrayed in stereotypical ways and that past promotional campaigns failed to portray the essence of their culture and themselves as local residents. A more accurate and complete destination image featuring more elements of culture and heritage and a more diverse representation of destination attractions is needed to portray Puerto Rico’s destination identity and its local residents sustainably.

5 Discussion

The current research provided significant results in the evaluation of destination marketing efforts and promotional materials, and the relationship between these efforts and residents’ perceptions. Futures studies in destination image, residents’ attitudes toward tourism and sustainable tourism marketing should seek to explore several topics in greater depth. These include the stakeholders’ attitudes toward sustainable tourism marketing, the perceptions of residents living abroad, and tourism employees’ attitudes toward destination marketing. From a practical perspective, destination marketers and planners should rely more often on residents’ attitudes toward tourism and destination marketing and integrate more participation by residents in the decision making process. Residents can provide thoughtful insights about their culture and themselves in destination marketing and promotional materials. Residents not only care about the tourism development of their countries, also care about tourists’ experiences. Residents are aware of and are sensitive to tourism planning conducted by government entities. Destination marketers should conduct research to gather residents’ general sense of the country. Planners and developers should develop tourism marketing and promotion strategies that meet residents’ needs, wishes, and demands.

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TSA as the foundation for a Regional TSA

TSA as the foundation for a Regional TSA (R-TSA): measurement and economic analysis at sub-national levels by INRouTe


A Dynamic Linear Model to Forecast Number of Nonresident Hotel Registrations in Puerto Rico Using Google Trends Search Query Data by Rivera, R.
As part of the agreement held between UNWTO & INRouTe, INRouTe will submit to UNWTO in 2016 a document entitled “A Closer Look at Tourism: Handbook on Sub-National Measurement and Economic Analysis of Tourism: UNWTO Guidelines” (provisional title). The present document constitutes part of the current draft of such handbook.
List of abbreviations and acronyms

http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
INRouTe: International Network on Regional Economics, Mobility and Tourism
http://www.inroutenetwork.org/
IRTS 2008: International Recommendations on Tourism Statistics 2008 issued by UNWTO.
NSO: National Statistical Office
TSA: National Tourism Satellite Account
TSA-R: Regionalized Tourism Satellite Account
R-TSA: Regional Tourism Satellite Account
RTA: Regional Tourism Authority
R-TIS: Regional Tourism Information System
SNA: System of National Accounts
UN: United Nations
UNWTO: United Nations World Tourism Organization

INTRODUCTION

1. As opposed to the term Regional Tourism Satellite Account (R-TSA) usually used by UNWTO referred to the regional adaptation of the TSA accounting framework (designed for the national level), it would seem reasonable that INRouTe would steer, instead of that one, the term “Regional extended TSA exercise”, given that most documented cases are precisely exercises.

2. Within the proposed term it should be highlighted that, it is an exercise, expected to be useful for analytical aims, despite the accounting framework not counting with the statistical rigor of a proper TSA. For instance, it would not be imperative that such an exercise would result on Table 6 tourism ratios from a regional statistical research aiming exclusively at that.

3. It is also relevant to note that whilst the consolidation of a TSA project entails a series of annual results, the cost linked to the development of a R-TSA project hinders its sustainability over time.

4. Such a comment counts with another relevant nuance given that the UNWTO has long been insisting on defending the TSA branding. This is, it would be desirable that a country explained that the first time the TSA is addressed necessarily there will be a different set of limitations (most likely due to the lack of access to all the necessary information to rigorously complete the TSA accounting framework). These limitations would force the entity conducting it (usually National Statistical Office) to correct the information gap of the estimate. Hence, NSOs should warn users of the published results that these come up from a first exercise.

5. This document aims at setting the basis for a set of suggestions regarding the measurement and analysis at subnational levels, undoubtedly linked to TSA as a catalyst of a significant set of aligned initiatives and as a methodological framework of reference.
1. The Regional TSA in perspective: UNWTO initiatives during 2002-2013

1.1. Looking to UN official statistical standards, those referring to tourism statistics approved in 2008, clearly mention the adaptation of the statistical framework for basic statistics and indicators (see chapter 8 of the 2008 IRTS) and the development of the TSA (see Annex 7 of the 2008 TSA:RMF) to subnational levels.

1.2. Regarding the TSA present standard, it should be remembered that the first time UNWTO referred to a regional TSA was in 2002: “The Tourism Satellite Account (TSA) from the Regional Point of View: Reflections for Debate” signed by José Quevedo – UNWTO consultant and first President of Spain’s National Statistical Office- appeared in volume 2 of the Enzo Paci Papers on Measuring the Economic Significance of Tourism (a series of eight annual reading documents prepared by UNWTO Statistical Unit).

UNWTO used such document in order to promote an international consultation process about the opportunity to extend the TSA conceptual framework to subnational levels; main milestones of such process were the following international Seminars and Conferences supported by Visit Scotland, the Comité Regional du Tourism Riviera Cote d’Azur and, finally the Direction du Tourism of France, respectively:
- Glasgow 2003 (February 10-11)
- Antibes 2004 (February 18)
- Paris 2005 (April 21-22)

1.3. As an outcome of such process, a discussion paper (dated in September 2005) prepared by the former WTO Department of Statistics and Economic Measurement of Tourism was presented with the title “Adapting the national Tourism Satellite Account project to subnational levels” to the WTO conference “The Tourism Satellite Account (TSA): Understanding Tourism and Designing Strategies”, Iguazu Falls, Argentina/Brazil/Paraguay, 3-6 October 2005. Session 3 of such conference was devoted to “Tourism Satellite Accounts: The Regional Perspective” and the central paper was drafted by Calvin Jones and received requested comments by Mara Manente; also other comments were presented.

The above mentioned WTO document was drafted in the perspective of “an international consultation on updating the conceptual framework of tourism statistics (those approved in 1993, in which the groundwork was laid for the development of the System of Tourism Statistics, as well as TSA:RMF 2000); a consultation that WTO opened up in the first quarter of 2006. Such consultation was part of the international community’s efforts to clarify the conceptual relations and bridge some of the existing gaps between the TSA, the Balance of Payments and the System of National Accounts. The results of that exercise were submitted to the United Nations Statistical Commission for approval at its 2008 session.

1.4. In the Introduction of the 2005 document, WTO explicitly mentioned the basic initiatives of the TSA project at a national scale and how the extension of the TSA conceptual framework to adapt such tool at subnational levels should take place: “this document sets out an initial proposal for its regional adaptation, in which precedence would be given to promoting the economic analysis of tourism as a first step in assessing the consistency of the regional system of tourism

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8 In the past UNWTO was known as WTO
statistics and identifying the need for new sources and analyzing key factors that may influence the results.”

1.5. Also the introductory chapter of such document (pages 2 and 3) summarizes WTO’s position on the two possible ways to adapt the National TSA (TSA): regionalization of the TSA (identified as TSA-R) and development of a regional TSA (identified as R-TSA). These were the main arguments presented for both approaches” be compatible with each other:

- tourism is essentially territorial: the development of tourism in the regions is of increasing interest to the regional authorities, and to Regional Tourism Administrations (RTAs) in particular, because of the prospects of employment in the various tourism industries;
- information on tourism activity at regional level cannot not be obtained by relying solely on the regionalization of national sources: even supposing, in the best of instances, that they had the necessary sample sizes for gathering the relevant data, the specific features of tourism in regions where it is an important industry make it desirable for them to have their own sources;
- consequently, if those regions have the necessary administrative skills and resources, they should, logically, progress in the measurement and analysis of tourism’s economic contribution;
- more specifically, ever-more RTAs are realizing the desirability of preparing regional TSAs as a means of approaching the tourism sector from the supply side and, hence, providing useful indicators for tourism enterprises and organizations in identifying possible business opportunities, assessing the volume and intensity of tourism business and determining the extent to which private and public regional tourism networks and clusters are interconnected;
- in any event, the paucity of information of all kinds that typifies regional systems of tourism statistics (even to the point where there is often no table of macromagnitudes that may be taken as a benchmark for calculating the economic contribution of tourism) means that serious consideration should be given, as a first step, to the possibility of using estimation techniques for the main variables of the economic contribution of tourism. This initial exercise will serve not only to determine the need for future information in the form of statistical operations to further the progress towards an R-TSA but also to raise awareness of tourism and, in so doing, generate the necessary political interest in and financial commitment to strengthening the tourism information system;
- lastly, and needless to say perhaps, where countries do not have an TSA project, it would be inadvisable for a region with substantial tourism activity not to initiate the process of formulating its own R-TSA project “

1.6. Three years after the Iguazú Conference, the United Nations Statistical Committee approved in its 2008 session the new standards of tourism statistics presented by UNWTO; since then, the following initiatives launched or supported by UNWTO have paved the way to promote INRouTe and assume that the work carried on “will form the basis for future UNWTO guidelines on the measurement and analysis of tourism from the sub-national perspective. This perspective is crucial for a better understanding of the spatial distribution of domestic tourism
(both in terms of flows and in terms of economic contributions), an issue recurrently highlighted by several UNWTO Member States as being of utmost importance” (INRouTe/UNWTO 2012, Abstract)

The following initiatives have been the most relevant ones:
- Philippines/Cebú 2008- Sixth International Tourism Forum for Parliamentarians and Local Authorities
- Spain/Malaga, 2008 - UNWTO International Conference on Measuring Tourism Economic Contribution at Sub-National Levels, “Knowledge as Value Advantage for Tourism Destinations”
- UNWTO/INRouTe Cooperation Agreement 2011
- Spain/Bilbao - MOVE2011 2nd International Conference on the Measurement and Economic Analysis of Regional Tourism
- Italy/Venice, 2012 - INROUTE first Seminar on “Regional Tourism: setting the focus”
- Colombia/ Medellín - MOVE2013 American Chapter 2nd International Conference on the Measurement and Economic Analysis of Regional Tourism
- UNWTO Statistics Committee sessions

All of them have contributed to the production of a significant number of national initiatives related with the measurement of tourism at subnational levels as well as R-TSA exercises being the Flanders-Brussels TSA projects the last of them.

2. Complexity of the regional measurement of tourism
2.1. As previously stated (see INRouTe/UNWTO 2012, paragraph 3.5), “there are many aspects of the measurement of tourism at the national level that are quite different when compared to cases of sub-national scope”: this is true both for demand and supply. That is to say that the scope of sub-national tourism is not a mere disaggregation of national tourism; it also has its own thematic singularity and technical complexity when it comes to its measurement.
2.2. Regarding regional demand, in addition to the main issues addressed in UNWTO 2014 /chapter 3 “Subnational tourism research: the need for modelled data”) the following ones are particularly relevant as well:
- Tourism trips undertaken by the resident population has greater importance because the measurement and analysis of domestic tourism can only be improved from a sub-national perspective (and this implies setting a link between tourism and territory), and requires also to learn from the experience of mobility researchers (see UNWTO 2014 /chapter 4)
- In fact when considering the adaptation of national TSAs to subnational levels, it becomes evident that the use of data derived from national household surveys used for measuring domestic tourism are not so robust (in statistical terms) as assumed; a main reason could be that the use of such surveys are more short term oriented and lack of a proper sample size so as to derive the main indicators needed for setting up an estimate of the economic contribution of such form of tourism
- Demand side surveys have not always been designed to provide regional estimates. In the case of domestic tourism surveys, the possibility or not to generate an Origin/Destination matrix of
intraparegional flows of trips/visitors makes the difference. The IRTS2008 states “for sub-national analysis of domestic tourism, it is also essential to characterize trips according to the place of usual residence of the visitor, his/her personal characteristics and the main destination of the trip. This information, usually collected through household surveys, is often represented in matrices showing the number and duration of trips by origin and destination”;

2.3. **Regarding regional supply**, the following issues should be sufficient to raise the need for setting up an agenda for improving its measurement:

- the concept of “tourism sector” (see UNWTO/INRouTe Basic Glossary/Tourism Sector) is not always appropriate at sub-national levels due to the fact that a cluster of existing number of production units in different tourism industries might not be significant at such territorial level (for the criteria used to determine “significance”, see also UNWTO/INRouTe Basic Glossary);
- the identification of tourism industries at the regional level might justify, in some cases, the consideration of, for example, the producers of souvenirs, jewelry and handicraft as tourism related activities, while this would not necessarily be the case at the national level (in the case that the associated expenditure were marginal or scarcely significant);
- also vacation homes (or more precisely, accommodation services associated with all types of vacation home ownership), as a peculiar type of tourism industry, might deserve special attention in some regions (see Libreros and Cañada, 2010)
- the measurement of passenger transport is almost impossible to approach exclusively from the regional perspective (as it is normally necessary for the national information to be disaggregated using some kind of ad hoc indicators or parameters); also interregional trade in tourism characteristics products (both goods and services) should be mentioned as very problematic because it is not so easy to measure what one region produces and which part of it is consumed by visitors in another region
- while at the national level it would be possible to justify not prioritizing certain issues (like the measurement of the tourism contribution of special events, the Meetings Industry and its tourism connection, the expenditure associated with the maintenance of vacation homes, the phenomenon of same-day visits, linking tourism expenditure to the main purpose of the trip, etc.), these could be of priority interests for certain regions were tourism is significant;

2.4. There are many other examples but when looking to the structure of tourism industries, these two particular issues should deserve special attention:

- one of them refers to the challenging issue of setting up an articulated set of data at national and regional levels based on particular national surveys such as Business Registers or Annual Industrial Surveys due to the use of different statistical units (enterprise and establishment). For better understand such complexity, see Annex 1.
  Certainly the effort carried on in Poland tempting to develop a harmonized approach for setting R-TSA in all 16 regions (in terms of NUTS 2), illustrate that such articulation is a challenging issue and might deserve a project by its own (see “Methodology of the regional tourism satellite account for Poland –concepts and feasibility study”, EwaDziedzic and Teresa Skalska –see Dziedzic,E and Skalka,T,2014-). Also MacFeely S., Delaney J. and O’Donoghue F (see MacFeely et al. 2012) have carried on a detailed project applied to Ireland
- the other one has been highlighted by Calvin Jones (Jones,C2005) (when discussing about regionalizing the national TSA), and refers to
the irrelevance of using “national averages” for regional measurement in regions where tourism is significant.

“Perhaps, however, a strength of the R-TSA approach is also its most striking limitation: standardization of structure across regions. This will impact upon usefulness and accuracy. For example, as Statistics New Zealand points out ‘tourism activity’ may comprise whale watching in one of its regions, skiing in another. It may be difficult to construct a classification and survey system that is flexible enough to deal with these difficulties. More importantly, unless there is a full set of regional Input-Output Tables upon which to base the R-TSA it is likely that national ratios for important aspects such as industry production functions, or imports of products (here including inter-regional imports of course) must be adopted, or adapted (via the use of indirect measures). This may lead to significant (and invisible) error in regions where the industrial structure or activity varies significantly from the national ‘average’ – surely the case for many touristic regions.

Meanwhile, the institutional platform for a R-TSA would have to be carefully considered. Regional stakeholders may feel aggrieved at a lack of involvement in TSA development, particularly if they feel results are not tailored to their needs. There may also be a tension if the timescale of national development is slow. Consider the UK: London, for example, might have used TSA results to inform its bid for the 2012 Summer Olympics, and the city has adequate resource to develop such a tool; yet the statistical and accounting expertise exists largely within the national statistical agency, which is largely uninvolved in TSA development at national, let alone regional level.”

3. “Significance” and “Scalability” as key concepts for measuring and analyzing tourism at subnational levels

3.1. The concept of significance refers to the economic importance of tourism in any subnational area; this concept, used in the IRTS 2008 (paragraph 5.10) as the criteria for defining a tourism characteristic product, is suggested by INRouTe to be also used at the subnational level in order to identify when a territorial entity can be labeled as a tourism destination.

For the operationalization of “significance”, INRouTe recommends the use of a limited number of indicators (both from the supply and demand side) as well as the agreement of key stakeholders in such territory about its use and credibility

Significance of tourism as included in UNWTO/INRouTe Basic Glossary:

Refers to the economic importance of tourism in any subnational area; this concept, used in the IRTS 2008 (paragraph 5.10) as the criteria for defining a tourism characteristic product, is suggested by INRouTe to be also used at the subnational level in order to identify when a territorial entity can be labeled as a tourism destination.

In order to promote not just intra-national but also international comparability, the application of such concept by its own is misleading; there is also the need for a supplementary set of concepts, definitions and classifications that should be internally consistent, so as to facilitate the link between the conceptual frameworks of the

For the operationalization of “significance”, INRouTe recommends the use of a limited number of indicators (both from the supply and demand side); each country should complement them and fix the threshold for its application in absolute terms, if deemed appropriate and feasible.

Different key tourism stakeholders could also launch such proposal; in any case, the initiative should be subject to a formal requisite: the agreement of key stakeholders in such territory.

INRouTe proposes the following criteria in order to support intra-national and international comparability:

- **From the Supply side**, the use of employment figures associated with part of the Accommodation for visitors industry: hotels as well as other activities such as motels, guesthouse, pensions, bed and breakfast, time share units, etc. Complementary criteria could be based in other accommodation services for visitors, number of establishments in the tourism industries, value added by the tourism industries, basic infrastructure and tourism equipment, etc.

- **From the Demand side**, the use of overnight figures; complementary criteria could be number of visitors –including same-day visitors-.

For the application of both criteria, INRouTe recommends the use of the following indicators:

- **Ratio between the Tourism Population and the overall Resident Population (%)**.

  At the local level, the ratio of such Tourism Population to the overall Resident Population (excluding overnight stays by those inbound visitors staying with friends and relatives) should be more than 8%: such average of the Total Resident Population in a calendar year is considered to be relevant enough to affect (if maintained or increased during some years) the use of resources, environmental and urban services management and territorial planning. (See also Tourism Population)

- **Ratio between number of employees in ISIC Rev.4 class 5510 “Short term accommodation activities” and the total number of employees (%)**

  At the local level, the ratio should be more than 4%

Obviously, such ratios should be adjusted in due time

INRouTe also recommends that at the regional level, national and regional authorities should agree on the value of such ratios

Most consolidated destinations will fulfill both criteria and consequently, such tourism destinations could be analyzed as a territorial entity with a tourism sector and a tourism market

In principle, only in those subnational areas where both indicators could be derived, it
would be justified the need for more detailed data and analysis.

3.2. As referred in the proposed definition for operational purposes, there is also the need to precisely identify the territorial entity of application of the supply and demand side criteria; consequently, INRouTe has also fixed a hierarchical classification of territorial entities. Any of such units where tourism is significant could be labeled as a tourism destination for the INRouTe project.

3.3. INRouTe recommends, “consolidated tourism destinations” as the first step for comparability purposes; such territorial entities should satisfy both supply and demand side criteria for more than 10 consecutive years. Most of such destinations are often referred, in tourism academic terminology, as “mature destinations”.

INRouTe will use as reference the following hierarchical classification of territorial entities (also referred as “subnational areas”) integrated by both administrative and analytical units at two basic subnational territorial levels:

INROUTE CLASSIFICATION OF SUBNATIONAL TERRITORIAL ENTITIES

REGIONAL LEVEL
- Region
- Multi-regional (supra-national)
- Multi-regional (intra-national)
- Other administrative units (sub-regional)
- Analytical units

LOCAL LEVEL
- Municipality
- Multi-local
- Other administrative units
- Analytical units

Such classification breaks down the national territory in two basic sets of units; the terms region, multi-regional and sub-regional used refers to subnational areas. Consequently, such terms and classification used in UNWTO/INRouTe documents should not be understood as the same terms used by UNWTO in its capacity of UN Specialized Agency for Tourism.

The classification should be adapted to any country and other extensions could also be envisaged for tourism purposes: for instance

- the urban/rural identification of tourism territories might be particular relevant for policy and planning purposes
- Multi-level units as combination of both Regional and Local

Particularly at the Local level, INRouTe warns about the fact that even for those units where tourism is significant, it may not always be appropriate to adapt the conceptual design of the R-TIS (see Regional Tourism Information System) because it is not evident that a Local Tourism Information System is necessary nor that it could be feasible; more precisely, it could be more appropriate in these cases to address statistical
and non-statistical efforts to the development of a Local Tourism Data Warehouse instead of a Local-TIS

For the INRouTe project, any of such units (either at the Regional or Local levels) where tourism is significant (see Significance) could be labeled as a tourism destination; consequently, the physical space of each destination must be clearly identified.

**At the regional level the following remarks apply:**

- the region is the basic unit ((identified as the administrative unit corresponding to the first level of territorial disaggregation of a country in terms of its political and administrative organization – for instance, NUTS 2 level in the EU, provinces in Canada or China, states in Brazil and Mexico, etc.))

- multi-regional implies combination of two or more regions

- other administrative units (for instance, NUTS 3 level in the EU as well as other subnational areas above Local)

Central to such administrative entities is the existence of Regional public institutes and agencies for tourism development and management

- examples of analytical units are: the French Riviera (combination of regional territories –“counties”- and an independent state –Monaco-), some national parks, etc.

**At the local level the following remarks apply:**

This grouping includes any municipality or other defined subnational area below Regional:

- the municipality is the basic unit (identified with clear administrative/political boundaries)

- multi-local implies combination of two or more municipalities.

Central to such administrative entities is the existence of a specific unit responsible for tourism in the municipality and/or a Destination Management Organization (DMO)

- examples of analytical units: areas considered of interest by selected stakeholders -mainly in consolidated destinations such as “area of influence” could well be of particular interest for investors; also the case of parts of local tourism destinations if there is a de facto significant difference in types of visitors – hence, with different type of consumption and behavior patterns-, etc.

3.4. While the concept of “significance” refers to the economic importance of tourism as an economic sector in any subnational area, the concept of “scalability” refers to tourism homogeneity as a prerequisite for proper territorial analysis of tourism.
Its operationalization requires georeference databases including demand / supply / employment statistical data and indicators; importantly enough, at least accommodation establishments should also be georeferenced.

3.5. “Scalability also implies that the analytical perspective of what is really relevant for key tourism stakeholders changes with the territorial scale of reference. As an example, at the local scale (either analytical or administrative units) the concept of “relevance” applied to the local level and national have nothing to do. Hence, the analysis of tourism at local levels requires the development of new concepts, perspectives and possibly methodologies for its measurement and analysis. Because now the conversation circles around unaddressed issues at the national level, or even at the regional level: localized environmental impacts, locals and visitors interaction, identifying tourism products and resources, daily mobility of tourism establishments’ employees, congestion within certain infrastructures or service providers, etc.

3.6. INRouTe proposed georeferenced database associated to R-TIS allows for a proper bottom up approach of those variables and characteristics (both of the establishments, visitors and associated trips) used in tourism analysis.

3.7. In the past, geocoding typically occurred as a survey post-processing step. More recently, survey responses rely on GISs to geocode origins and destinations in real-time during interviews; in these efforts, interviewers are able to determine whether the geographic information obtained is sufficient for analysis purposes or whether additional details need to be sought.

(Interested readers should see Chapter 8 in which the work carried on by ISTAC –Canary Islands Regional Statistical Institute- is presented as a relevant case study for the operationalization of both “significance” and “scalability” concepts; also the concept of “tourism homogeneity” is contextualized in the perspective of adapting the R-TIS to Subregional extensions)

4. Clarifying the adaptation of the TSA to subnational levels

4.1. UNWTO has summarized as early as 2005, the two possible methodological approaches to do so (see WTO 2005, paragraphs 3.1 and 3.3):
– “the interregional approach, which would be common to all the regions of the national territory and based on and intimately linked to the System of
National Accounts. It is an approach that relies on the existence of aTSA and the availability in each region of uniform tourism information for each of the tables and aggregates to be regionalized. An example of this approach is the regionalization of aTSA (identified as TSA-R) in Australia, Canada, Norway and others;

– the regional approach, which would entail the presentation of a given region, in which tourism is particularly significant, provided there is sufficient information forso doing. The TSAs of Scotland, Wales, Andalusia and Flanders, would be examples of this second approach, identified as R-TSA.

For either of these approaches, the first thing to note is that no conceptual framework exists at regional level equivalent to the System of National Accounts. The SNA93 does not define a specific framework for regional accounting; nor are the general statistical systems of most countries designed for this purpose. When mentioning regional accounts, they refer to a table or macro-magnitudes but never to a set of associated accounts developed to a similar degree.

4.2. Researchers and practitioners working all these years on regional tourism measurement have accepted that the first option could be identified with the use of “top-down” accounting approach while the second option would be associated with a “bottom up” approach. Such terminology might be mainly associated to European national accountants when referring to regional accounts: the term “methods” refers to the particular type of data collection used by EU Member States in order to estimate regional accounts and aggregates. In fact the Eurostat Manual on Regional Account Methods (see Eurostat 2012) refers to “Methods of regionalization” in two different, although complementary ways: data requirements for regional accounts and compiling practices (labeled as “bottom up / top down/ mixed methods”)

It seems that the translation of this wording to TSA development at subnational levels is not really appropriate.

4.3. More precise is the terminology used by Cañada (2013) referring to methodological approaches (avoiding the term “methods”): “regionalization” (of a national TSA) and “regional estimation” (of a TSA for a specific region, “just as one would calculate a national-level TSA”) (Cañada. 2013 para 1.2). It seems obvious that setting up a R-TSA requires, as a minimum, both the regionalization of a national TSA if available, as well as supplementary regional surveys and modeled data: this will be the content of section 5 focused on the second approach already mentioned.

4.4. The following paragraphs will refer to the first methodological approach (regionalization of TSA) which builds on:

– the expertise and institutional competences of National Statistical Offices
– the same data sources as those used for the National Accounts as a whole
– allocation methods used for regionalizing national data in National Accounts will probably be the same or a very similar one
– quite probably the publication of the commodity breakdown of supply and demand and the disaggregation of the GDP and employment by industry will not be so detailed as in the TSA
– conceptually there are no significant differences with the TSA except for the need to define the different forms of tourism at the regional level (see UNWTO/INRouTe Basic Glossary/ Regional Tourism)

INRouTe has not much to say on this regard but learn about how such approach can contribute to set up of R-TSAs; an alternative, which implies a much more expensive and time demanding approach but provides also a more powerful instrument to foster regional tourism measurement, policy design and analysis.

4.5. The following paragraphs (Jones. 2005: 5) provide a summary of major benefits and statistical constraints of the regionalization of TSA approach:

“TSA-R has a number of benefits. Firstly, it should produce results that are regionally comparable and consistent within the nation. Secondly, it may be undertaken at relatively low cost particularly if there are good quality demand and supply surveys that can be regionalized – and the full use of such resources should be optimized. There are also institutional implications to a centralized approach. It will involve the national statistical agencies, ensuring a considered approach to the conceptual difficulties, and the proper use of concepts and methods. TSA-R may also be more easily integrated into national series of variables – for example timely indicators of gross value added – which will aid the production of up-to-date results. Finally, and importantly, a TSA-R project, which starts from the national TSA results should be quickly credible and believable in the eyes of politicians and officials within central government.

4.6. The TSA-R approach relies very heavily on nationally constructed business and consumption surveys. Hence a full regional stratification of business inquiry, household and tourism surveys is a key requirement. Surveys of business are not always stratified to ensure an adequate return for each industry for each region, and this will be a significant difficulty in TSA construction. Similar problems may arise with surveys of tourists, particularly if international entry/exit points are used for surveys and these are regionally concentrated. There are significant methodological (not to mention conceptual) difficulties involved in allocating tourism consumption arising from a multi-region trip. Moreover, where tourism is concentrated in non-industrial or less populous regions, survey sample sizes may seriously hinder reliability and accuracy, unless TSA requirements are explicitly part of the survey design (this is rare at the moment). It is important that in addition to statistical and sampling issues, conceptual and methodological approach for national surveys is adequate to regional applications.“

4.7. As pointed by Peter Laimer (2012, para.1.2), “the development of R-TSAs follows in principle the same steps and methodological requirements as those for national TSAs. Nevertheless, the statistical challenge is to regionalize the national TSA, and to guarantee consistency with the national TSA as with the Regional National Accounts. Apart from statistical obstacles, the characteristics of tourism demand and supply differ according to the individual regions”

4.8. It might also be worth mentioning some comments and suggestions provided by UNWTO (see WTO 2005) reproduced below:

“For the “top-down” TSA-R approach to be feasible in a country with an TSA, it is essential to have access to a set of homogeneous tourism-related regional indicators so that the national aggregates may be regionalized”. (para 7.1 within WTO 2005)
“The fact that a country does not have Regional Economic Accounts is no impediment to regionalizing the TSA on the basis of those indicators. It would, however, be wise to qualify the estimation as experimental and to spell out the most significant limitations of the exercise. A consequence of this exercise will surely be that regions with appreciable tourism activity will be encouraged to consider the desirability of promoting an R-TSA project”. (para. 7.2 within WTO 2005)

“To ensure that it has the desired legitimacy, the TSA should be regionalized by the same technical unit that prepared the TSA (usually the National Accounts Department of the corresponding NSO)” (para. 7.4 1 within WTO 2005), in cooperation with key tourism stakeholders representative institutions.

“For its part, the credibility of the results of an exercise of this kind depends on the fulfillment of two requirements:
– that nationally constructed business and consumption surveys be based on full regional stratification samples; and
– that the indicators and statistics used are representative of each of the regions.”

4.9. However, because of the very nature of tourism (which involves a number of industries) and its relation with the territory, the existence of homogeneous indicators cannot always be guaranteed in advance”. (7.5 within WTO 2005)

“Since all these circumstances do not normally coincide, the work associated with the TSA-R should follow a pre-agreed plan to ensure that the results achieved, in addition to having the credibility expected by the institutions belonging to the aforementioned cooperation network, are available on a database that may be accessed by them.” (para. 7.6 within WTO 2005)

4.10. Tourism practitioners (including tourism officials who commission surveys and research, and those who undertake such surveys) are usually not aware of the great complexity and technical expertise required for what national accountants call reconciliation process particularly in setting up Table 6 in TSA: reconciliation between supply and demand is something that quite probably national accountants are the only ones that could deal with.

4.11. The regionalization of the TSA requires also of such reconciliation process in order to guarantee internal consistency between TSA and all regionalized accounts (see Kosovo, 2010 and Van Ho et al. 2008)

4.12. UNWTO has suggested that a R-TSA project should include, if not all at least some of the actions outlined in the following table

<table>
<thead>
<tr>
<th>Table 8Actions to be included in a TSA-R approach Source: Adapted from WTO 2005 Chapter 7, pp.24</th>
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</thead>
<tbody>
<tr>
<td><strong>Action proposed</strong></td>
</tr>
<tr>
<td>(i) Constitution of the Regional Inter-Institutional Network for R-TIS</td>
</tr>
<tr>
<td>(ii) Formation of a Technical Committee and of regional executing units</td>
</tr>
<tr>
<td>(iii) Assessment, from a regional and global perspective, of the tourism statistics and national accounts available and analysis of their quality and consistency</td>
</tr>
</tbody>
</table>
5. What is and what is not a R-TSA
5.1. As already mentioned in 4.3), the estimation procedure and the methodological approach to set up a TSA for a specific region is just as one would calculate a national-level TSA; consequently it would be of interest and helpful for defining a
feasibility study (see section 7), to adapt the WTO 2005 chapter I “What is the National TSA (TSA) and what is it not?”. Such chapter starts with a very clear recommendation: “Before putting forward proposals for adapting the TSA to subnational levels it would seem helpful to draw on the experience that WTO has gained in fulfilling its statistical remit”. (para. 1.3 within WTO 2005)

5.2. Ten years later, the following six paragraphs of UNWTO 2005 document seem particularly appropriate to be adapted in relation with this document’s guidance on setting up a R-TSA

If The development of the TSA should be an end in itself in that it would enable both the NTA and the CSO to meet their own aims in their respective spheres of competence. For NTAs, it would highlight the value of tourism as a factor of economic development and improve the design of tourism policies, and for CSOs it would help to strengthen the General Statistical System of which they are the custodians. (WTO, 2005, para.1.5)

Such a statement does not apply to a R-TSA. Pioneers in R-TSA (such as Scotland, Wales and Andalusia) “have taken on the development of such exercises in advance to the existence of a TSA at national level”. In the UK there is increasing pressure from regions that require TSA-type results, but lack the statistical infrastructure to carry forward such work. It is not, however, the importance of tourism per se that enables and drives these regional developments, but rather the perceived importance of tourism to economic development, coupled with a robust regional accounting structure and a measure of political autonomy. The latter aspect is crucial, enabling not only resources to be targeted towards TSA development but also, importantly, for lines of institutional responsibility, and economic targets to be directed by and toward regional politicians and officials, rather than national ones”. (Jones, C. 2005, page 12)

5.3. In the requested comments on Calvin Jones contribution to the Iguazú International Conference, Mara Manente (2005) raised two issues that should be kept in mind:

“So, it could be said that the process to build up a regional TSA is more important than the output, since it becomes a means for effectively accounting for tourism and enabling improved modelling downstream. This should become a cornerstone of the developing tourism strategy for destination management. Furthermore it becomes even more crucial at regional level to establish a bridge between statistical/analytical culture of technicians and the management mind-set of policy-makers and private companies. This implies, on one side, to share common concepts and language, on the other, to favour the identification/statement process of the information needs by local private and public actors.” (Manente, 2005 page 4)

5.4. Frechtling 2012 (chapter 3) mentions some complementary benefits to Manente statement such as:

- “Permits local and national authorities to track changes in the economic contributions of visitors spending over time
- Manifests the size and extent of the network of tourism industries and potential productive partnerships
- Enables comparisons of tourism economic contribution across regions and between regions and their national counterparts”
5.5. Consequently, it could be appropriate to say that not being an end in itself the perspective of developing a R-TSA in a region in which tourism is significant, will greatly contribute to foster and improve regional economic measurement, policy design and analysis (being more end-oriented than analyses from a national perspective); although costly, a project of this kind should have as an intermediate objective the development of a R-TIS and the use of Input/Output or Supply/Use tables.

5.6. Such perspective will find the opportunity and feasibility to set up a R-TSA in due time, as a supplementary step.

**II/ Another important aspect of this new framework is its formal structure: the TSA is a set of interrelated accounts. These are expressed in tables, where the accounting aggregates (tourism consumption, value added of the tourism industries, tourism value added, tourism GDP, etc.) are obtained by aggregating the individual headings. The individual data are as important as, or more important than, the aggregates obtained.** (para. 1.9 within WTO 2005)

Such a statement also applies to a R-TSA

5.7. INRoUt supports the proposal made by Agustín Cañada (2013) regarding the convenience to use a more compact format and limited number of TSA tables, as proposed in the following table

Proposal for an R-TSA

<table>
<thead>
<tr>
<th>TSA/RMF Tables</th>
<th>Proposal for an R-TSA</th>
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<tbody>
<tr>
<td>Table 1. Inbound tourism expenditure</td>
<td>---</td>
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<tr>
<td>Table 2. Domestic tourism expenditure</td>
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<tr>
<td>Table 3. Outbound tourism expenditure</td>
<td>(*)</td>
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<tr>
<td>Table 4. Internal tourism consumption</td>
<td>TABLE 1. Internal tourism consumption</td>
</tr>
<tr>
<td>Table 5. Production accounts</td>
<td>TABLE 2. Production accounts of characteristic industries</td>
</tr>
<tr>
<td>Table 6. Domestic supply and internal tourism consumption</td>
<td>TABLE 3. Supply and internal tourism consumption</td>
</tr>
<tr>
<td>Table 7. Employment in the tourism industries:</td>
<td>TABLE 4. Employment in the tourism industries.</td>
</tr>
<tr>
<td>Table 8. Gross fixed capital formation of tourism industries</td>
<td>TABLE 5. GFCF of the tourism industries. (Voluntary)</td>
</tr>
<tr>
<td>Table 9 Tourism collective consumption</td>
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</tr>
<tr>
<td>Table 10. Monetary and nonmonetary indicators of demand and supply</td>
<td>Table Annex 1. Indicators of demand and supply (Voluntary)</td>
</tr>
<tr>
<td></td>
<td>Table Annex 2. The region's external balances for tourism consumption (Voluntary)</td>
</tr>
</tbody>
</table>

(*) This concept can be approximated if the R-TSA includes the table in Annex 2.

Table 9 Proposal for the basic elements of a regional TSA. Cañada, 2013: 8

*This concept can be approximated if the R-TSA includes the table in Annex 2.
5.8. Such proposal builds on previous contributions by Douglas Frechtling (Frechtling 2012, chapter 5) and Calvin Jones (Jones, 2008) and is primarily justified in statistical terms: “the relatively detailed system of interrelated accounts that make up a TSA is extremely demanding of information: a body of detailed statistics is needed to complete all of the elements that define a TSA. And in many countries, such information is available at national but not regional levels” (para 21.i) within Cañada, 2013). One consequence of such restriction is that it cannot be properly said that R-TSA allows for an articulated measurement of tourism from a demand and supply side perspective as a complete TSA could do.

Consequently, R-TSA should
- recognize that the setting up of data and indicators needed will use the IRTS2008 as the common reference framework
- adapt the set of interrelated accounts as in TSA (at least TSA tables 4.5,6 and 7) using elementary data obtained from surveys and modeled data
- generate tourism macroeconomic aggregates as an accounting outcome (internal tourism consumption, gross value added of the tourism industries, tourism direct gross value added for each industry and for all industries, tourism gross regional product and employment in the tourism industries)
- be considered, at least for the first exercise, as an experimental exercise.

III/ The TSA may or may not be comprehensive (most of the countries that start the TSA project confine their efforts to an incomplete experimental exercise), but by no means can these accounts be simulated or modeled for one simple reason: the headings obtained on the basis of elementary data drawn from surveys and existing records cannot be simulated. It is however possible to simulate or model aggregates by performing economic modeling and impact assessment exercises, but this has nothing whatsoever to do with the statistical procedure used for obtaining these aggregates in the TSA. (para 1.10 within WTO 2005)

Such a statement also applies to a R-TSA

5.9. It is evident as stated by Agustín Cañada (2013) that:

“Initiatives have been taken in the various regions of Spain as well as other countries (Wales in the United Kingdom) (Jones et al. 2010) based on what are purported to be methods for regional estimation per se. Such TSA’s are developed as stand-alone products using the SUT and other statistical and accounting information for the specific region concerned, reproducing on a regional scale the basic TSA:RMF scheme, with the necessary adjustments and provisos required for conceptual and statistical reasons”. (Cañada, 2013, para 1.5)

“The most recent developments, both taking this latter regional perspective, have been the recently published 2011 TSA for Flanders-Brussels (Weekers, 2012), and in Spain, the TSA presented in 2010 for the Madrid region (Instituto de Estadística-C. Madrid (2011)).”(Cañada, 2013, para 1.6)

“However, the lack of a common conceptual and statistical framework has resulted in a wide heterogeneity of approaches, methods and results, making it difficult to compare the different products, with each other or with the national framework of a TSA. An additional consequence has been a surge in “competing” alternatives to the TSA, based on modeling procedures. All of this definitely affects the verisimilitude of tourism measurements, and by extension that of the TSA itself.” (Cañada, 2013, para 1.7)

5.10. Consequently, it should be clarified that a R-TSA is an extension of the TSA accounting framework, not a stand alone account; consequently it should not be compiled in a country that does not have a current or prior TSA.
Various member countries have advised the WTO Secretariat about the abuse of the term TSA (at both national and subnational level), especially by consultants (individuals and firms alike) who, in using input-output, general equilibrium or econometric models, attach the term TSA to their research and applications when they are in fact measurements of the economic contribution of tourism. This is not because their authors proclaim that they use TSA concepts and definitions in their research, but they are just that. It would be enough to establish that they were not the work of the Central Statistical Office (which are, with the exception of some Central Banks in Latin America, responsible for producing national accounts) to realize that the qualification “satellite” that they claim for their work is wishful thinking. (para 1.15 within WTO 2005)

Such a statement also applies to a R-TSA

5.11. As in the case of TSA, also for R-TSA is required the use of Input / Output or Supply /Use tables; such tables might be obtained by regionalization of the corresponding national tables or estimated as a regional approach per se.

5.12. It should be clarified that an Input-Output table can be constructed from the Supply and Use table from a country’s System of National Accounts (in fact such S/U tables are a sub-system of accounts); in this context, an I/O table can be used as an account (with some transformations I/O table can be transformed into a very useful analytical tool, the Input/Output Model) (Frechtling, D 2013 paragraphs 5.13 and 5.14) National Statistical Office and other institutions should be requested all along the R-TSA project (which is a medium term project).

Such cooperation is due to the fact that the R-TSA is an extension of the TSA which is carried out (bearing some exceptions) by Central Statistical Offices; this relationship is not properly said a statistical issue (although it obviously has statistical consequences) but a governance issue regarding a statistical initiative (the setting up of a R-TSA)

5.13. Consequently, a proper R-TSA requires two basic requisites:

- the use of a regional Input / Output or Supply /Use tables; such tables might be obtained by regionalization of the corresponding national tables or be estimated as a regional approach per se
- setting a strategy of inter-institutional cooperation with regional key tourism stakeholders including the National Statistical Office and other possible national bodies

V/ If a country decides to set up an TSA, experience shows that it is vital that it first develop a national System of Tourism Statistics (STS) by designing new statistical operations or updating/adjusting existing ones and making use of administrative records relating to the tourism activity of visitors. It will also be necessary to evaluate certain aspects of the country’s general statistical infrastructure (such as the classifications used, existing statistical operations for monitoring economic activities and household consumption and the existence, quality, timeliness and degree of detail of the National Accounts). (para 1.17 within WTO 2005)

Such a statement does not apply to a R-TSA

5.14. INRouTe doesn’t use the concept of system of tourism statistics and the gathering of basic data and indicators to fulfill the Regional Tourism Information System proposed does not conform exactly to the wording use in such paragraph. Importantly enough is the reference in the R-TIS to articulate a national / regional basic set of statistical data both from the demand and supply side using national surveys and statistical procedures
The recommended priority is to focus on the region as the basic territorial entity (identified as the administrative unit corresponding to the first level of territorial disaggregation of a country in terms of its political and administrative organization) and provide guidance about how to implement the R-TIS conceptual design. (see UNWTO/INRouTe Basic Glossary / R-TIS)

Of the three subsets conforming such information system, the first two refer to statistical data while the third one might not include any statistical nor official data; the development of such subset could be of interest of key tourism stakeholders others than tourism practitioners.

5.15. Consequently, before a region decides to set up a R-TSA, a feasibility study should be required including different topics such as:
- Availability of basic statistical data and indicators derived from national and regional surveys as well as modeled data
- Existence of the appropriate statistical infrastructure (including databases)
- Feasibility of organizing a professional team
- Budgetary resources for developing supplementary data
- Possibility of applying a governance structure for setting up the project between key tourism stakeholders and national bodies (mainly CSO and NTA)

Chapter 4 provide UNWTO guidance on the last topic
VI Priority must be given to developing the STS, it is absolutely essential that the NSO be involved in formulating the relevant project, for three obvious reasons: because of its technical skills and its institutional responsibilities (which confer the necessary legitimacy on the exercise as a “satellite” of the National Accounts) and because its participation is vital to the continuity of the project, which is not merely a one-off exercise but the institutionalization of TSA preparation as part of a country’s ongoing statistical work. (para. 1.18 within WTO 2005)

Such a statement also apply for a R-TSA

5.16. The target population of this document refers to tourism practitioners - including tourism officials who commission surveys and research, and those who undertake such surveys- and different key stakeholders in relevant tourism destinations –including governments, public institutes and agencies, universities, research centers, industry associations, trade bodies and specialized firms-.

5.17. It has also been mentioned (see Section 1) that “during the first four-year period (2012-2015), INRouTe has limited its focus on selecting some aspects/elements of each of them in order for the INRouTe project to become a credible medium/long term endeavour combining the following objectives:
- Empowering tourism entrepreneurs as key stakeholders of the tourism sector;
- Avoiding information overlapping between national and regional levels;
- Fostering the dissemination and use of available data and analysis.”

5.18. In order to contribute to the sustainability of the efforts (both financial and technical) necessary to develop a R-TIS and eventually a R-TSA, INRouTe has developed a proposed inter-institutional network for the setting up of a Regional Tourism Information System; such network should be integrated by key tourism stakeholders (both at the regional and subregional levels) and supported
technicality by a multi-disciplinary group of experts in statistics, geography, economics and tourism as well as other practitioners and researchers. Such group might request the cooperation of any type of national or subnational institution. Consequently such a network should be understood as the support for a proper governance structure decided b those stakeholders in order to guarantee the sustainability of such medium-long term initiative.

5.19. The following references focs on the four programmes proposed all of them considered as critical for the setting up of such network:
- Lobbing regional tourism
- Identification of available and necessary information for the setting up of the R-TIS
- Foster the cooperation of key tourism stakeholders and relevant practitioners
- Training

5.20. Each of such programs should include the following elements:
- The strategic objective
- Activities
- Assessing the effectiveness of programs implementation
- Technological infrastructure and other resources

5.21. INRouTe proposals are rooted in WTO 2005 document: “an integral part of the development of the R-TSA project is the creation of an interagency cooperation network. In this case, besides the RTA itself, the participants will be the regional statistical unit (where it exists) and representatives of tourism industries, universities and centers for regional economic research, and the advisability should be discussed of inviting, or not inviting, other partners from the national level and from other regions to participate as well (in order to liaise with other regions).” (para. 9.1)
In other words (Jones, 2005) “linking of the regional project to TSA development more generally has a number of benefits, not least in emphasizing the importance of technical and conceptual consistency, and the importance of their institutional platform at the regional scale”.

6. Setting up a Regional Tourism Information System (R-TIS) as a prerequisite for developing a Regional extended TSA exercise

A/ Cautionary remarks about the term “system” in official UN and UNWTO documents

6.1 The System of National Accounts (SNA2008) is a standard accounting system that summarizes the transactions within the economy and the rest of the world. More specifically, the system of national accounts represents an integrated set of standard concepts, definitions and classifications applicable to the most important macrdata of economic statistics.

6.2 SNA 2008 gives great flexibility in the design of functionally oriented satellite accounts, as the objective of such accounts is to focus on specific aspects of an economic domain, escaping from some constraints of its central framework. As a consequence, for a specific domain, various designs of satellites accounts would
be possible, focusing on different aspects considered of more particular interest, and this is the case of tourism.

6.3 The Tourism Satellite Account is an example of an extensive form of such flexibility allowed by the present National Account System (SNA 2008): as the term “satellite” indicates, TSA is linked to, but distinct from, the central statistical system.

6.4 The UN Handbook of Statistical Organization, Third Edition (New York 2003), identifies the concept of a National Statistical System (NSS) with three basic components: the institution/s that support it (the central statistical agency and eventually, regional statistical offices), the coordination tools (a set of concepts, definitions, classifications, basic data and indicators), and other institutional arrangements (being governance a significant issue)

6.5 For a national System of Tourism Statistics (STS) to be a proper sub-system of the NSS, a medium/long-term perspective is required; both the official documents of the two international standards on tourism statistics (IRTS 2008 and the TSA:RMF 2008) as well as UNWTO IRTS 2008 Compilation Guide provide clear guidance on how such process should be articulated.

6.6 The basic message although not even explicitly mentioned is that the focus of such medium/long-term process should follow a “systems approach”. In statistics, applying a systems approach to organize information in any particular thematic areas means the application of concepts, definitions, classifications, accounting rules and principles of recording consistent with those of the System of National Accounts. In the case of tourism, such approach has been followed in the 2008 international standards on tourism statistics; because the INRouTe project is a statistical founded initiative to adapt such standards, the conceptual design of the R-TIS uses also such an approach.

6.7 “The STS is defined as a set of components of a statistical nature which are structurally mutually connected and comprising:

- the statistical sources themselves;
- the corresponding data derived from them (i.e. statistics drawn from surveys, administrative records; statistics of a synthetic nature – like the TSA - etc.);
- the specific tools, methodological references and instruments used at some stages of the process (as is the case of concepts, definitions, classifications, databases, etc.); as well as
- the instrumental and organizational resources used in all these processes.”
  (UNWTO IRTS CG 2008 paragraph 1.8)

6.8 The development of a national STS is closely linked with the implementation of a Tourism Satellite Account (TSA). “A TSA provides the conceptual framework and the organizational structure for the integrating of most tourism statistics with each other and with the other economic statistics (mainly National Accounts and Balance of Payments data). In order for the TSA to be such an integrated framework, the same conditions as those required for the System of National Accounts (SNA 2008) should apply: tourism statistics should be coherent (the same concepts, definitions and classification should apply to all related components) and consistent (measurements related with each component should be commensurable so as to be integrated within a unique analytical framework”. (UNWTO IRTS 2008 Compilation Guide paragraph 1.4)
In fact, this link between both the IRTS 2008 and the TSA 2008 and the source of data used in their compilation provides the foundation for the establishment and maintenance of improved national systems of tourism statistics.

6.9 As stated in the TSA:RMF 2008 paragraph 1.17, the TSA should be considered from two different perspectives:

- As a statistical tool that complements those concepts, definitions, aggregates and classifications already presented in the International Recommendations for Tourism Statistics 2008 and articulates them into analytical tables which provide elements for comparing estimates between regions, countries or groups of countries.
- As the framework gives guidance for countries in the further development of their system of tourism statistics, the main objective being the completion of the Tourism Satellite Account, which could be viewed as a synthesis of such a system.

6.10 It should be clearly mentioned that the TSA does not qualify as a proper accounting system because tables 8 (Tourism gross fixed capital formation of tourism industries and other industries) and 9 (Tourism collective consumption, by products and levels of government) lack of a robust approach.

As stated in the TSA:RMF 2008 official document:
- “the estimation of a tourism gross fixed capital formation aggregate is suggested in order to guide further statistical development and research in those countries where tourism is especially relevant, but no specific aggregate will be used for international comparisons” (TSA:RMF 2008, paragraph 4.107)
- “the estimate of tourism collective consumption is proposed as a useful statistical exercise only and will not be used for international comparisons” (TSA:RMF 2008, paragraph 4.112)

(Interested reader should see section 8 Exploring an experimental approach to TSA “Other aggregates”)

Because the TSA is not a proper accounting system (by reference to the central statistical system associated to the National Account framework), tourism statistics cannot be labeled at present as a proper statistical system. This understanding is in line with IRTS 2008 paragraphs 1.36: The IRTS 2008 highlight that the concepts, definitions, classifications and indicators presented “should be viewed as an important foundation of the system of tourism statistics. As such, they should be used as a reference for coordination, reconciliation and interpretation of the information in the area of tourism, although this information might extend beyond the still restricted domain these Recommendations touch upon”.

B/ Linking national and regional tourism information systems

6.11 UNWTO has provided guidance on how to expand national STS in order to provide with the information required by key tourism stakeholders: although being the basic core of national Tourism Information Systems (TIS), official statistics data should be supplemented with other data and indicators. The following paragraphs (included in UNWTO (2011b), paragraphs 17. and 18.) provide some examples of this new type of data.

-The national STS, i.e. basic tourism statistics and indicators as well as TSA aggregates, “should be the foundation for a reliable and accurate national Tourism
Information System (TIS). The TIS might also include supplementary statistics, non-statistical information, and additional types of indicators. This new set of information should be designed for national purposes only. Special attention should be given to the following set of indicators:

- **a) early warning indicators** could be derived from sources such as credit card records as well as air traffic slot allocation data. Both types of data are administrative information (as arrivals figures are) and some countries have already experience in deriving these indicators which have proved of great interest for analysis….

- **b) short-term performance indicators of tourism industries’ turnover and employment** could be derived from administrative records produced by official sources such as fiscal sources and social security schemes….; and

- **c) business cycle indicators** could be derived from business tendency surveys. This type of qualitative information (based on answers of staff personnel in some key tourism industries such as accommodation or travel agencies) is widely used in most countries for non-service sectors. …”

6.12 Because of all cautionary remarks about the use of the term “system” previously mentioned (using official UN and UNWTO documents and being the focus the national level), it is obvious that INRouTe’s conceptual design of a Regional Tourism Information System (R-TIS) can not be understood as a proper “system”, nor should the concept “regional statistical system” be used. Nevertheless, such design follows a “systems approach” because INRouTe is a statistical founded initiative to adapt 2008 International Standards on tourism statistics to subnational levels.

6.13 Because INRouTe’s conceptual design of R-TIS respects the recommendation in IRTS 2008, it might be appropriate to remember that such recommendations suggest, as a first approach, “that national statistical offices, tourism authorities and/or other organizations with direct responsibility for tourism statistics promote the use of national instruments to collect tourism data at the regional and local levels using a common set of definitions, based on the present IRTS 2008, paragraph 8.29); if ” this first approach is not feasible or is not considered completely satisfactory, especially in those regions where tourism is particularly relevant, the regional tourism authorities might wish to complement national data with other data in order to design policies and foster economic analysis tailored specifically to their own regions. In this case it is recommended that these new data follow international and national statistical standards and recommendations”. (IRTS 2008, paragraph 8.31)

6.14 As stated in chapter 5, the proposed basic set of statistical data and indicators- no more than 15- to be obtained from R-TIS for comparability purposes (both internationally and intra-nationally)should be considered as a minimal requirement for analytical purposes. For instance:

* The information selected is considered to be the minimum required input for modelling exercises. (Data modelling techniques are used extensively to derive synthetic estimates when the cost of obtaining small area statistics is too great to obtain them from a survey.) To the extent that this is the case, the initial information set would be complemented by indicators obtained from
such exercises, always taking note of the effects on comparability (e.g. indicators of job creation, pollution generated by tourism industries, same-day visitors, average daily expenditure referring to different sub-sets of visitors, etc.);
* Both sets of information (statistical data – basic data and indicators- and synthetic estimates) and other indicators would make it possible to advance in both the macroeconomic analysis of tourism and in the design of instruments such as the regional TSA, social accounting matrices, general computable equilibrium models, etc.” (paragraph 4.18 of UNWTO “A closer look at Tourism).

6.15 It should also be mentioned that the six sources identified (Border survey - Domestic tourism household survey - Accommodation survey - Statistical business register - Structural business survey - Population census) enable setting up an articulation between national level data and regional level data. This should be understood as a priority objective in terms of the measurement of regional tourism and the development of a Regional Tourism Information System (R-TIS). Such an articulation nation-region will produce a conceptual and data framework for analyzing interregional tourism within a harmonized framework; and in so doing, will also contribute to international comparability between regions. (paragraph 5.12 of UNWTO “A closer look at Tourism”)

6.16 Also a cautionary remark seems quite appropriate about the temptation to think that setting up a R-TIS requires necessarily that national surveys could expand their sample size for specific regions where tourism is particularly significant: before so doing, INRouTe recommends to evaluate if this extra cost could be justified in terms of the complementary amount of records to be obtained.

6.17 An additional remark seems also fitting in the context of this document: it refers to the statistical relevance of the number of basic data and indicators that should be included in INRouTe’s R-TIS proposal regarding “Tourism and sustainable dimension” (see Chapter 5). This is not a trivial remark because quite usually the measurement of tourism in a sustainability perspective refers to the same indicators that those measuring tourism as an economic sector (notably arrivals and overnights figures).

BOX 1


In the case of Andalucía, the elaboration of a R-TSA has been favoured by the following facts:

- The importance of tourism in the regional economy
- Decentralisation in terms of tourism policy in Spanish regions
- A well developed regional statistical system: the regional Statistical Institute (IECA) has produced Regional Accounts since the year 1975 with updates every 5 years.
The first experience on R-TSA in Andalucía was the pilot experience for the year 1995; since then, such exercises are updated every five years. Such a process has been a major input for identifying main gaps of statistical information and methodological differences between demand and supply statistics previously used, as well for reshaping the evolution of the system of tourism statistics. In fact, as important as the R-TSA publication every five years, is the required process of elaboration and the methodological requirements imposed by the production of a TSA. First of all, the satellite methodology implies being part of the total system of the economy of reference and in addition, the fulfillment of UNWTO requirements for the TSA has configured the Statistical System for Tourism in the region of Andalucía. Therefore, the elaboration of R-TSA since 2000 has helped Andalucía to produce, not only a high volume of statistical information for tourism, but also to focus on the quality of these statistics in order to obtain a better understanding of tourism activity and its components (demand and supply) and the connections between them.

In the case of Andalucía the experience acquired during the production of subsequent R-TSA exercises has eased the process of creating a complete system of tourism statistics, providing not just the information and the interrelation with economic accounts but favouring the development of the System of Sustainable Tourism Indicators dynamic and interrelated not only with the economic accounts but with the environment, the cultural sector, the territory and with the destination as a whole.

7. Setting up a R-TSA: Feasibility Study

7.1. Carrying on a feasibility study once it has been decided to move on a R-TSA perspective is strongly recommended as a clarification tool

It seems unfeasible to draft a common structure for all possible studies; instead, this section might be useful for identifying some items that should be picked up for such study in a given region. The basic understanding is that carrying on a feasibility study is a project by its own.

7.2. For instance, in addition to different initiatives already suggested in previous sections, the following ones are very concrete ones and might also be considered:

- If the conditions are given, a person must be responsible for drafting the feasibility study and consult with the technical team of the regional inter-institutional network; such person should also qualify as a dedicated person.
- Availability of data and a number of associated characteristics (quality, completeness, statistical robustness, statistical source, etc.) should be documented using a Metadata format (see chapter…LINK.).
- Storage of data in a database to be used for a future R-TSA might be also explored; such database should be georeferenced.
- Because it will be an issue the need for modify / supplement existing surveys, a sort of catalog of questions already included in different surveys about the main topics should be drafted and circulated.

7.3. It might also be recalled UNWTO guidelines as referred in WTO 2005:

“Consequently, one of the project’s initiatives is to ascertain exactly what regional information exists (i.e. statistics and administrative records from national and regional sources), which would preclude some of the problems that might arise in certain Regional Tourism Administrations, for instance:
lack of knowledge of exactly what statistics are available, where to obtain them or how to access them; It is absolutely essential to have a minimum amount of information to be able to assess tourism’s contribution to the economy, especially from the demand side; otherwise, most of the information would be mere estimations;

- inefficient use of resources, especially in regions where they are particularly scarce;

- inconsistency of data collection over time and between geographical areas. Statistics need to be produced on the basis of classifications that are consistent over time and from area to area: this is especially important if data sources are restricted, in which case the maximum benefit may be gained by integrating two or more data sources to generate a derived set of statistics.”

“This analysis should serve to build up a kind of checklist of basic variables and indicators (number of trips, visitors, overnight stays, average daily expenditure of visitors, main purpose of the visit, etc.) according to the various territorial levels (national, regional, subregional and municipal) and the corresponding statistical or administrative unit responsible for their production”. (para 5.5 within WTO 2005)

“This assessment should be seen as something more than placing the appropriate crosses in a matrix: first of all, it will necessitate some form of statistical debate about the main national sources to be used and the scope of the specific methods of regionalizing variables; it will also be necessary beforehand to adapt the definitions of those variables and indicators to the various territorial levels. Because tourism is an activity that is defined from the demand side, the concept of “visitor” is a good example of what the adaptation of national definitions to a regional context entails.” (para 5.6 within WTO 2005)

“The tourism statistical unit, on the demand side, is the “visitor”, but in order to apply to the regions the definition and national classification of “non-resident visitor” it is necessary to define for each territorial level and the region as a whole two categories, i.e. that of non-resident foreign national and that of “domestic visitor from elsewhere in the national territory”. For any given region, therefore, there are three subsets of visitors: foreign nationals not resident in the national territory, nationals resident in another part of the national territory, and residents in the region of reference”. (para 5.8 within WTO 2005)

“This segmentation of visitors affects the coverage of regional aggregates such as regional consumption of inbound and outbound tourists in each of the territorial levels selected for analysis. (Obviously, if the aim is to analyze the region as a whole without any kind of territorial breakdown, it is far less difficult to obtain the necessary information.).” (para 5.9 within WTO 2005)

“It must be pointed out that the identification of the new statistical unit “domestic visitor from elsewhere in the national territory” (the number of such visitors, their classification as tourists or same-day visitors, their associated expenditure and the corresponding disaggregation at subregional levels) raises the problem of access to possible sources of statistical information (especially for the same-day visitor category), as well as questions about the reliability of the data sought. For this reason it will be necessary to develop a set of regional indicators that will serve to estimate these flows as an appropriate step in developing the base series for inclusion in an R-TSA.” (para 5.10 within WTO 2005)

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A more precise wording is presented in the UNWTO/INRouTe Basic Glossary / Regional Tourism
“Carrying out an assessment of the national/regional linkage of the STS is strongly recommended; this task should be the first step in developing a set of computer databases (which could, if appropriate, be integrated within a shared database) that would serve to centralize the national/regional data available in relation to those variables and indicators. The use of these data by the various regions and also by the national unit responsible for regionalizing the TSA should be specified beforehand”. (para 5.11 within WTO 2005)

7.4. All these type of recommendations set up by UNWTO ten years ago have only exceptionally be followed being the effort carried out by the Regional Government of Madrid a best practice example. As explained by Cañada (2013, Regional Tourism Satellite Account, UNWTO Statistics and TSA Issue Paper Series STSA/IP/2013/02), Madrid’s regional TSA could be used as the basis for proposing what sources should be required for an R-TSA (see Annex 2).

7.5. “This example is sufficiently complete but is also – it must be recognized – extremely unusual, because apart from the wide availability in Spain of national sources with regional breakdowns, a number of specific activities have been initiated for the regional project:

- A resident household expenditure survey, to determine the behavior and spending patterns of Madrid residents within that same territory and on travel to a second residence.
- A survey taken in tourism areas designed to capture traveller flows and their characteristics in the region’s principal tourism areas. In addition to other information, this source, together with the regional expenditure survey, provides a certain level of information and helps to reduce the margin of uncertainty that characterizes the always-difficult area of excursionism.
- The introduction of a travel expenditure module in the survey on the intermediate consumption of regional enterprises (a biannual survey to gather detailed information about this variable for the estimation of regional supply and use tables, which are prepared annually).”(para.3.67 within Cañada, 2013)

7.6. “In other words, the efforts were focused on covering fields not covered by other sources but that fundamentally affect demand. With respect to supply, information compiled at the national level provides the basis for the TSA supply tables (especially the annual Spain’s National Statistical Office Survey, as well as specific SO), together with regional administrative sources, permits coverage of most of the requirements of the R-TSA. A similar case is employment, for which national sources (workforce survey, Social Security records) are generally available with a sufficient degree of regional disaggregation so as not to need additional specific sources”.(para.3.68 within Cañada, 2013).

8. Exploring an experimental approach to TSA “Other aggregates”

8.1. This section wants to stress the opportunity to advance in the development of Tables 8 & 9 of TSA (“Tourism Gross Fixed Capital Formation” and “Tourism Collective Consumption”). These tables lack guidance within the TSA:RMF 2008 document, where the territorial framework of reference is the nation. It could be a path to steer the project TSA at last.

8.2. Precisely, it would be reasonable to consider that at subnational levels in fact it makes sense to advance on the estimation of these other aggregates starting from
the first Regional TSA exercises. This way, it would be given priority to the impact on analysis, over statistic rigor that in any case should be requested to estimate the main aggregates defined under TSA (such as internal tourism consumption, gross value added of tourism industries, internal tourism expenditure, etc), as it is mentioned in the following paragraph. In this sense, those exercises might be understood as useful statistical exercises although based on experimental basis.

8.3. TSA:RMF 2008 identifies four supplementary aggregates derived from TSA tables out of which two refer to Tourism Gross Fixed Capital Formation and Tourism Collective Consumption; although Tables 8 and 9 refer to “Tourism gross fixed capital formation of tourism industries” and “Tourism collective consumption, by product and level of government”, the corresponding aggregates derived from such tables are considered as potentially useful and in any case, “should be the object of a more advanced development of the Tourism Satellite Account” (TSA:RMF 2008, paragraph 4.99)

More precisely, paragraph 4.100 states that in the case of such aggregates, “the limited character of the estimations is not only the result of methodological issues but is also attributable to a lack of experience in defining operative solutions for the estimation of corresponding data by national statistical offices”

8.4. It might be arguable that regional and subregional levels allow for a more sizeable approach instead that at the national level for some very relevant topics for key tourism stakeholders; that would be the case of
- Measurement of investments for attracting visitors and improve basic tourism related infrastructure
- Support of regional as well as local authorities for holidays by targeted resident population segments (particularly youngsters and retired people)
- Using cultural infrastructure, resources and initiatives for attracting visitors

8.5. In this section some guidance is provided in order to explore the feasibility of such approach in the understanding that case studies at the subnational level on such topics might contribute to advance on these TSA “other aggregates”. Before so doing (see sub-section C/Fostering experimental approaches), sub-sections A) and B) summarize first TSA key references

8.6. This section builds on Frent (2014) which is a major contribution on this topic for different reasons:
- a correspondence with CPC ver.2 for TSA table 8 is provided as well as correspondence CPC ver.2 and ISIC Rev.4 with TSA table 9
- presents a breakdown on categories 4 and 5 of TSA table 8 and suggests new categories using the logic of UNWTO 2000 TSA doc already mentioned
- suggest the inclusion in TSA table 9 of culture services as a kind of non-market tourism related collective services

A/ TSA Tourism Gross Fixed Capital Formation aggregate

8.7. TSA:RMF (2008) proposes both the concept of Tourism Gross Fixed Capital Formation (TGFCF) and Gross Fixed Capital Formation of Tourism Industries (GFCFTI). It should be noted that these are different concepts. Actually, TGFCF is more encompassing than GFCFTI comprising both GFCFTI and the “net acquisition of tourism specific capital goods by all other industries” (TSA:RMF,
In fact, three main categories of “tourism driven investment” are proposed by TSA:RMF (2008): “Tourism-specific fixed assets”, “Investment by the tourism industries in nontourism-specific fixed assets” and “Tourism-related infrastructure” (TSA:RMF, 2008, para. 2.46)

“There are a number of different perspectives on tourism gross fixed capital formation, and different aggregates could be proposed depending on the focus of analysis. Consequently, the estimation of a tourism gross fixed capital formation aggregate is suggested in order to guide further statistical development and research in those countries where tourism is especially relevant” (para 4.106 y 107 TSA doc)

8.8. It is stated that tourism-specific assets are: used exclusively or almost exclusively in the production of tourism characteristic goods and services. If tourism did not exist, such assets would be of little value as they could not easily converted in non-tourism tourism applications. (TSA:RMF, 2008, para. 2.47)

TSA:RMF (2008) presents a list of such assets which is stated to be consistent with the classification of tangible produced fixed assets used in the System of National Accounts 2008 (TSA:RMF, 2008 para. 2.48) (see table 3). Mainly, there are five categories proposed: each of them can be associated with National Accounts categorization of fixed assets (SNA 2008) and international classification of products (CPC Ver.2) See Annex 3

<table>
<thead>
<tr>
<th>No.</th>
<th>Categories</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Accommodation for visitors</td>
<td>1.1. Hotels and other accommodation facilities for visitors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2. Vacation homes under full ownership</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3. Vacation homes under other types of ownership</td>
</tr>
<tr>
<td>2.</td>
<td>Other non-residential buildings and structures proper to tourism industries</td>
<td>2.1. Restaurants and similar buildings for food and beverage-serving services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2. Buildings and infrastructure for the long distance transport of passengers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3. Buildings for cultural and similar services mainly for use by visitors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4. Facilities for sport, recreation and entertainment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5. Other facilities and structures</td>
</tr>
<tr>
<td>3.</td>
<td>Passenger transport equipment for tourism purposes</td>
<td>3.1. Land (including road and rail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2. Sea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3. Air</td>
</tr>
<tr>
<td>4.</td>
<td>Other machinery and equipment specialized for the production of tourism</td>
<td>Not provided by TSA:RMF (2008)</td>
</tr>
<tr>
<td></td>
<td>characteristic products</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Improvements of land used for tourism purposes</td>
<td>Not provided by TSA:RMF (2008)</td>
</tr>
</tbody>
</table>


8.9. Regarding the second category (“Investment by the tourism industries in nontourism-specific fixed assets”) this is considered tourism related not “because of the nature of assets themselves, but because of the use which is made of them by a tourism industry” (TSA:RMF, 2008, para. 2.49). Laundry facility in a hotel is an example, which falls within this category. Recognizing that at present there is a diversity of assets which can be part of this category, TSA:RMF (2008) does not make any recommendation to classify these assets but encourages countries “when feasible, to identify some specific classes of such assets that might be
significant in their economy” (TSA:RMF, 2008, para. 2.49). Only the two first categories are included in TSA:RMF (2008) table 7.

8.10. The third category (“Tourism-related infrastructure”) is not included in table 8 because of the “difficulties in identifying elements of tourism investments” (TSA:RMF, 2008, para. 2.54). Despite this, TSA:RMF (2008) encourages countries to work on this issue and to include “tourism-related infrastructure” to TGFCF (“countries that are able to estimate all or part of it are encouraged to include it as an additional category”) (TSA:RMF, 2008, para. 4.70).

8.11. It is considered that tourism-related infrastructure either has been developed for a touristic purpose or tourism was not necessarily the main purpose of investment (TSA:RMF, 2008, para. 2.50). Anyway, in the category of “Tourism-related infrastructure”, three cases were identified by World Tourism Organization in the previous version of the TSA international standard (WTO, 2000, p. 73):

1. The asset might have been produced or acquired with the purpose of being used exclusively or principally by visitors, such as development of areas specifically for tourism purposes;
2. At the time the investment was made, it might have been done with the view of its exclusive or principal use by visitors at a given point in time (e.g. investments for a special event such as the Olympic Games, an important international meeting, etc.), but a later non-tourism use is taken into consideration in the decision making process for this investment;
3. It might be directed generally to all activities and also favour tourism (e.g. an airport open to all type of traffic, a non-toll road, a hospital in an area visited by tourists), because in its absence tourism would probably be of a lesser intensity. Nevertheless, in each case the public sector has the responsibility to put in place this “tourism-related infrastructure” in order to facilitate tourism development. In addition, the measurement of “tourism-related infrastructure” can be further complicated specially in the case of basic infrastructure which tourism is a beneficiary of and where “the process of identification and allocation to tourism might present more theoretical and practical difficulties” (WTO, 2000, p. 74)

B/ TSA Tourism Collective Consumption aggregate

8.12. Collective consumption of the general government would include provision of legislation and regulatory framework for tourism or related to tourism (i.e. cultural heritage), tourism promotion, security and public order in the places visited by tourists, cleaning services of beaches, ski resorts or other areas visited by tourists and the production of tourism statistics.

Nevertheless, tourism promotion can be considered a special case when there is a public/private partnership involved and the private sector provides part or all the funds required. In this case, one cannot consider it as “a collective non-market service but as a service provided by a market producer (which might receive support from general government under the form of a current transfer) and are considered as an intermediate consumption of the private sector” (TSA:RMF, 2008, p. 20).

8.13. At the same time, it is important to mention that services provided by national parks and museums are excluded since they are considered individual non-market services and already included in tourism consumption as social transfer in kind. This is because “their beneficiaries can be identified separately” (TSA:RMF, 2008, para. 4.73). There is no definition of Tourism Collective Consumption in TSA:RMF (2008) but an earlier publication of the World
Tourism Organization (WTO, 2000) did present an important clarification: Tourism collective consumption is comprised of those collective non-market services which unambiguously benefit visitors and/or those activities that serve them directly (i.e., the tourism industries) (p. 74).

8.14. Tourism Collective Consumption is found in the TSA:RMF (2008) table 9 entitled “Tourism collective consumption, by product and level of government”. In this table the rows are in fact “a proposed list of non-market services that are to be considered as tourism collective nonmarket services in terms of the corresponding CPC subclasses” (TSA:RMF, 2008, para. 4.72). Some of these services can be considered entirely related to tourism (e.g. tourism promotion) while others are only partly related to tourism (see table 4). It is specifically mentioned by TSA:RMF (2008) that “countries are encouraged to increase this list with further proposals” (TSA:RMF, 2008, p. 100).

<table>
<thead>
<tr>
<th>CPC code</th>
<th>Name of products</th>
</tr>
</thead>
<tbody>
<tr>
<td>85561</td>
<td>Tourism promotion services</td>
</tr>
<tr>
<td>85562</td>
<td>Visitor information services</td>
</tr>
<tr>
<td>91135</td>
<td>Public administrative services related to the distributive and catering trades, hotels and restaurants</td>
</tr>
<tr>
<td>91136</td>
<td>Public administrative services related to tourism affairs</td>
</tr>
<tr>
<td>83700</td>
<td>Market research and public opinion polling services</td>
</tr>
<tr>
<td>91260</td>
<td>Police and fire protection services</td>
</tr>
<tr>
<td>92919</td>
<td>Other education and training services, n.e.c.</td>
</tr>
<tr>
<td>92920</td>
<td>Education support services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New categories of tourism fixed assets proposed</th>
<th>CPC ver. 2 code</th>
<th>CPC ver. 2 name</th>
<th>SNA (2008) classification by types of assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dwellings – vacation homes. (referred as TSA c1 in TSA RMF 2008)</td>
<td>5311*</td>
<td>Residential buildings</td>
<td>Dwellings</td>
</tr>
<tr>
<td></td>
<td>3870*</td>
<td>Prefabricated buildings</td>
<td></td>
</tr>
<tr>
<td>2. Buildings for tourism industries. (ibid TSA c2)</td>
<td>53129*</td>
<td>Other non-residential buildings</td>
<td>Other buildings and structures – Building other than dwellings &amp; Other structures</td>
</tr>
<tr>
<td></td>
<td>53122*</td>
<td>Commercial buildings (in this case it includes only passenger terminals)</td>
<td></td>
</tr>
<tr>
<td>3. Structures mostly related tourism</td>
<td>53270*</td>
<td>Outdoor sport and recreation facilities</td>
<td></td>
</tr>
<tr>
<td>4. Passenger transport equipment mostly related to tourism</td>
<td>49222</td>
<td>Trailers and semi-trailers of the caravan type, for housing or camping</td>
<td></td>
</tr>
<tr>
<td></td>
<td>49311</td>
<td>Cruise ships, excursion boats and similar vessels, principally designed for the transport of persons; ferry boats of all kinds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>494</td>
<td>Pleasure and sporting boats</td>
<td></td>
</tr>
<tr>
<td></td>
<td>49116</td>
<td>Motor vehicles, for the transport of persons, specially designed for travelling on snow, golf cars and similar vehicles</td>
<td></td>
</tr>
<tr>
<td>5. Other passenger transport equipment (ibid TSA c3)</td>
<td>49113*</td>
<td>Motor cars and other motor vehicles principally designed for the transport of persons (except public-transport type vehicles, vehicles specially designed for travelling on snow, and golf cars and similar vehicles)</td>
<td>Machinery and equipment - Transport equipment</td>
</tr>
<tr>
<td></td>
<td>495</td>
<td>Railway and tramway locomotives and rolling stock, and parts thereof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4991</td>
<td>Motorcycles and side-cars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>49921*</td>
<td>Bicycles and other cycles, not motorized</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4961*</td>
<td>Balloons and dirigibles; gliders, hang gliders and other non-powered aircraft</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4962*</td>
<td>Aeroplanes and helicopters</td>
<td></td>
</tr>
<tr>
<td>6. Equipment mostly related to tourism</td>
<td>384</td>
<td>Sport goods</td>
<td>Machinery and equipment - other machinery and equipment</td>
</tr>
<tr>
<td>7. Civil engineering works used by tourism</td>
<td>5321*</td>
<td>Highways (except elevated highways) streets and roads, railways and airfield runways</td>
<td>Other buildings and structures - Other structures</td>
</tr>
<tr>
<td></td>
<td>5322*</td>
<td>Bridges, elevated highways and tunnels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53232*</td>
<td>Harbours, waterways and related facilities</td>
<td></td>
</tr>
<tr>
<td>8. Other machinery and equipment used to supply goods and services to visitors (ibid TSA c4)</td>
<td>43*</td>
<td>General-purpose machinery</td>
<td>Machinery and equipment - ICT equipment &amp; Other machinery and equipment</td>
</tr>
<tr>
<td></td>
<td>44*</td>
<td>Special purpose machinery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>45*</td>
<td>Office, accounting and computing equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46*</td>
<td>Electrical machinery and apparatus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>47*</td>
<td>Radio, television and communication equipment and apparatus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>48*</td>
<td>Medical appliances, precision and optical instruments, watches and clocks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>381*</td>
<td>Furniture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>383*</td>
<td>Musical instruments</td>
<td></td>
</tr>
</tbody>
</table>
8.15. In addition to the classification of products, a classification by levels of government is also proposed within TSA:RMF (2008) table 9 as three separate columns for each of the CPC subclasses of table 3. Three levels are suggested: national, regional and local; each of the corresponding governmental authorities in charge of tourism might provide subsidies to foster tourism.

TSA:RMF (2008) also comprises a supplementary column, in fact a “memorandum item”, entitled “Intermediate consumption by the tourism industries”, which reflects the expenditure by the tourism industries in tourism promotion or other services related to the products described in such table (TSA:RMF, 2008, p. 70).

8.16. Following Frent (2014), the proposal of extending TSA table 8 is considered a suggestive proposal. Such table considers the five categories of tourism – specific fixed assets included in TSA 2008 official document as well as other categories (4) using the logic of UNWTO 2000 TSA DOC as previously mentioned. Below table 5 presents a new proposed classification of tourism-specific fixed assets following CPC ver2, products and a better integration with the classification of assets from National Accounts by Frent (2014, table 6).

8.17. The above classification introduces a sort of fine-tuning with three categories being named as “mostly related to tourism”: “Structures mostly related to tourism”, “Equipment mostly related to tourism” and “Passenger transport mostly related to tourism”. The assumption behind them is that they are more related to tourism consumption. Together with the categories of “Dwellings-Vacation homes” and “Buildings for tourism industries” they can form a sort of “core classification” very close to tourism. To some extent, the category of “Other passenger transport equipment” can also join this classification, if passenger transportation can be distinctly identified.

8.18. At the same time, the author mentions that three categories are difficult to allocate to tourism: “Civil engineering works used by tourism”, “Other machinery and equipment used to supply goods and services to visitors” and “Land improvements for tourism”. “This is a domain where further research is indeed necessary. However, their importance for tourism shouldn’t be neglected”. (Frent, 2014 p. 21)

8.19. On the other hand, as explicitly mentioned in TSA:RMF 2008, proposing more non-market collective services in tourism is particularly encouraged; in fact, when referring to the classification of tourism collective services (ibid TSA c5).

<table>
<thead>
<tr>
<th>9. Land improvements for tourism (ibid TSA c5)</th>
<th>54320*</th>
<th>Site formation and clearance services</th>
<th>Other buildings and structures - Land improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>*part of</td>
<td></td>
<td></td>
<td>Note: the shaded area designates categories which are difficult to be allocated to tourism</td>
</tr>
</tbody>
</table>

Note: the shaded area designates categories which are difficult to be allocated to tourism

Table 12 A new proposed\(^{10}\) classification of tourism-specific fixed assets following CPC ver2. Products and a better integration with the classification of assets from National Accounts. Source: Frent (2014, table 6)

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This table is based upon Table 8 of the TSA:RMF 2008, and in this version Frent (2014) addresses a further breakdown for categories 4 and 5.
consumption following CPC ver. 2 it states that “countries are encouraged to increase this list with further proposals” (TSA:RMF, 2008, p. 100). This could be the case of culture.

<table>
<thead>
<tr>
<th>No</th>
<th>CPC Code</th>
<th>Product Name</th>
<th>ISIC code</th>
<th>ISIC industry name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>85561</td>
<td>Tourism promotion services</td>
<td>7990*</td>
<td>Other reservation service and related activities</td>
</tr>
<tr>
<td>2.</td>
<td>85562</td>
<td>Visitor information services</td>
<td>7990*</td>
<td>Other reservation service and related activities</td>
</tr>
<tr>
<td>3.</td>
<td>91135</td>
<td>Public administrative services related to the distributive and catering trades, hotels and restaurants</td>
<td>8413*</td>
<td>Regulation of and contribution to more efficient operation of businesses</td>
</tr>
<tr>
<td>4.</td>
<td>91136</td>
<td>Public administrative services related to tourism affairs</td>
<td>8413*</td>
<td>Regulation of and contribution to more efficient operation of businesses</td>
</tr>
<tr>
<td>5.</td>
<td>83700</td>
<td>Market research and public opinion polling services</td>
<td>7320</td>
<td>Market research and public opinion polling</td>
</tr>
<tr>
<td>6.</td>
<td>91260</td>
<td>Police and fire protection services</td>
<td>8423*</td>
<td>Public order and safety activities</td>
</tr>
<tr>
<td>7.</td>
<td>92919</td>
<td>Other education and training services, n.e.c.</td>
<td>8549</td>
<td>Other education n.e.c.</td>
</tr>
<tr>
<td>8.</td>
<td>92920</td>
<td>Education support services</td>
<td>8550</td>
<td>Educational support activities</td>
</tr>
<tr>
<td>14.</td>
<td>91124</td>
<td>Public administrative services related to recreation, culture and religion</td>
<td>8412*</td>
<td>Regulation of the activities of providing health care, education, cultural services and other social services, excluding social security</td>
</tr>
</tbody>
</table>

Table 13 The correspondence between products (CPC Ver.2) and industries (ISIC Rev.4, NACE Rev.2 and ISAT 2008) that make up tourism collective consumption. Source: partial reproduction from Frent (2014, table 7) from TSA:RMF 2008, p.100 and United Nations Statistics Division, 2013.

8.20. Operating at industry level poses difficulties due to the fact that an industry usually produces more than one product. In this regard for a better understanding of what kind of products are excluded from the industries related to collective consumption in tourism on the one hand and, what kind of products are included on the other, a summarizing table was created by the author (see Annex 4).
Anyhow, Frent (2014) proposed another generic category entitled “Economic affairs envisaging some tourism industries” to include the economic activities which concern the businesses in the main tourism industries. It refers here to hotels and restaurants, transport, recreation and culture.

<table>
<thead>
<tr>
<th>No.</th>
<th>Category</th>
<th>Related CPC Ver.2</th>
<th>Related ISIC Rev.4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Code</td>
<td>Name</td>
</tr>
<tr>
<td>1</td>
<td>Specific tourism affairs</td>
<td>91136</td>
<td>Public administrative services related to tourism affairs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85561</td>
<td>Tourism promotion services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85562</td>
<td>Visitor information services</td>
</tr>
<tr>
<td>2</td>
<td>Economic affairs envisaging some tourism industries</td>
<td>91135*</td>
<td>Public administrative services related to the distributive and catering trades, hotels and restaurants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91134*</td>
<td>Public administrative services related to transport and communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91134*</td>
<td>Public administrative services related to transport and communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91124*</td>
<td>Public administrative services related to recreation, culture and religion</td>
</tr>
</tbody>
</table>

Table 14 A new proposed structure for classifying collective consumption “largely related” to tourism according with COFOG and the related CPC Ver.2 and ISIC Rev.4.
Source: partial reproduction from Frent (2014, table 8)
8.21. The inclusion of culture refers to the following codes:
- CPC 91124* Public administrative services related to recreation, culture and religion
- ISIC 8412* Regulation of the activities of providing health care, education, cultural services and other social services, excluding social security

It should be highlighted that CPC Ver.2 code 91124 includes:
- Public administrative services related to cultural facility support and individual artists and organizations engaged in promoting cultural activities
- Public administrative services related to national, regional or local festivities and the maintenance and running of religious institutions

Also ISIC Rev.4 code 8412 includes:
Regulation of the activities of providing health care, education, cultural services and other social services, excluding social security

8.22. As previously mentioned, one of the reasons for which the reference document (Frent, 2014) can be considered a major contribution on the topic addressed in this sub-section is that it suggest the inclusion in TSA table 9 of culture services as a kind of non-market tourism related collective services.

8.23. Culture as a sector has no standardize statistical definition but there is some type of understanding that it includes different economic activities associated to cultural domains such as archives, libraries, books & press, performing arts, audiovisual & multimedia, arts & craft, etc.

8.24. Besides specific socio-economic characteristics to culture and tourism sectors, there are nevertheless two shared characteristics that explain why measuring the public and private economic initiatives to support both sectors is a relevant issue particularly at sub-national levels; the fact that culture and tourism are territorial based activities and labour-intensive sectors

9. Fostering analysis: alternatives beyond the R-TSA
9.1. As stated by Statistics Canada Quality Guidelines, December 1998 (third edition) and December 2009 (fifth edition), “data analysis is the process of developing answers to questions through the examination and interpretation of data. The basic steps in the analytic process consist of identifying issues, determining the availability of suitable data, deciding on which methods are appropriate for answering the questions of interest, applying the methods and evaluating, summarizing and communicating the results”.

“Data analysis is essential for understanding results from surveys, administrative sources and pilot studies; for providing information on data gaps; for designing and redesigning surveys; for planning new statistical activities; and for formulating quality objectives”.

“A good analysis of relatively poor quality data is often worth much more than a poor analysis of good quality data”

9.2. “Data from a survey can be used for descriptive or analytic studies. Descriptive studies are directed at the estimation of summary measures of a target population (for instance, the average daily expenditure of German tourist in a given tourist
destination) while analytic studies may be used to explain behaviour of and relationship among characteristics.”

“Prior to conducting an analytical study the following questions should be addressed:

- **Objectives.** What are the objectives of this analysis? What issue am I addressing? What question(s) will I answer?
- **Justification.** Why is this issue interesting? How will these answers contribute to existing knowledge? How is this study relevant?
- **Data.** What data am I using? Why is it the best source for this analysis? Are there any limitations?
- **Analytical methods.** What statistical techniques are appropriate? Will they satisfy the objectives?
- **Audience.** Who is interested in this issue and why?”

9.3. If resources are unavailable to launch a project in the perspective of developing a proper R-TSA, INRouTe suggests to consider the opportunity to launch instead some initiatives in line with the abovementioned guidelines:

- build on a descriptive type analysis identifying main characteristics of tourism supply using available data in line with the proposed estimates of regional employment in tourism industries as well as the use of Business Register for the national/regional articulation of a set of basic data and indicators
- start the set up of a R-TIS and identify information gaps that might be relevant for regional key tourism stakeholders (see UNWTO/INRouTe Basic Glossary / Stakeholders)
- consider the opportunity to use other tools to foster economic analysis

INRouTe documents (particularly INRouTe 2014) include different type of analytical proposals that could be also explored both on the demand and supply side.

9.4. Complementary to such recommended initiatives, a particular topic would be to identify possible shortcomings of national domestic surveys and consider the opportunity to prepare technical proposals for an improved national survey or an eventual design of a regional one; either initiative should deserve special attention and such analysis might require assistance of other key tourism stakeholders

Although already mentioned (see chapter 6, section 6/C.1 “Household surveys applied to regional tourism: learning from national experience”), household surveys designed for tourism measurement is a complex task particularly when a national survey is designed for allowing the set up of an origin/destination matrix (see chapter 6, sections 6/C.2 and 6/D.)

9.5. In fact, while at the national level UNWTO clearly indicates that households surveys should be the preferred option for measuring domestic tourism, INRouTe has raised the attention that nevertheless, it should be kept in mind that sample size and design of such surveys are strongly related to the significance and accuracy of the variables to be estimated. Two different issues need to be taken into consideration when designing such national surveys: the unequal distribution
of tourism over the national territory and the high degree of heterogeneity of the population in terms of tourism behavior.

Such warning is also pertinent when considering regional visitors surveys for tourism purposes; particularly at the regional level where tourism is a strongly consolidated phenomenon, it might happen that more than 75% of overnights is related with a very limited number of municipalities and consequently, traditional sample designs might not be as efficient as applied in other type of research areas.

9.6. Due to the fact that it is very data demanding, “the design of a proper R-TIS would be justified under two circumstances: the significance of tourism in a given region (see UNWTO/INRouTe Basic Glossary) and the availability of a basic set of national statistical sources (such as border survey, domestic tourism household survey, statistical business register, structural business survey and population census)"

In fact, such a system requires three sets of information:

- the statistical information obtainable as a disaggregation of operations carried out with a national coverage and in an official capacity mainly by National Statistical Offices and National Tourism Administrations;

- official statistical operations carried out by regional bodies (such as Regional Statistical Offices, Regional Tourism Administrations, Regional public institutes and agencies for tourism development and management, and other official bodies);

These operations are sought to be supplementary to the first set in order to avoid information overlapping between national and regional levels. Exceptionally, some countries might have institutionalized bottom-up methods of collection for national data purposes (basically for the National Statistical Offices);

- a third set, not necessarily of official and/or statistical nature (such as electricity consumption by households, credit card expenditure records, transport authorities control, business cycle indicators, early warning indicators, etc.), considered to be relevant not only for the measurement/monitoring of tourism (carried out by the regional tourism authority or other regional entities, other entities of supra-regional scope or even by national bodies), but also for analytical purposes (such as analysis of the performance of certain subsectors and foresee their evolution, the perceptions of the demand of a certain destination, etc.).

9.7. Obviously, there are many things that could be done regarding descriptive type of analysis; a very different issue is to conduct analytical type of studies; in fact, it is pretty obvious that developing a tourism impact study for instance, might raise awareness in some key stakeholders about the importance to foster economic measurement and analysis of tourism.

In this perspective, Douglas Frechtling has prepared for UNWTO Issue Paper Series (Frechtling, 2013) a useful text analyzing pros and cons of three tools that have been applied for macroeconomic analysis of tourism that could be also used at a regional level:

- Input-Output model
- Social Accounting Matrix (SAM)
- Computable General Equilibrium (CGE) models

Such document (which also includes some examples for each type of model) should be used as a reference document for those interested in the measurement of the economic contribution, “indirect and induced effects”, and “impact” of tourism and macroeconomic analysis. In fact, the application of such models to regional tourism analysis is well known in the academic literature.

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Annex 1 Statistical units and residence in the case of industries

2.3.1.1. Introduction

A feature of the system is the use of types of unit corresponding to three ways of subdividing the economy (ESA 2010, par. 2.03): a. To analyse flows and positions, it is essential to select units, which make it possible to study behavioural relationships among economic agents. b. To analyse the process of production, it is essential to select units that bring out relationships of a technological-economic nature, or that reflect local activities. c. To allow regional analyses, units that reflect local kinds of activity are needed.

Institutional units are defined to meet the first of these objectives. Behavioural relationships as described in (a) require units reflecting all of their institutional economic activity. The production processes, technological-economic relationships and regional analyses of (b) and (c) require units such as local kind-of-activity units (local KAU s).

Two types of unit are distinguished for the national economy. Firstly, records for the institutional unit reflect flows affecting income, capital and financial transactions, other flows and balance sheets. Enterprises are an example of an institutional unit. A characteristic of enterprises is that they can engage in production activities at more than one location, and for regional accounts it is necessary to allocate the activities to location. Where enterprises are partitioned by location, the partitioned parts are called local units.

Institutional units can be classified on the basis of economic activities, describing the economy’s production activities by industry. This results in heterogeneous industries, as many enterprises have substantial secondary activities that are different from their principal activity. It also results in some industries having the principal product of the industry as a small proportion of total output. In order to obtain groups of producers whose activities are more homogeneous in terms of output, cost structure and technology of production, enterprises are partitioned into smaller and more homogeneous units. These are called kind-of-activity units (KAUs).

The local kind-of-activity unit (local KAU) is the part of a KAU which corresponds to a local unit. When a KAU is engaged in production activities in several regions, the information on the KAU is split in order to obtain regional accounts.

Secondly, records for the local KAU show flows occurring in the process of production and in the use of goods and services (ESA 2010, par. 13.13). For regional accounts, depending on the size of the regional level, two types of institutional units can be distinguished: Uniregional units and multiregional units.

2.3.1.2. Uniregional units

\[1\] This Annex reproduces subsection 2.3.1. of the Manual on Regional Accounts Methods, Eurostat, December 2012
Uniregional units are units for which the centre of predominant economic interest is in one region. Examples of uniregional units are: households; unincorporated enterprises; corporations whose local KAU s are all located in the same region; most local and regional governments; part of social security; and some non-profit institutions serving households (NPISH). All their transactions are allocated to the region in which they are resident.

2.3.1.3. Multiregional and heterogeneous units

Multiregional units are units for which the centre of predominant economic interest is in more than one region. Corporations and NPISH are examples of units which can span regions. Other examples are institutional units whose activities span the whole country, such as central government and a small number of corporations exercising monopolies or near-monopolies.

With regard to available data for regionalisation of activities of industries, two main possible situations can be distinguished: 1. Full data for the local KAU s can be provided. No problems arise; the compilation of aggregates by industry and their correct regional allocation is straightforward. 2. Full information exists only at enterprise level. The regional data have to be estimated for all enterprises or KAU s with local KAU s in different regions.
### Annex 2 Main statistics used to develop the R-TSA for Madrid / Spain

Main Statistics used to develop the Tourism Satellite Account in Madrid. Source: Cañada, 2013, Table 7

<table>
<thead>
<tr>
<th>Title</th>
<th>Objectives and characteristics</th>
<th>Territorial scope</th>
<th>Timeframe</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey of visitors in tourism places</td>
<td>Characterization of the visitors to regional places of tourism. Estimation of tourism consumption in the region.</td>
<td>Regional</td>
<td>2010, 2011</td>
<td>Statistical Institute of the Community of Madrid</td>
</tr>
<tr>
<td>Survey on tourism expenditure</td>
<td>Estimate of expenditure by non-resident visitors (inbound tourism consumption).</td>
<td>National with regional breakdown</td>
<td>Monthly</td>
<td>IET - INE</td>
</tr>
<tr>
<td>(EIGATUR)</td>
<td>Quantification and characterization of inbound tourism consumption.</td>
<td>National with regional breakdown</td>
<td>Monthly</td>
<td>IET</td>
</tr>
<tr>
<td>Tourist movements at frontiers</td>
<td>Estimate of tourism expenditure by resident households in the Region (domestic and outbound</td>
<td>Regional</td>
<td>2008</td>
<td>Statistical Institute, Community of Madrid</td>
</tr>
<tr>
<td>(FRONTUR)</td>
<td>Distribution of expenditure by resident households</td>
<td>National with regional breakdown</td>
<td>Annual</td>
<td>INE</td>
</tr>
<tr>
<td>Survey on family budgets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey on occupancy of tourist accommodations</td>
<td></td>
<td>National with regional breakdown</td>
<td>Monthly</td>
<td>IET</td>
</tr>
<tr>
<td>Survey on intermediate consumption by businesses</td>
<td>Regional survey on intermediate consumption: specific business travel module for companies residing in the region.</td>
<td>Regional</td>
<td>Biannual, Latest: 2010</td>
<td>Statistical Institute, Community of Madrid</td>
</tr>
<tr>
<td>Survey on intermediate consumption by businesses in the Community of Madrid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural statistics on the services sector: tourism supply</td>
<td>Includes estimates of the economic variables referring to tourism-related activities. (Hotel and similar establishments, restaurants, travel agencies, passenger transport and vehicle rentals)</td>
<td>National with regional breakdown</td>
<td>Annual</td>
<td>INE</td>
</tr>
<tr>
<td>Module for travel agency and tour operator services (Annual Survey on Services)</td>
<td>Information on income by type of services supplied (tourism packages, product supplied individually, etc.) and on the composition of packages.</td>
<td>National with regional breakdown</td>
<td>Annual</td>
<td>INE</td>
</tr>
<tr>
<td>Specific module for accommodation services (Annual Survey on Services)</td>
<td>Information from hotel enterprises on production by type of service (accommodation, restaurant and related expenditures).</td>
<td>National with regional breakdown</td>
<td>Annual</td>
<td>INE</td>
</tr>
<tr>
<td>Hotel price and revenue index</td>
<td>Trends in invoiced pricing</td>
<td>National with regional breakdown</td>
<td>Monthly</td>
<td>INE</td>
</tr>
<tr>
<td>Workforce survey (EPA)</td>
<td>Compilation of employment statistics</td>
<td>National with regional breakdown</td>
<td>Quarterly</td>
<td>IET</td>
</tr>
<tr>
<td>Social Security records</td>
<td>Contributors by work centre</td>
<td>National with regional breakdown</td>
<td>Monthly</td>
<td>Social Security,</td>
</tr>
<tr>
<td>Register of hotel enterprises of the Community of Madrid</td>
<td>Number of enterprises by category</td>
<td>Regional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing and building census.</td>
<td>Secondary homes by location and frequency of use</td>
<td>National with regional breakdown</td>
<td></td>
<td>Continually updated, Latest available: 2001</td>
</tr>
</tbody>
</table>

IET: Institute of Tourism Studies (Ministry of Industry and Tourism).
INE: National Institute of Statistics.
Annex 3 Correspondence between the classification of fixed assets according to CPC ver.2 and the classification of tourism specific assets from TSA:RMF 2008

<table>
<thead>
<tr>
<th>No</th>
<th>SNA (2008) categorization of fixed assets</th>
<th>CPC Ver. 2 (part of)</th>
<th>Tourism-specific assets</th>
</tr>
</thead>
</table>
| 1. | Dwellings                                  | 5311 Residential buildings  
3870 Prefabricated buildings  | Vacation homes (all types of ownership) |
| 2. | Other buildings and structures             | 53129 Other non-residential buildings  
53122 Commercial buildings  | Hotels and other accommodation facilities for visitors  
Restaurants and similar buildings for food and beverage-serving services  
Buildings for cultural and similar services mainly for use by visitors  
Facilities for sport, recreation and entertainment (only indoor)  
Buildings and infrastructure for the long distance transport of passengers (i.e. passenger transport terminals)  
Other facilities and structures (i.e. for shopping centres) |
| 2.1 | Buildings other than dwellings             | 5321 Highways (except elevated highways), streets and roads  
5322 Bridges, elevated highways and tunnels  
53232 Harbours, waterways and related facilities  
53270 Outdoor sport and recreation facilities  | Facilities for sport, recreation and entertainment  
Buildings and infrastructure for the long distance transport of passengers |
| 2.3 | Land improvements                          | 54320 Site formation and clearance services  | Improvements of land used for tourism purposes |
| 3.  | Machinery and equipment                    | 49113 Motor cars and other motor vehicles principally designed for the transport of persons  
49118 Motor vehicles, for the transport of persons, specially designed for travelling on snow, golf cars and similar vehicles  
49222 Trailer an semi-trailers of the caravan type, for housing or camping  
495 Railway and tramway locomotives and rolling stock, and parts thereof  
4991 Motorcycles and side-cars  
49921 Bicycles and other cycles, not motorized  
49311 Cruise ships, excursion boats and similar vessels, principally designed for the transport of persons; ferry boats of all kinds  | Passenger transport equipment:  
Land  
Sea |
Annex 4 What CPC products are included or excluded from the corresponding industries of the elements that make up Tourism Collective Consumption

<table>
<thead>
<tr>
<th>No</th>
<th>Generic name</th>
<th>Corresponding industry (ISIC Rev. 4)</th>
<th>CPC products included</th>
<th>CPC products excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tourism promotion &amp; Visitor information</td>
<td>7980 Other reservation service and related activities</td>
<td>85561 Tourism promotion services</td>
<td>85512 Reservation services for rail transportation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>85562 Visitor information services</td>
<td>85513 Reservation services for bus transportation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85514 Reservation services for vehicle rental</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85519 Other transportation arrangement and reservation services n.e.c.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85521 Reservation services for accommodation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85522 Timeshare exchange services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85539 Reservation services for event tickets, entertainment and recreational services and other reservation services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85550 Tourist guide services</td>
</tr>
<tr>
<td>2.</td>
<td>Public administrative services specific for tourism and tourism industries (excluding cultural and recreational activities)</td>
<td>8413 Regulation of and contribution to more efficient operation of businesses</td>
<td>91136 Public administrative services related to tourism affairs</td>
<td>91131 Public administrative services related to agriculture, forestry, fishing and hunting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>91135 Public administrative services related to the distributive and catering trades, hotels and restaurants</td>
<td>91132 Public administrative services related to fuel and energy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>91134 Public administrative services related to transport and communications</td>
<td>91133 Public administrative services related to mining and mineral resources, manufacturing and construction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>91137 Public administrative services related to multipurpose development projects*</td>
<td>91138 Public administrative services related to general economic, commercial and labour affairs</td>
</tr>
<tr>
<td>3.</td>
<td>Market research in tourism</td>
<td>7320 Market research and public opinion polling</td>
<td>83700 Market research and public opinion polling services</td>
<td>No CPC code left to be excluded but it should exclude all what is not related to tourism</td>
</tr>
<tr>
<td>4.</td>
<td>Public order and safety related to tourism</td>
<td>8423 Public order and safety activities</td>
<td>91260 Police and fire protection services</td>
<td>91270 Public administrative services related to law courts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91280 Administrative services related to the detention or rehabilitation of criminals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91290 Public administrative services related to other public order and safety affairs</td>
</tr>
</tbody>
</table>

**Part of**

MOVE 2015 International Conference – Measuring Tourism and Sustainable Development at subnational levels
<table>
<thead>
<tr>
<th>No</th>
<th>Generic name</th>
<th>Corresponding industry (ISIC Rev. 4)</th>
<th>CPC products included</th>
<th>CPC products excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Education related to tourism</td>
<td>8349 Other education n.e.c.</td>
<td>92919 Other education and training services, n.e.c.</td>
<td>No CPC code left to be excluded but it should exclude all what is not related to tourism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8330 Educational support services</td>
<td>92930 Educational support services</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Research and development related to tourism</td>
<td>7210 Research and experimental development on natural sciences and engineering</td>
<td>81119 Research and experimental development services in other natural sciences (e.g. related to environment) 81300 Interdisciplinary research and experimental development services</td>
<td>81111 Research and experimental development services in physical sciences 81112 Research and experimental development services in chemistry and biology 81121 Research and experimental development services in biotechnology 81129 Research and experimental development services in other engineering and technology 81130 Research and experimental development services in medical sciences and pharmacy 81140 Research and experimental development services in agricultural sciences 81400 Research and development originals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7220 Research and experimental development on social sciences and humanities</td>
<td>81212 Research and experimental development services in economics 81219 Research and experimental development services in other social sciences 81300 Interdisciplinary research and experimental development services</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Official statistics for tourism</td>
<td>8411 General public administration activities</td>
<td>91113 Overall economic and social planning and statistical services*</td>
<td>91111 Executive and legislative services 91112 Financial and fiscal services 91114 Government services (administrative services) to research and development 91119 Other overall government public services 91191 Administrative services related to government personnel</td>
</tr>
<tr>
<td>No.</td>
<td>Generic name</td>
<td>Corresponding industry (ISIC Rev. 4)</td>
<td>CPC products included</td>
<td>CPC products excluded</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------</td>
<td>--------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91199 Other administrative services of the government n.e.c.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 8.  | Public administrative services specific for culture and recreation | §412 Regulation of the activities of providing healthcare, education, cultural services and other social services, excluding social security | 91124 Public administrative services related to recreation, culture and religion* | 91121 Public administrative services related to education*  
91122 Public administrative services related to health care  
91123 Public administrative services related to housing and community amenities* |

* - part of
Source: own conception based on United Nations Statistics Division, 2014a

Table 16 What CPC products are included or excluded from the corresponding industries of the elements that make up Tourism Collective Consumption. Source: Frent (2014, Annex 5) based on UNSD 2014a
The Contribution of Recreational Sea Angling to the

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Abstract

Whilst there has been a growth in the number of studies about the social and tourism benefits of angling in the UK, there is a paucity of evidence on the specific economic contribution of recreational sea angling in England. This relates to problems in gaining a high quality cross section of angler spending data, and then combining this with more accurate estimates of the size of the sea angler ‘population’. The paper reports on recent estimates of the contribution of recreational sea angling to the domestic tourism economy in England, and shows that establishing the value of recreational sea angling is problematic and drawing inference on the amount of spending supporting tourism facing industries is difficult. Better quality estimates of the economic contribution of sea angling will be important in the context of policy supporting angling in general and angling tourism, but also relevant to work surrounding the management of inshore fish stocks and within approaches to management which seek to work in an ecosystems services framework.

Keywords: recreational sea angling; tourism economy, input-output analysis, England.

Introduction

Deriving estimates of the economic benefits associated with recreational sea angling (RSA) for both regional and national economies is becoming more important for tourism authorities. For example, the economic value of recreational sea fishing in the US was estimated to be $56 billion in output (sales impacts), $29 billion to GDP $18 billion in personal income, and support 364,000 jobs in 2011 (Lovell et al, 2013). However, the value attached by tourism authorities to recreational angling also needs to be considered in discussions on the longer term societal effects of changes in fish stocks and changes in policy that could affect angling tourism activity (Hyder et al. 2014). In consequence, an understanding of the tourism spending supported by RSA
should be one contextual element of marine policy in terms of management of the stock. In this respect fisheries stock management should include not only managing the competing demands placed on different species but also understanding the economic and social features of fisheries. Understanding the economic value of RSA is also important in developing policies to develop outdoor recreation-based tourism (Sharpley et al 2001; SQW 2006; Bryden et al 2010) and the economic value of it to often economically disadvantaged, small or remote rural communities, which some studies have suggested is significant (Brown, 2012a).

Establishing volumes and values of tourism linked to RSA is difficult. In many countries, no license or permit is required to participate in sea angling (e.g. UK). For freshwater fishing in England some inference on the size of the population can be gained from the number of Environment Agency licenses sold (Mawle, 2009), but for sea angling there is no such evidence base. This has been recognised in other studies as presenting a particular problem for research into RSA both in terms of contacting and identifying sea anglers and calculating population size. It is also difficult to separate recreational sea angling from the general recreational angling sector which includes many different kinds of angling in both fresh and sea water and significant cross overs between them where anglers may participate in a number of different types of angling at different times (Brown, 2012b). Indeed, RSA also entails a very wide spectrum of different activities in terms of location, method and target species (Brown, 2013). This presents real problems when seeking to identify spend that is for sea angling specifically.

These types of issues explain the paucity of evidence on the economic effects associated with RSA particularly when it is considered that this is believed to represent one of the largest tourism pastimes in many countries (see Dillon, 2004, Hickley 1998, EAA, 2004a). Furthermore, the significance of the activity should be understood not just in terms of the direct spending of recreational sea anglers but also the activities that are supported by this spending. Across the EU it has been estimated that there are close to three thousand companies, manufacturers and wholesalers trading in recreational angling tackle, and that these firms support an estimated 60,000 jobs (EAA, 2004b, Dillon, 2004).

This paper first reviews research undertaken of the tourism value of RSA in the UK, and some of the key issues arising from the literature. The third section summarises the methods used in the analysis in this paper. The fourth section reports the main results from the analysis, while the fifth discusses the importance of the results for policy, and what the analysis reveals about future study needs.
Issues: UK Research on the Value of Recreational Sea Angling

A number of studies have been undertaken in the UK to examine the economic activity supported by RSA. These vary in coverage. Some major on direct spending and economic activity indirectly supported by this activity, and with others focusing more on value and exploring the monetary value linked to the personal utility gained from sea angling. This section reviews studies relating to RSA, to draw out the main issues of interest for this paper, but it should be noted that some of the more interesting studies in terms of the development of method involve freshwater fishing (see for example Spurgeon and Lawrence, 2007).

Drew Associates (2004) examined the economic contribution of sea angling in England and Wales. This study used the Household Omnibus Survey to estimate the total population of sea anglers, and to examine their socio-economic characteristics, and the type and frequency of angling. This information was then supplemented by surveys of sea anglers and suppliers to anglers. By comparing what anglers actually spent with what they were willing to pay, the study estimated the personal consumer surplus benefits of angling, which were scaled up for the estimated total population. The study found that estimated total expenditure by (resident in England and Wales) sea-anglers was £538m per year from 12.7 million angler days of activity. This spending was estimated to support nearly 19,000 jobs directly and £71m of supplier income. In a similar vein Simpson and Mawle (2005) examined participation in both fresh water and sea angling in England and Wales. In similarity to Drew Associates omnibus surveys gauged participation rates in the population. For sea angling specifically this study revealed that 7% of the population of England and Wales had sea-fished in the 2 years preceding the study, which yielded an estimated sea angling participation of three million people.

A series of studies have sought to examine regional differentials in sea angling activity. For example, Nautilus (2006) examined the economic contribution of sea-angling in the South West of England. This study estimated 240,900 resident sea-anglers in the target region, with 600,000 visitor anglers, converting to 750,000 angling days. Survey information showed a total local resident spending of which £110m was spent in the target region. However, it is expected that much of this local resident spending involved tourism daytrips. Visitor spending was assumed to be the same as resident spending resulting in an estimated total spend of £165m in the South West. Nautilus estimated the net economic value of angling ‘in the form of sea-anglers’ surplus at £77m per annum’.

Radford et al (2009) estimated the economic impact of sea angling in Scotland and examined the scale of direct as well as indirect and induced effects associated with direct spending. The study reported numbers of local and visiting anglers by type (shore, private and charter boats), target species and angler expenditure, and an estimate of the economic impact of sea angling to regional incomes and employment was made. This study revealed that sea angling supported 3,148 Full Time Job Equivalents (FTEs) jobs and £70m annually of Scottish household income. The study argued that a cessation of sea angling would lead to a net loss of at least 1,675 FTEs and annual income loss of £37m.

Finally Kenter et al. (2013) examined the value of potential marine protected areas in the UK to sub-aqua leisure divers and sea anglers. The study examined the recreational use and non-use values of UK divers and sea anglers for Scottish potential Marine Protected Areas, English potential Marine Conservation Zones and Welsh marine Special Areas of Conservation (SACs). The study used both monetary and non-monetary valuation methods and was developed on an online survey of divers and sea anglers. The annual recreational use value of English MCZs was
estimated between £1.8bn and £3.2bn, and non use values of between £0.6bn and £1.1bn.

The review of previous research reveals that there have been few studies of recreational sea angling in England and the UK following Drew (2004). There was some expectations that there have been significant economic and demographic changes within angling since then, and moreover the methods employed in Drew (2004) focused on angling-specific supplier chains to the exclusion of angler expenditure estimates. This analysis also focused on angling club members, and more frequent anglers. The wider stakeholder and business survey elements of some studies have also been limited. More generally the review hints at the need for survey approaches to be flexible to explore the complexity of angler types and resulting different sets of expenditure patterns. In addition some studies have not made the best use of online networks of anglers.

For brevity this section has focused on UK studies. There is an extensive international literature relating to the economic, social, environmental and tourism impacts of RSA. For example, in relation to tourism impacts are Tourism Development International (2013) which relates to angling (not just to sea angling) in Ireland, and Borch et al (2011) which studied marine fishing tourism in Norway. Lovell et al (2013) examines the economic contribution of marine angling expenditures in the US, implicitly including domestic overnight and day trip angling tourism within the US.

Methods
Survey Approach
The findings in this paper were part of the Sea Angling 2012 study focused on estimating the economic impacts associated with recreational sea angling in England (for further details see Armstrong et al. (2013)). Here the focus is on the elements of the project that estimated the economic benefits of sea angling (its contribution in terms of Gross Value Added and impact on employment). Other elements of the research explored the nature and extent of sea anglers’ participation, their motivations for sea angling and the social benefits that they obtain from their participation.

A key element of the research was an Opinions Survey conducted by the Office for National Statistics to provide statistics on the numbers, distribution and activities of sea anglers in England. While the survey provided an estimated total of the number of sea anglers in England a more targeted set of surveys were employed to gain insight into the spending patterns of individual anglers, and to gain some inference on elements of the supply side serving the angling community, particularly the scale of linkages to tourism facing sectors of the economy. The surveys encompassed an online survey of sea anglers examining economic (spending), social benefit, participation and demographic profile. This was supplemented by surveys using an identical set of questions to the above, but conducted face-to-face with anglers at five representative sea angling locations. The sites included a variety of rural-coastal (Northumberland, Deal), mid-sized (Lowestoft and Weymouth) and city/urban locations (Liverpool). Site based research was conducted throughout the period from March 2012 to February 2013. Site based research allowed collection of data from groups who were more likely to be under-represented in the self-select online survey, such as occasional anglers and holidaymakers. Finally there was a survey of angling-related businesses at these five case sites.

The economic and social questionnaire survey provided the data of individual angler spend in a number of categories which, combined with data from the ONS survey, allowed calculation of economic impact, GVA, and employment impact in England.
Previous studies (see Drew, 2004, Stolk, 2010, Brown, 2013) have revealed that there are a wide variety of angler types and behaviours. It was therefore important to have a multi-level approach to survey collection in order to capture the breadth of types of sea angler as well as to safeguard against non-response bias.

The target population for this study was recreational sea anglers in England. As highlighted above sea anglers do not require a licence to participate. This essentially means that there is no database of Rod Licence holders as there is in freshwater angling; or indeed, available databases of sea angling club members. The only suitable frames are held by angling organisations (club and national) and these are a tiny proportion of all sea anglers, most usually representing more frequent or dedicated anglers.

A website was established to provide a link to the survey, promote it and to explain about the purposes and use of the research data. The link to the online survey was heavily publicised through means including: newsletters/website articles and publicity in the angling press; through sea angling stakeholder organisations such as Bass Sportfishing Society (BASS), the National Mullet Club and others. In addition 5,000 business cards advertising the survey were produced and distributed at case study sites and through angling businesses and at angling events and trade shows. Databases of anglers who had taken part in previous studies were also emailed links to the survey website. Finally, participation in all the different aspects of the Sea Angling 2012 research programme was incentivised through a monthly draw for fishing tackle.

As mentioned above individual angler surveys were also supplemented with information derived from a range of angling businesses via both online and postal surveys. This included businesses directly related to angling (tackle shops, boat suppliers, charter boats) and those where angler spend might be focused in a locality (accommodation and food providers). The survey intended to collect information about what level of business came from local (day trip) and visiting anglers and how businesses then spent their income to allow some assessment of the retention of angler spend in the locality. Unfortunately this part of the survey work was less successful with some firms reluctant to release financial information, and with some firms unwilling or unable to divert resources to filling a spending questionnaire. Around 600 businesses were contacted across the five locations, but just 55 surveys were returned.

The overall sea angler sample size generated (after cleaning, removal of those living outside England and weighting to the ONS survey) was 2,842 usable responses. This was made up of 2,512 online and 340 face-to-face respondents (at the five separate coastal locations).

3.2 Estimating Direct Economic Effects

The survey tools asked anglers to detail how much they spent on various items, and this spending was subsequently grossed up using ONS survey data to represent the total population of sea anglers, and to estimate total (gross) expenditure by sea anglers.

There were issues relating to the survey data and to the population totals. There was a concern (as with similar studies of this nature) that the online survey could have been completed by keener anglers, who would be expected to spend more than other (more occasional) anglers (avidity bias). A disaggregated grossing up process was designed
to overcome the expected issues of bias in the survey data. This process involved splitting the survey data by two key angler characteristics; frequency of angling, and age. Three frequency categories were used; these were occasional (up to 12 days per year fishing), regular (13 – 35 days) and frequent (more than 36 days per year). Five different age categories were used. This meant that the survey results were split into 15 different groups. The average profiles (in terms of spending by category (trip or major equipment) and item) were then derived for each of these groups. Once these average profiles had been derived, each group was then grossed up to the total population of each group as estimated by the ONS survey. The grossed up total was therefore weighted to the ONS population. Whilst the on line survey contained relatively more frequent (and therefore generally higher spending) sea anglers compared to the ONS survey, the impact of this has been balanced to represent the number of frequent sea anglers in the English population.

The process described above was applied to both current (face-to-face) or last trip (online) spending and to spending on major equipment. The questionnaire asked about last/current trip spending (on items such as bait, transport, harbour fees and food and drink), the duration of the trip and the number of trips per year. This was the information upon which estimates of days fishing per year were made. This approach therefore assumes that on average, and over the full sample, that the last trip was representative of all trips during the year.

Spending on major items included the purchase of boats (‘that are used mostly for sea angling’), rods, reels and specialist clothing (‘bought specifically for sea angling’). These purchases may be made in one year, but used over several years. Hence expenditure on these items will vary significantly from year to year. Here estimates were derived from the online and site surveys of angler’s expenditure during the last year. Whilst there is expected to be significant recall bias for periods as long as a year, angler recall is likely to be more accurate over the last year than for longer periods. Some anglers will have bought major items during that year, but will use them over a number of years. Conversely some anglers may not have purchased any major items during the last year. Over the sample of more than 2,800 respondents, these impacts are assumed to balance out, to provide an average profile of spending on major items during the year. As noted above, spending on these items was weighted by angler characteristics within the ONS derived population.

Once a grossed up total expenditure figure had been derived for English recreational sea anglers, the total needed to be adjusted for expenditure leakages outside of the English economy. For example, whilst fishing rods may be bought via retailers in England, this item is likely to have been imported to England from overseas. In undertaking this exercise it was necessary to make assumptions about the English import propensities on goods and services used by sea anglers. These assumptions were informed by consultations with industry representatives, and by reference to import information on selected goods and services from the Office for National Statistics.

Other adjustments to spending were made to account for VAT and other taxes which are included within the spending made by sea anglers. For example, purchases of fishing equipment will include an element relating to VAT, whilst spending on fuel also includes excise duties. These taxes are deducted from the spending on various items in order to identify spend which is relevant for each item i.e. spend which will subsequently generate economic impacts within particular parts of the economy (see later). Relevant spend is then disaggregated and appropriately allocated to sectors of the economy in order to estimate the economic significance of that spending.
The results of this process were an estimate of the direct net spending of sea anglers which is retained within the English economy, this then becomes the main input into the economic model.

3.3 Estimation of Indirect and Induced-Income Effects

It is necessary to adopt an approach that allows an estimation of the indirect and induced effects supported by sea angler direct spending on England-produced goods and services (see for example, Radford et al, 2009; Lovell et al, 2013). The method incorporated survey results into a national Input-Output framework to trace the indirect and induced income effects at the all-England level.

Modifications to the published UK tables were required to adjust for different time periods, and to reflect the economy of England (rather than the UK). These tables provided a detailed financial account of trading between different parts of the economy during one year. This includes trade between industries within the economy, external trade through imports and exports, as well as consumer and government spending. This framework then enables the effect of any spending or activity to be traced through the various supply chains, ultimately estimating indirect and induced-income effects (see Miller and Blair, 2009).

Results

Table 1 provides estimates of the total annual spend of recreational sea anglers in England by spending category, and then with total broken down by trip related spending, and major item spending.

The information in Table 1 represents a grossed up number based on a sample of just over 2,500 online and site survey returns, (grossed up using age and frequency of trip information to represent over 884,000 individual English sea anglers estimated from the ONS survey). Total trip spending in 2012-13 was an estimated £673m (excluding purchases which would be categorised as major spend but which were bought during angling trips). Spending on major items totalled an estimated £560m. Adding together trip and major spend items gives an all-England total of £1.23bn of total sea angler spending. It is estimated that annual trip spend per angler is £761 (£795 including major items) and annual spend on major items is £633 per sea angler giving an overall total of £1,394 per sea angler, equivalent to around £27 per week of spending.

Table 1 reveals that the main items of spend include boats (£177.7m and around 14% of the total); bait (£141m and around 11% of the total); and food and drink (£135.1m, 11% of the total). The more detailed distribution of angling spend is important. For example, the three spending items of accommodation, food and drink and bait in large measure encompass goods and services produced in England. However, in the case of items such as rods and reels (£132m) a large proportion of the spending is on UK imports i.e. some types of sea angling spending leak out of the English economy.

The averages reported in Table 1 hides some interesting detail on the distribution of spend. For example, an examination of spending by frequency of sea angling activity reveals that the average annual spend of occasional anglers was around £708, £2,454 for regular anglers, and £3,161 for frequent anglers (average all anglers £1,394). In relative terms regular and frequent anglers have much higher levels of spending on major items as opposed to trip spend. In addition, analysis of spending by age range showed that anglers who were aged between 55 and 64 had the highest spending, at over 50% more than the annual average.
Table 2 shows more detail on the distribution of this sea angler spending by industry group. By examining the detailed breakdown of trip and major item spending it is possible to see the industries which are supported by recreational sea angling activity. Table 2 then takes the spending breakdown from Table 1 and allocates spend to industry groups as opposed to spending categories. Table 2 reveals that the annual spending figure of £1.23bn falls to £831m once account is taken of imports and taxes. For every £1 spent on recreational sea angling an estimated third relates to spend on imports and taxes. Of the £831m net of import and taxes, around £200m of sea angling spending accrues to the wholesale and retail sector; £180m to machinery, electronics and transport equipment; and £154m to hotels and restaurants. Then a relatively small amount of recreational sea angling spend relates to heavily tourism dependent sectors. The information in Table 2 becomes the inputs into an economic model to estimate the indirect and induced effects of this spending.

### Table 1. Items of trip and major spend by sea anglers

<table>
<thead>
<tr>
<th>Category</th>
<th>Annual Spend £m</th>
<th>Percentage of total spend</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trip spend</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accommodation</td>
<td>107.8</td>
<td>8.7</td>
</tr>
<tr>
<td>Food and drink</td>
<td>135.1</td>
<td>11.0</td>
</tr>
<tr>
<td>Bait</td>
<td>140.1</td>
<td>11.4</td>
</tr>
<tr>
<td>Other fishing equipment</td>
<td>44.1</td>
<td>3.6</td>
</tr>
<tr>
<td>Car parking</td>
<td>18.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Pier/harbour/launch fees</td>
<td>17.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Charter boat/boat hire</td>
<td>115.1</td>
<td>9.3</td>
</tr>
<tr>
<td>Boat fuel</td>
<td>34.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Public transport</td>
<td>5.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Other spending (incl. car fuel etc)</td>
<td>54.1</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Trip spending items</strong></td>
<td><strong>672.6 (£761 per angler)</strong></td>
<td><strong>54.6</strong></td>
</tr>
<tr>
<td><strong>Major spend items</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rods and reels</td>
<td>131.6</td>
<td>10.7</td>
</tr>
<tr>
<td>Fishing clothing</td>
<td>40.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Other equipment</td>
<td>31.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Terminal tackle</td>
<td>49.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Boats/kayaks</td>
<td>177.7</td>
<td>14.4</td>
</tr>
<tr>
<td>Boat engines/equipment</td>
<td>94.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Other major spending</td>
<td>34.0</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Major spend total</strong></td>
<td><strong>559.9 (£633 per angler)</strong></td>
<td><strong>45.5</strong></td>
</tr>
<tr>
<td><strong>Overall Total</strong></td>
<td><strong>1,232.6 (£1,394 per angler)</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Totals may not sum due to rounding. The 95% confidence interval for the total annual spend of £1.232.6m is estimated at +/- £357.6m. This estimate is indicative of the potential variation in total spending.

Table 2 reveals that in excess of £200m of tax payments would be included within the £1.23bn of sea angler gross spending. Such taxes will accrue to the government and
will subsequently be spent, hence supporting economic activity, and the extent of these impacts will depend on how such taxes are spent.

Table 2. Distribution of sea angler spend by industry group

<table>
<thead>
<tr>
<th>Industry group</th>
<th>Selected Items</th>
<th>Spend £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, fishing, food and clothing</td>
<td>Bait, selected food and drink, clothing</td>
<td>127.6</td>
</tr>
<tr>
<td>Machinery, electronics and transport equipment</td>
<td>Boats, engines, other major items</td>
<td>179.6</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>Fishing equipment, rod and reels, terminal tackle</td>
<td>24.9</td>
</tr>
<tr>
<td>Wholesale and retail</td>
<td>Retails margin on a range of purchases listed in Table 2.4, including rods and ree, boats, engines, clothing</td>
<td>199.1</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>Accommodation, selected food and drink</td>
<td>153.7</td>
</tr>
<tr>
<td>Transport and transport services</td>
<td>Car parking, pier fees, public transport, selected charter fees.</td>
<td>94.1</td>
</tr>
<tr>
<td>Other services</td>
<td>Selected charter fees</td>
<td>52.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>831.4</strong></td>
</tr>
<tr>
<td>Imports</td>
<td>Imports of a range of items bought via retailers, such as rod, reels, food and drink, clothing</td>
<td>199.2</td>
</tr>
<tr>
<td>Tax</td>
<td>VAT on a relevant purchases listed in Table 2.4 (for example, on accommodation and equipment purchases) plus tax on fuel.</td>
<td>202.1</td>
</tr>
<tr>
<td><strong>Total Overall Spend</strong></td>
<td></td>
<td><strong>1,232.6</strong></td>
</tr>
</tbody>
</table>

By combining the information of spend by industry (see Table 2) with employment data for the defined industries (from the Office for National Statistics) the £831m of sea angler spend on domestically produced goods and services (see Table 2) is estimated to directly support some 10,400 FTE jobs (see Table 3). It is also estimated that the £831 million of spending supports almost £360 million of GVA in England. GVA comprises of items such as wages and salaries, and company profits and surpluses. In summary then every 100 recreational sea anglers support 1.2 jobs in the English economy through their (direct) spending. Moreover, every £1m overall gross sea angling spending supported 8.5 jobs in England and £0.29 million of GVA.

As revealed in the section on methods, it was important to estimate the knock on benefits associated with this spending, and Table 3 also includes the estimates made when the direct spending was placed within the Input-Output framework.

The £831m of direct sea angler spending supported an estimated total of £2.1 billion of total spending once indirect and induced effects are accounted; a total of over 23,600 jobs and almost £980 million of GVA. Note here that total effects include direct, indirect and induced effects. The figures in Table 3 can also be interpreted in terms that each £1m of net sea angler spending in England supports another £1.5m of spending in the English economy, and each £1m of gross sea angler spend in total supports 19.2 jobs and £0.79 million of GVA. Moreover, every 100 recreational sea anglers supported around 2.7 jobs in the English economy through their spending on goods and services and associated indirect and induced effects.

Table 3. Economic impacts of sea angling
Clearly the figures derived from the approach do not imply that a reduction in the recreational sea angling activity results in a loss to the economy of the magnitudes reported in Table 3. For example, were all angling options to be closed some would substitute spending to other pastimes (see Radford et al., 2009).

**Conclusions**

The context for the study was the need for better estimates on the economic activity supported by sea angling expenditure to support both marine and tourism policy. Further context was a paucity of research examining the aggregate effects of sea angling spending largely because of difficulties in establishing the population of sea anglers. This is likely to continue to create problems with high costs involved in adding specific pastime questions into UK-wide omnibus surveys, and difficulties in ensuring a representative sample is accessed. Notwithstanding this study developed a rich source of individual angler spending and demographic information such that the key challenges were in terms of grossing up these micro-estimates.

It is perhaps a simplistic point to say that increasing the numbers of people who go sea angling will increase the economic and social benefits it can deliver. However, increasing participation cannot be assumed. The online open survey element of this study revealed concerns of sea anglers in terms of the impacts of a decline of in-shore fish stocks as a barrier to greater participation (and therefore arguably increased social and economic benefits). Then while the research here reveals something of the socio-economic contribution of sea angling, its future development is less certain.

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A Dynamic Linear Model to Forecast Number of Nonresident Hotel Registrations in Puerto Rico Using Google Trends Search Query Data by Rivera, R.

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Abstract
Recently, studies have used search query volume (SQV) data to forecast a given process of interest. However, Google Trends SQV data comes from a periodic sample of queries. As a result, Google Trends data is different every week. We propose a Dynamic Linear Model that treats SQV data as a representation of an unobservable process. We apply our model to forecast the number of hotel nonresident registrations in Puerto Rico using SQV data downloaded in 11 different occasions. The model provides better inference on the association between the number of hotel nonresident registrations and SQV than using Google Trends data retrieved only on one occasion. However, compared to simpler models we only find evidence of better performance when making forecasts on a horizon of over 6 months.

Key Words: combining multiple time series, dynamic linear model, hotel registrations, search query volume data, Google Trends, forecasting models.

1.
In recent years, there has been an interest in exploiting search query data available through sources such as Google Trends (www.google.com/trends) to model temporal processes. Choi and Varian (2009a,b) used search query data to model tourism demand, auto sales, home sales, and initial unemployment claims. Ginsberg et al. (2009) relied on Google search queries to model influenza activity in the U.S. Studies have also suggested search query based tools to model consumer behavior (Goel et al. 2010), dengue (Gluskin et al. 2014) and more. It is not exactly known how the search query volume algorithm by Google generates its results. Moreover, the time series of search query volume generated by the algorithm changes every week.
Puerto Rico has been going through an economic recession since 2006. Leaders on the island have been attempting to find ways to boost the economy. Although hotel registrations from July to November showed an increase of about 10% from fiscal year 2012 to 2013 (Junta de Planificación de Puerto Rico 2013a), over the long term the contribution of the hotel industry to Gross Domestic Product has stayed relatively constant (Ruiz 2012). With opportunities in many sectors of the economy dwindling, the government has been taking steps to improve the tourism sector. To accomplish this, efficient planning is crucial. Statistical inference can be used to forecast the number of hotel registrations by nonresidents, a proxy of tourism demand.
This is the first study to treat each weekly Google Trends output as a source of data of an unobservable process. We use this data to draw inference on the lagged association between the number of hotel nonresident registrations (NHRN) in Puerto Rico and search query volume (SQV). The performance of our Dynamic Linear Model in forecasting NHRN is compared to alternative models.

2. Data
Number of hotel nonresident registrations from January 2004 to September 2012 was provided by the Puerto Rico Tourism Company. Hotels and luxury hotels are required to provide registration data while short term stays and guest houses can provide it if they wish to do so. Although NHR does not exactly measure the number of tourists
that come to the island, it intuitively serves as a good proxy. A publicly available tool called Google Trends provides an index of relative volume of search queries based on a percentage of Google web searches. The data quantifies the standardized volume of searches for a given query and aggregates them, typically over 7 days. We emphasize the use of the word ‘standardized’ here, meaning Google Trends search query volume relative to the total number of searches done on Google over time, instead of absolute search volume. Thus, if the rate of absolute search query volume increase is smaller than the total search query volume, relative search query volume may decrease. Therefore the standardized SQV obtained are dependent on the region, category/subcategory, queries, and time frame selected. To fit the model, the SQV Google Trends data, provided on a 7 day scale, was converted to monthly data.

2.1 Challenges in using Google SQV data

As appealing as the availability of the search query data is, care must be taken. Butler (2013) found that Google Flu trends, a search query based tool, was not been performing as well as when it was introduced in 2009, sometimes estimating twice as many actual influenza cases. More recently, Lazer et al. (2014) showed that from August 21, 2011 to September 1, 2013, Google Flu Trends reported overly high Flu prevalence 100 out of 108 weeks. Screening the search query data one finds that, for a fixed period of time of interest, fixed search queries and a fixed region, Google query output will differ over the time series. For example, if one is to obtain today data from Google Trends from 2004 to 2014 for “puerto rico hotels” performed in the United States, one would obtain a time series of results. However, if one would extract output under the same parameters next week, the time series has different entries. Every week the output will be different. This is different than data revision of economic data where only the most recent data changes. In the case of Google Trends, data at all time points change routinely. The issue is partly due to how the SQV data is provided through Google Trends. According to the help page of Google Trends, the companies algorithm analyzes a percentage of Google web searches to determine the amount of searches for the terms entered compared to the total number of Google searches done during the same time period. The statement implies that SQV is based on a sample of Google searches, but it doesn't specify the sample size or how samples are chosen. Another possible explanation is the fact that Google constantly changes its search algorithm (Lazer et al. 2014). Among recent changes, the use of social networking data and predicting misspellings to determine search results for users. Another aspect is that Google constantly changes its algorithm to determine search query volume. For example, nowadays Google Trends tool provides suggestions while keying in search queries, avoiding the possibility of misspellings and ambiguity in some terms. The challenges presented here are not to say that the search query data is not useful. One way of seeing it, is that the search query data provided by Google, is an observed version of the true search query process.

2.2 Choice of Google Trends Parameters to Obtain SQV Data

Search query volume data acquired from Google Trends is a function of a series of settings the user determines (e.g. region or location where searches were made, categories and subcategories of the search queries, the search type, etc.). We treat each of these Google Trends optional settings as parameters. The region to obtain the search volume data was chosen to be the United States. Including other countries is likely to blur the association between Google SQV and NHNR for the following reasons. First, most nonresident tourists come from the United States. According to Puerto Rico’s Tourism Company 92.6% of visitors surveyed come from the United States for the 2011 fiscal year (Junta de Planificación de Puerto Rico, 2013b). Of visitors arriving from the U.S., 44.1% came from the east coast, most from New York and Florida. Secondly, Google’s search market share overall is large, but it may vary
considerably by country. Although no official numbers of search market share exists, estimates from several companies indicate that Google’s market share is lower than local alternatives in some countries (e.g. South Korea, China, Russia, and Japan). Lastly, exploration of queries related to Puerto Rico travel from countries other than the U.S. often produced little search volume data, sometimes no data at all. Table 1 summarizes the settings we used while using Google Trends.

<table>
<thead>
<tr>
<th>Search Volume Parameter</th>
<th>Parameter Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queries</td>
<td>puerto rico hotels, puerto rico flights, san juan hotels, puerto rico resorts, puerto rico vacations, puerto rico vacation, puerto rico tourism, and puerto rico travel</td>
</tr>
<tr>
<td>Region</td>
<td>United States</td>
</tr>
<tr>
<td>Search time frame</td>
<td>January 2004 - January 2014</td>
</tr>
<tr>
<td>Search type</td>
<td>Web Search</td>
</tr>
<tr>
<td>Category</td>
<td>Travel</td>
</tr>
<tr>
<td>Subcategory</td>
<td>NONE</td>
</tr>
<tr>
<td>Dates when volume data gathered</td>
<td>Every Thursday from 2/20/14 to 4/24/14</td>
</tr>
</tbody>
</table>

Using feedback from experts at the Tourism Company and preliminary analysis, it was determined that the 8 queries shown where the best alternatives to forecast NHNR without exceeding the 30 word limit that Google Trends permits. Only Web search type volume was used from the Travel category. This Google Trends Travel category contains subcategories, but the search volume data for our queries of interest is spotty within these subcategories, so no subcategories were selected.

We used the results of these queries in the period from January 2004 to January 2014, but to fit the models we only use the time frame for which we have room registration data. Finally, SQV data was extracted in 10 consecutive Thursdays, from February 20 to April 24, 2014.

In the next section we discuss the models considered to study the capacity of query volume data to improve forecasts of NHNR.

### 3. Forecasting Models

We can express the NHNR data in a rather ambiguous form:

\[ Y = g(\mu, S, \varepsilon) \]  

That is, the data is decomposed into a trend and/or an association with search traffic component (modeled through \( \mu \)), seasonality component (\( S \)), and some irregular time dependence component (\( \varepsilon \)). \( g(\cdot) \) determines the type of function of these components.

We will model each component in an additive way based on stochastic and deterministic approaches and, for one of the models, will let the data determine if the relationship among each component and the process should be linear or nonlinear.

#### 3.1 Dynamic linear model
The Dynamic Linear Model (DLM) is a flexible way to intuitively capture how processes evolve in time. In fact, traditional time series models such as ARIMA and others can be viewed as special cases of the DLM. Yet the dynamic linear model can also incorporate nonstationarity, time-varying parameters, multivariate time series, data from multiple sources, irregular temporal observations, and missing data among other things. Shumway and Stoffer (2011); Chatfield (2003) provide nice introductions to DLMs while Durbin and Koopman (2012); Brockwell and Davis (2009) cover more advance theory on the subject. DLMs have been widely used to model environmental data (Cressie and Wikle (2011), Huerta et al. (2004)), and economic or financial data Shumway and Stoffer (2011). But DLM models have received much less attention in other business applications, and although it has been applied to model tourism data (Athanasopoulos and Hyndman 2008; du Preez and Witt 2003), they have not been applied to Google Trends data as done in this study.

Let \( Y_t = Y_{1,t}, Y_{2,t}, \ldots, Y_{m,t} \) represent observations of \( m \) time series at time \( t \). Hence each \( Y_i \) is a \( mx1 \) vector. Furthermore, let \( X_t = X_{1,t}, \ldots, S_{q,t} \) be the true \( q \) processes of interest, and \( S_t = S_{1,t}, \ldots, S_{q,t-k} \) represents the seasonal component of period \( k \) for each of the \( q \) processes in the model. We express DLM with the following equations:

\[
Y_t = F X_t + HS_t + \nu_t, \quad \nu_t \sim N(0, V) \tag{2}
\]
\[
X_t = G^{(s)} X_{t-1} + CS_t + \omega_t^{(s)}, \quad \omega_t^{(s)} \sim N(0, W^{(s)}) \tag{3}
\]
\[
S_t = G^{(s)} S_{t-1} + \omega_t^{(s)}, \quad \omega_t^{(s)} \sim N(0, W^{(s)}) \tag{4}
\]

Equation (2) is known as the observation or measurement equation, where \( \nu_t \) corresponds to Normally distributed measurement error with mean zero and covariance \( V \). \( X_t \) is referred to as the state or system vector (West and Harrison 1997) and contains all the parameters that relate to the trend of the temporal processes of interest. The set of equations imply that the state vector of interest \( X_t \) cannot be observed directly. \( F \) is a \( mxq \) matrix that may depend on parameters that need to be estimated. \( H, C \) are matrices with dimension and entries depending on whether the seasonal component is modelled as a fixed effect or stochastically (see section 3.1.1 for details on our approach).

Equations (3) and (4) are known as state, system, or transition equations. These equations determine how \( X_t \) is generated from past values \( X_{t-1} \). \( G^{(s)} \) and \( G^{(x)} \) are referred to as the evolution matrices with dimensions \( sxs \) and \( qxq \) respectively, and \( \omega_t^{(s)}, \omega_t^{(s)} \) are the evolution errors. As stated in Banerjee et al. (2004), usually the design problem at hand determines the form of \( F \) while modeling assumptions lead to how \( G^{(s)}, G^{(x)} \) are represented. Specifically, dependence among \( Y_{1,t}, Y_{2,t}, \ldots, Y_{m,t} \) can be introduced into the model through \( G^{(s)}, G^{(x)} \) and/or \( W^{(s)}, W^{(x)} \). Choosing the identity matrix as \( G^{(s)} \) results in a random walk representation for \( X_t \) for all \( t \). More generally \( F, H, G^{(s)}, G^{(x)} \) may be time dependent sequence of matrices, an extension that we do not pursue here.

### 3.1.1 Dynamic Linear Model for NHNR

To adapt the DLM to our case let \( Y_t = Y_{1,t}, Y_{2,t}, \ldots, Y_{(a+1),t} \) where \( Y_{a,t} \) is the recorded number of hotel nonresident registrations for time \( t \) and \( Y_{2,t}, \ldots, Y_{(a+1),t} \) are query volume data retrieved from Google Trends from their algorithm runs 1,...,a for time \( t \). Hence each \( Y_t \) is a \( (a+1)x1 \) vector. Of prime importance to us is the true process \( X_t = X_{1,t}, X_{2,t} \) where \( X_{1,t} \) is the true NHNR for time \( t \) and \( X_{2,t} \) is the true SQV data for time \( t \). Assuming a seasonal component of period \( k=12 \), which we model as a fixed factor, our DLM consists of the following equations in matrix form:
\[
\begin{align*}
Y_{1,t} & = 1 \ 0 \ X_{1,t} + \nu_{1,t} \\
\vdots & = 0 \ 1 \ X_{2,t} + \nu_{2,t} \\
Y_{(a+1),t} & = 0 \ 1 \ X_{(a+1),t} + \nu_{(a+1),t} \\
\end{align*}
\]

(5)

where the observation errors are assumed to be independent from the state vector for all \( t \), and no correlation is assumed between the observation errors \( \nu_{1,t} \) and \( \nu_{j,t}, j = 2, \ldots, (a + 1) \). Conversely, correlation between \( \nu_{1,t}, j = 2, \ldots, (a + 1) \) is possible. However, not constraining the correlation between all \( \nu_{1,t}, j = 2, \ldots, (a + 1) \) requires the estimation of too many off-diagonal parameters in \( V \). Therefore we assume

\[ V = \text{diag} \ \sigma_1^{2(y)}, \sigma_2^{2(y)} I \]

where \( I \) is an identity matrix. The other equation looks as follows,

\[ X_{1,t} = 1 \ \beta \ X_{1,t-1} + CS_t + \omega_{x,1,t} \]

\[ X_{2,t} = 0 \ 1 \ X_{2,t-1} + \omega_{x,2,t} \]

(6)

where variances \( W_t^{(x)} = \text{diag} \ \sigma_1^{2(x)}, \sigma_2^{2(x)} \), and the errors \( \nu_t, \omega_t^{(x)} \) are uncorrelated. Note that (5) and (6) imply that the Seasonal component for each temporal process is modeled as fixed with \( H = 0, S_t \) indicating the month at time \( t \), \( C \) is a \( 2 \times 12 \) matrix of parameters, and no stochastic component \( (W_t^{(s)} = \text{diag} \ \sigma_1^{2(s)}, \sigma_2^{2(s)} = 0) \). The \( \beta \) parameter is linked to the linear association between NHR at time \( t \) and SQV at time \( t-1 \). \( \beta \neq 0 \) would indicate that there is a linear association between these processes and hence, no practical use of SQV in forecasting NHR. \( \beta = 0 \) implies that the true SQV is a leading indicator of NHR. Leading indicators are useful in forecasting processes of interest, since they don’t have to be forecasted themselves for short lead times. In this case, however, \( X_{2,t-1} \) is not directly observed making its usefulness as a leading indicator less clear. This DLM allows us to account for the information from multiple Google Trends algorithm runs to determine if there is a linear association between \( X_{2,t-1} \) and \( X_{1,t} \). We hypothesized that incorporating data from multiple search volume algorithms had an impact in determining the type of association between the true NHR and the true SQV. We tested this hypothesis by comparing the inference on \( \beta \) from the DLM expressed above and a DLM using only the most recent search query algorithm data.

\[ ^{12} \] In our data \( a=11 \), hence not constraining the correlation between all \( \nu_{j,t}, j = 2, \ldots, 11 \) requires the estimation of \( (12-11)/2=55 \) off-diagonal parameters in \( V \). Moreover, a fixed covariance among all 11 search query output errors did not improve the model.

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3.1.2 Estimation of parameters and Kalman recursions

Parameters in equations (5), (6) must be estimated. Direct Maximum likelihood estimation methods (Brockwell and Davis 2009), Expected Maximization (EM), and Bayesian methods (West and Harrison 1997) are some alternatives. In this work we used the EM algorithm described in (Holmes 2012) and implemented through the R package MARSS (Holmes et al. 2012). Confidence intervals for $\beta$ were based on asymptotic Normality and an estimated Hessian matrix. Predictions $X_{i,t',r}$ and $Y_{i,t',r}$ at times $t'$ for $i = 1,2$ are based on Kalman Recursions (Brockwell and Davis 2009) through the DLM presented in this paper.

3.2 Other forecasting models

A Seasonal Autoregressive Integrated Moving Average (SARIMA), Holt-Winter, and a type of nonparametric additive model were also fit. Shumway and Stoffer (2011) discuss the SARIMA model while Chatfield (2003) briefly explains Holt-Winter models. SARIMA and Holt-Winter models have been used in the past to model tourism arrivals and they tend to perform well (du Preez and Witt 2003; Lim and McAleer 2001). For a review of recent tourism demand modeling approaches see Song and Li (2008). Our nonparametric additive model is a bit less traditional and we briefly describe it in what follows.

Additive models are a form of nonparametric model that decomposes $g$ in (1) into separate unknown smooth functions of the covariates (Paciorek 2007; Hastie and Tibshirani 1986),

\[ g_j(\cdot) = \sum \beta_j 

where $z_{ij}$ is the $i^{th}$ observation of covariate $j$. Specifically, every function $g_j(\cdot)$ is conveyed as a linear combination of basis functions such as splines, wavelets, or polynomials (Hastie et al. 2009). Each function can be fit using a penalized least squares criterion (Ruppert et al. 2003). Splines, break the explanatory variable range into mutually exclusive regions and expresses the fit of each $g_j(\cdot)$ in terms of low order piecewise polynomials. When the covariate is numeric, a cubic spline is often used to estimate $g_j(\cdot)$. A cubic spline is a curve constructed by sections of cubic polynomials (with two continuous derivatives) and these sections are joined through knots. At the knots the function value, as well as the first and second derivatives of the piecewise polynomials match. Cubic splines are frequently used because of their good approximation properties. Conventionally, each datum determines a knot, but to simplify computations a low rank spline method can be used. In this work we fit the semiparametric model,

\[ Y_{i,t} = \alpha + \beta Y_{i,t-1} + g_1 t + g_2 \text{month} + \epsilon_t \]

where $\text{month}$ is month of year, $\epsilon_i$ is the average search volume over the 10 algorithm outputs, $g_1$ is a thin plate regression spline, and $g_2$ is a cyclic cubic regression spline (Wood 2006). $g_1$ captures the overall trend in time while $g_2$ captures the seasonality in the data. For theoretical relationships of dynamic linear models with ARIMA models, Holt-Winter and spline based methods see Durbin and Koopman (2012). All models were fit using R (R Core Team 2012).

4 Results
Over the broader time period from January 2000 to December 2012, peak number of hotel nonresident registrations occurred in 2012 (1,575,131), while 2010 and 2011 had an increase slightly above 5% from the previous year. However, from 2005 to 2009, a yearly decrease in NHR occurred. The lowest registrations since 2003 occurred in 2009, likely related to the financial crisis in the U.S. From January 2004 until September 2012, a potential subtle nonlinear trend was detected on monthly NHR. As expected, the hotel room registration data displayed a strong seasonal pattern (upper left panel Figure 1). Highest NHR occurred around the dry season months with a peak in March while lowest NHR occurred in the wet months with September providing the lowest occupancy (right panel Figure 1). In fact, seasonality dominates the time series, suggesting that the Holt-Winter’s model is a viable option to generate forecasts of NHR. The seasonality did not appear to vary widely on a year to year basis. Furthermore, there was moderate variability in the data when seasonality was accounted for (see upper right panel of Figure 1), therefore it is uncertain how an Additive Model will perform. Based on the periodical peaks seen in the sample autocorrelation (ACF) and the high correlation at small lags (see left panel Figure 2), plus the quick decay observed in the partial autocorrelation (PACF) plots after lag 12 and the high correlation at small lags seen here as well (right panel Figure 2), a SARIMA $(1,0,1) \times (1,0,0)_{12}$ appeared adequate. Further analysis using Akaike Information Criteria (AIC) supported choosing this number of parameters (Akaike 1973).

![Figure 1](image1.png)

**Figure 1** Upper left panel displays the Time series plot of number of hotel nonresident registrations (in thousands). Upper right panel shows boxplots of NHR summaries by month of year. Output from 3 separate search query volume output can be seen in the lower left panel. Cross correlation based on prewhitened NHR and prewhitened SQV (averaged over the 10 algorithmic outputs) are presented in the lower right panel.
Turning to the search query volume data, the lower left panel of Figure 1 shows the time series obtained October 9, October 23 and December 11 of 2014. Although each time series was similar, variability among algorithm dates are visible. December 11 output had more pronounced seasonal peaks than the other Google Trends output, especially later in the time series. On the other hand October 9 and October 23 output displayed lower seasonal bottoms than December 11 output. Time series were prewhitened as suggested in Bisgaard and Kulahci (2011) to inspect cross correlation. As we can see from Figure 1 (lower right panel), there appears to be a significant one month lag association between the NHNR and SQV time series. However, the lag-1 cross correlation was estimated to be 0.32, which makes the benefit of using the chosen SQV data to forecast NHNR questionable. Moreover, when omitting seasonality neither of the two temporal processes displayed major changes in average value over time nor a strong increasing or decreasing trend.

![Figure 2 ACF and PACF plots for NHNR. Plots suggest a (1, 0, 1) × (1, 0, 0)_{12} SARIMA model.](image)

**4.1 DLM results to determine association Between X_{1,t} and X_{2,t−1}**

We fitted two DLMs as presented in sections 3.1.1 and 3.1.2 to draw inference on $\beta$. The multivariate time series $Y_t$ was demeaned before constructing the DLM models.

For one model, $DLM_1$, we used Google Trends generated time series of search query
volumes for $a_1 = 11$ weeks. The second DLM model, $DLM_2$, used only the most recent Google Trends search query volume data $a_2 = 1$. Table 2 shows the resulting estimates of $\beta$, 95% confidence intervals based on asymptotic Normality and forecast accuracy measures mean absolute error (MAE), and mean absolute percentage error (MAPE) using one step ahead forecasts. We see that the estimate of $\beta$ through $DLM_2$ was only about 1% smaller than through $DLM_1$. However, the $\beta$ confidence interval based on $DLM_1$ did not include zero while the one based on $DLM_2$ did. Furthermore, $DLM_1$ had smaller length than the confidence interval based on $DLM_2$. By using output of 11 Google trends algorithm runs we can better infer about the linear association between $X_{1,t}$ and $X_{2,t-1}$. No difference was detected on the inference drawn from both models regarding $\sigma^2(y)^1$ and $\sigma^2(x)^1$. But, the results on $\sigma^2(y)^2$ and $\sigma^2(x)^2$ from $DLM_1$ imply that the search query volume is on average evolving in time while the results of $DLM_2$ put this in doubt with a confidence interval lower bound closer to zero.

Table 2. Comparison of the inference on parameters and forecast accuracy using $DML_1$ and $DML_2$. 95% confidence intervals (in parenthesis) are obtained using parametric bootstrapping and the parameter estimates have been bias corrected. The 95% confidence interval for $DML_2$ implies no linear association between $X_{1,t}$ and $X_{2,t-1}$ while the one for $DML_4$ implies a statistically significant association.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\beta$</th>
<th>$\sigma^2(y)$</th>
<th>$\sigma^2(x)$</th>
<th>$\sigma^2(y)$</th>
<th>$\sigma^2(x)$</th>
<th>MAE</th>
<th>MAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>$DML_1$</td>
<td>104.76</td>
<td>$1.25 \times 10^7$</td>
<td>1.63</td>
<td>$2.89 \times 10^4$</td>
<td>13.66</td>
<td>3560.78</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>(2.6,206.52)</td>
<td>(8.25 $\times 10^4$, 1.76 $\times 10^7$)</td>
<td>(1.50,1.78)</td>
<td>(8.70 $\times 10^4$, 6.10 $\times 10^6$)</td>
<td>(10.11,17.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$DML_2$</td>
<td>104.72</td>
<td>$1.26 \times 10^7$</td>
<td>5.04</td>
<td>$2.87 \times 10^4$</td>
<td>4.68</td>
<td>3599.80</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>(−13.03,222.47)</td>
<td>(8.26 $\times 10^4$, 1.78 $\times 10^7$)</td>
<td>(2.65,8.19)</td>
<td>(8.08 $\times 10^4$, 6.21 $\times 10^4$)</td>
<td>(2.03,8.44)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The inference on $\beta$ supports the preliminary argument made in the previous section, suggesting that although a statistically significant linear association exists between $X_{1,t}$ and $X_{2,t-1}$, this association appears to be weak. The effect of the choice of DLM was less important in terms of one step ahead forecast accuracy with only a slight decrease in MAE and MAPE when $DML_1$ was used. In the next section we compare the performance of our $DLM_1$ with the models outlined in section 3.2.

4.2 Forecast accuracy

The most common methods to determine forecasting accuracy are functions of forecasting error. MAE, MAPE, and root mean square prediction error (RMSE) were calculated in sample, and out of sample for a time horizon of 6 months, and 7-12 months ahead. Given the small amount of out of sample data, the interpretation of these errors should be taken lightly and statistical inference on significance of difference in forecasting errors is unreliable and not presented here. Summaries of the errors are presented in Table 3. A dynamic linear model without using SQV, $DLM_0$, was also fit for this comparison. In general, it appears that SQV improves forecasts for a horizon of over 6 months, but $DLM_0$ performs better for the shorter horizon. Based on the in sample results, SARIMA had the worst fit to the data. Out of sample
errors indicate that the semiparametric AM performed worst in terms of forecasting and that SARIMA had a competitive forecasting performance with other alternatives. Generally, these metrics suggested HW and $DLM_1$ were the best alternatives for short term forecasts. For horizons over 6 months, $DLM_1$ performed best followed by SARIMA and HW. It is unclear if the prediction error differences are statistically significant. As we can see from Figure 3, overall the forecast of all the models captured the general pattern in $\hat{E}$rro$. All forecasts underestimated the March 2013 NHNR (which turned out to be higher than in any other March) and overestimated the September 2013 NHNR.

Table 3. Forecast accuracy comparison of models $DLM_1$, SARIMA, HW, and AM. ‘In’ column shows in sample errors, ‘Out-6’ errors up to 6 months ahead and ‘Out-12’ forecast errors for horizons of 7-12 months ahead.

<table>
<thead>
<tr>
<th>Model</th>
<th>MAE</th>
<th>MAPE</th>
<th>RMSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out – 6</td>
<td>Out – 12</td>
</tr>
<tr>
<td>$DLM_1$</td>
<td>3560.78</td>
<td>7024.38</td>
<td>4160.76</td>
</tr>
<tr>
<td>$DLM_0$</td>
<td>3633.70</td>
<td>6485.75</td>
<td>4490.72</td>
</tr>
<tr>
<td>SARIMA</td>
<td>4709.43</td>
<td>7491.45</td>
<td>4972.53</td>
</tr>
<tr>
<td>HW</td>
<td>4220.69</td>
<td>5901.93</td>
<td>4756.51</td>
</tr>
<tr>
<td>AM</td>
<td>4348.14</td>
<td>7893.88</td>
<td>7523.29</td>
</tr>
</tbody>
</table>
Figure 3 Last few NHNR observations with forecasts up to 12 months ahead from all the models. Data not used to construct the model is also included.

Figure 4 presents the last few search query data observations (based on Google Trends algorithm run 11) with $DLM_1$ forecasts up to 12 months ahead. The data not used to construct the model is also included. We see that the model tended to overestimate the monthly search query volume for the first few months. Over the first 6 forecast months the MAPE when forecasting SQV was found to be 9.67 and for the forecasts 7-12 months ahead the MAPE was 3.74. The prediction errors over the first 6 forecast months are markedly higher than those for NHNR. Since the $DLM_1$ forecasts of $\text{Error!}$ depend on the forecasts of $\text{Error!}$ a poor performance in forecasting the latter process will hinder its accuracy in forecasting the former (Ashley 1983). These arguments explain the performance comparison of $DLM_0$ and $DLM_1$. Models with autoregressive features and with a growth component were also considered for $\text{Error!}$ but they did not improve on the results seen here.
Figure 4 Last few search query data observations (based on Google Trends algorithm run 10) with DML forecasts up to 12 months ahead (dot dash line). Data not used to construct the model is also included (dotted line).

5 Conclusions
The aim of this work was to construct an adequate model to forecast the number of hotel nonresident registrations in Puerto Rico. The possibility of using search query volume data was considered. As far as we know, this is the first paper to account for the uncertainty of the Google SQV data. We showed that our proposed DLM allows to conduct more precise inference on the lagged linear association of the two temporal processes than downloading Google Trends output only once. The evidence showed a statistically significant linear association between \( \text{Error!} \) and \( \text{Error!} \). However, this association is weak to moderate and DLM forecasts results were mixed when compared to the simpler Holt-Winter and SARIMA models. Two explanations are given for the forecasting performance of our DLM. First, the rather weak linear association between \( \text{Error!} \) and \( \text{Error!} \), indicated by the traits of the corresponding time series and the resulting inference as explained above. du Preez and Witt (2003) obtain similar findings where univariate models outperformed multivariate ones due to the absence of strong cross correlation between the processes. Secondly, the performance of the DLM in forecasting \( \text{Error!} \) was not good enough to compensate for the weak linear association between the processes. The findings of this research do
not mean that overall Google Trends data is not useful, but that it might not be useful to forecast NHNR in Puerto Rico. However, we acknowledge that our selection of SQV data was mostly heuristic. Further research is needed using more objective alternatives to choose which and how many search queries should be included within the limits that Google Trends allows. Moreover, the association between NHNR and SQV may be stronger at a weekly level, since some visitors may schedule their stay a few weeks before making their trip instead of a month before hand. More research is needed to see if a dynamic model incorporating a latent process, and mixed frequency time series data would help improve forecasts. Preliminary analysis indicates that the SQV data at a weekly level was noisier than its aggregated monthly counterpart, leading to higher prediction errors when forecasting SQV. At the very least, a stochastic seasonal component would be needed. SQV data retrieved from Google Trends may improve forecasts of processes, especially in situations when the main time series of interest and the SQV data display strong growth and when the search query volume data can be forecasted well. Google does not provide much detail on how they obtain their SQV data and why the data available through Google Trends changes routinely. The mechanism producing the data helps determine the right modeling approach (e.g determining if there’s a need to adjust for bias). More transparency from Google would improve the chances of exploiting the promising tool of search query volume data.

Care must be taken when analyzing the forecasting accuracy of models. One must realize that the forecast accuracy measures are statistics, and different samples may result in different comparative results of these measures. Although inference based on forecast accuracy measures has been developed, simulations suggests that these hypothesis testing methods require a substantial amount of out of sample data, at least 40 observations in length to be useful (Ashley 2003). Also, although Kalman recursion allows for the estimate of prediction error covariance recursively, this estimate is dependent on assumptions taken about the covariance of the observation and system error. Typically, in practice the covariances parameters are unknown and must be estimated. A fully Bayesian perspective allows to measure the uncertainty involved in the estimation of these covariance parameters.

References


