Pilot Study

„Measuring Sustainable Tourism“ (MST)

Austria

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Table of Content

Figures

Boxes

Tables

Abbreviations

ANTO	Austrian National Tourism Organisation
BMLFUW	Federal Ministry of Agriculture, Forestry, Environment and Water Management
BMWFW	Federal Ministry of Science, Research and Economy
CH_4	Methane
CO_2	Carbon dioxide
CPA	Statistical Classification of Products by Activity in the European Economic Community
EC	European Commission
ETIS	European Tourism Indicator System
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FTE	Full Time Equivalents
GDP	Gross Domestic Product
IISD	International Institute for Sustainable Development
LAU	Local Administrative Unit
MST	Measuring Sustainable Tourism (http://statistics.unwto.org/content/mst)
NA	National Account
NACE	Statistical Classification of Economic Activities in the European Community
N_2O	Nitrous oxide
NTO	National Tourism Organisation
NUTS	Nomenclature des Unités Territoriales Statistiques
OECD	Organisation for Economic Cooperation and Development
OEHV	Austrian Hotel Association
SDG	Sustainable Development Goals (UN)
SEEA	System of Environmental-Economic Accounting
STAT	Statistics Austria
SUT	Supply-Use-Tables
TBoP	Travel Balance of Payments
TSA	Tourism Satellite Accounts
TSA-ET	TSA-Employment Tool (Austria)
UBA	Federal Environment Agency (Austria)
UNWTO	UN World Tourism Organisation
VCÖ	Traffic Club Austria

0. Objective of the pilot study

Attracting tourists mainly depends on – apart from the necessary components of tourism supply – an intact and unsoiled nature and picturesque landscapes. Therefore, a high quality of the **natural and social environment** is one of the most **important production factors** of tourism industry as tourists want to move to attractive and unpolluted places which are one of the main travel purposes itself.

Therefore, there is a growing need recognizing that tourism development has an **impact on the social, economic and ecological environment** since tourism destinations have sensitive and fragile environments which are increasingly threatened by the tourism industry itself.

Considering this fact the development of **indicators measuring the economic, social and ecological sustainability** applicable to the tourism industry was initiated by various (national and international) organizations and proposed for implementation.

In many regions and countries sustainable tourism policies are more or less well developed; however, there is still a **lack of guidance and information** on how to monitor this progress. Given its economic, social and environmental implications and its potential for growth, tourism plays and will continue to play a major role in our societies.

Therefore, the "World Tourism Organization" (**UNWTO)** proposes the conduction of pilot studies related to "Measuring Sustainable Tourism" (**MST**) providing a guidance on the one hand and drawing attention to the national tourism policy concerning the topic "sustainability of tourism" on the other hand.

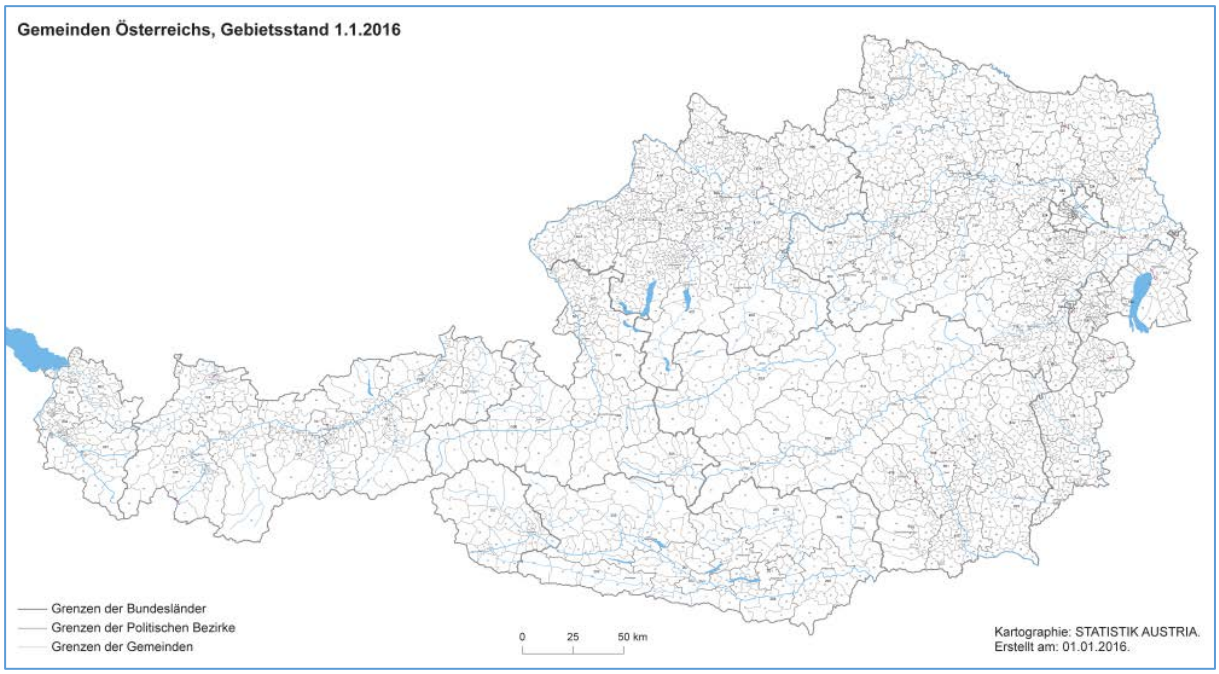
The following **main objectives of the pilot study** might be defined; the study …

- … provides a preliminary overview related to the **measurement of sustainability of tourism** in Austria, the **challenges related to data availability** including a stock taking related to the respective information available;
- … treats the **implication for the tourism policy** being a requiste for developing a statistical framework concerning sustainability and showing the relevance and feasibility of developing such a framework;
- … is including some statistical **case examples for measuring economic, social and enviromental sustainability** in tourism and discusses the results, in particular the limitations of interpreting them results;
- … is identifying the **key policy or analytical topics** for Austria.

1. Regions and tourism destinations in Austria

There is a hierarchical structure of local responsibility for Austria's administrative units. The highest regional administrative units are the nine "**Federal provinces**" (=Länder, NUTS2), the second highest are the political **districts** (80 districts and 15 towns with charters) and the third and lowest administrative level (LAU2) are the **municipalities** (about 2 100; see Figure 1).

Figure 1: Federal provinces, districts and municipalities in Austria (as of 1 January 2016)



Source: Statistics Austria

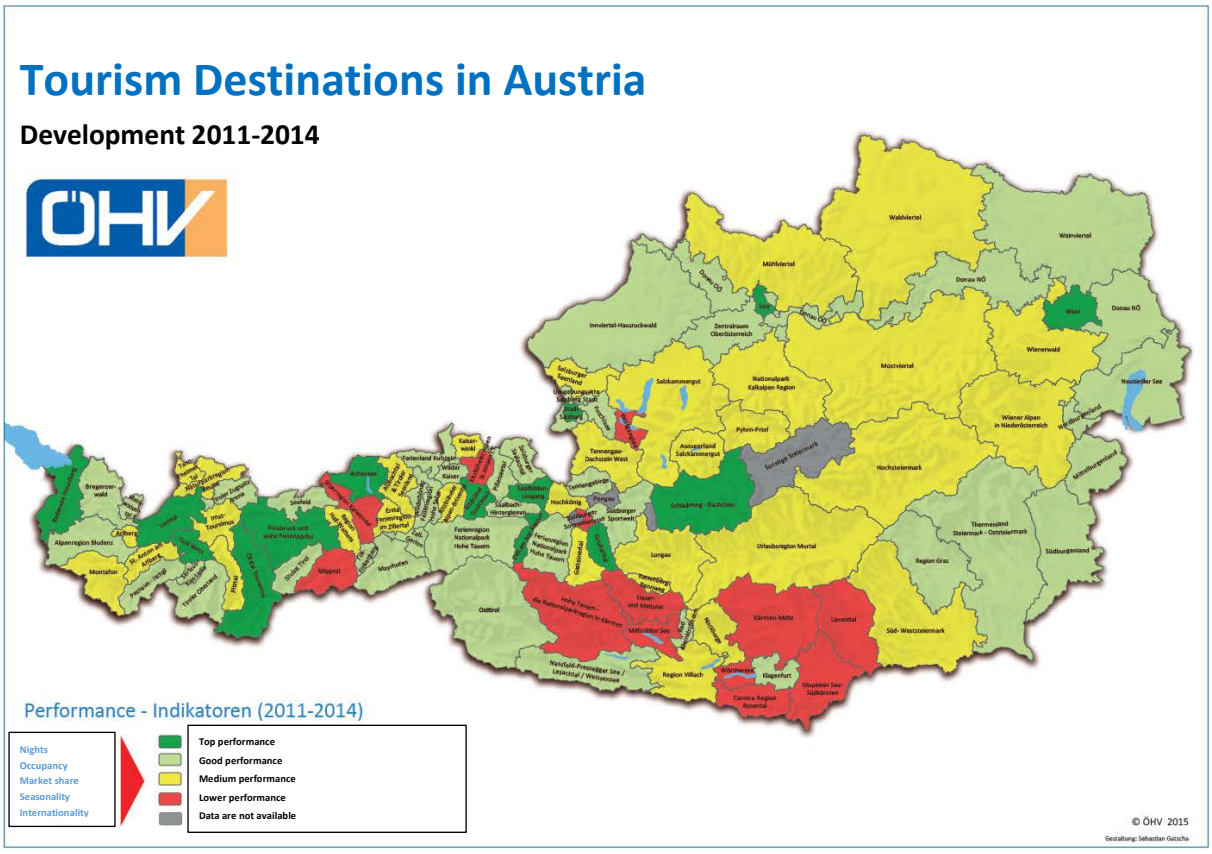
In regard to statistical data measuring economic and environmental sustainability Statistics Austria (STAT) is generally providing information on **regional level**, mainly on the federal province level. Related to accommodation statistics the respective data are available on municipality level as well.

Due to the situation the analysis in the frame of **this study** is mainly **focused** on **federal province** level; these boundaries do not coincide with tourism destinations since the latter are independent of administrative borders and classifications, and do not comprise homogenous tourism areas according to the tourism supply from a tourism marketing perspective.

In collaboration with several tourism organisations more than **100 tourism destinations** have been identified for which the respective data are shown within **interactive maps**.[1]) -The Austrian tourism policy is drawing the conclusions by destination. On a yearly basis the "**Austrian Hotel Association**" (OEHV) is publishing a performance report based on tourism destinations (see also Figure 2) and on statistical data and other indicators.[2])

[1] See also http://www.statistik.at/web_en/publications_services/interactive_maps/index.html.
[2] See also http://www.oehv.at/Information-Recht/Publikationen/OHV-Studien-Leitfaden/Destinationsstudie.aspx (in German only).

Figure 2: Tourism performance by destinations 2011-2014 in Austria



Source: OEHV 2015; http://www.oehv.at/OEHV/files/d8/d86bd8da-e22d-49a6-8127-54523c40675b.pdf

Summing up the **clarification of spatial boundaries** for the pilot study is a challenging exercise since at regional/subnational level and at destination level, spatial boundaries are less clear in particular having in mind the data availability. Dealing with economic, environmental and social factors it won´t be appropriate to adopt administrative boundaries - although due to data availability - it might be the only solution; although different considerations may be relevant in the case of environmental information, taking into account forest areas, national parks, rivers and lakes, etc.

Therefore, the relevant boundaries are subject to varying as a **trade-off** between **degree of detail** and **data availability** is needed. Thus, a spatial classification might be a function of policy questions and data availability.

2. Tourism policy in Austria

Within many countries, tourism development is generally co-ordinated by a central authority, namely a "National Tourism Organisation" (NTO). In some countries, however, **control and planning are dispersed among different government administrations**. In addition the responsibility for tourism planning is often shared by regional or municipal governments, and the management of eco-zones often involves different sub-national authorities requiring appropriate and sometimes resource-intensive coordination.

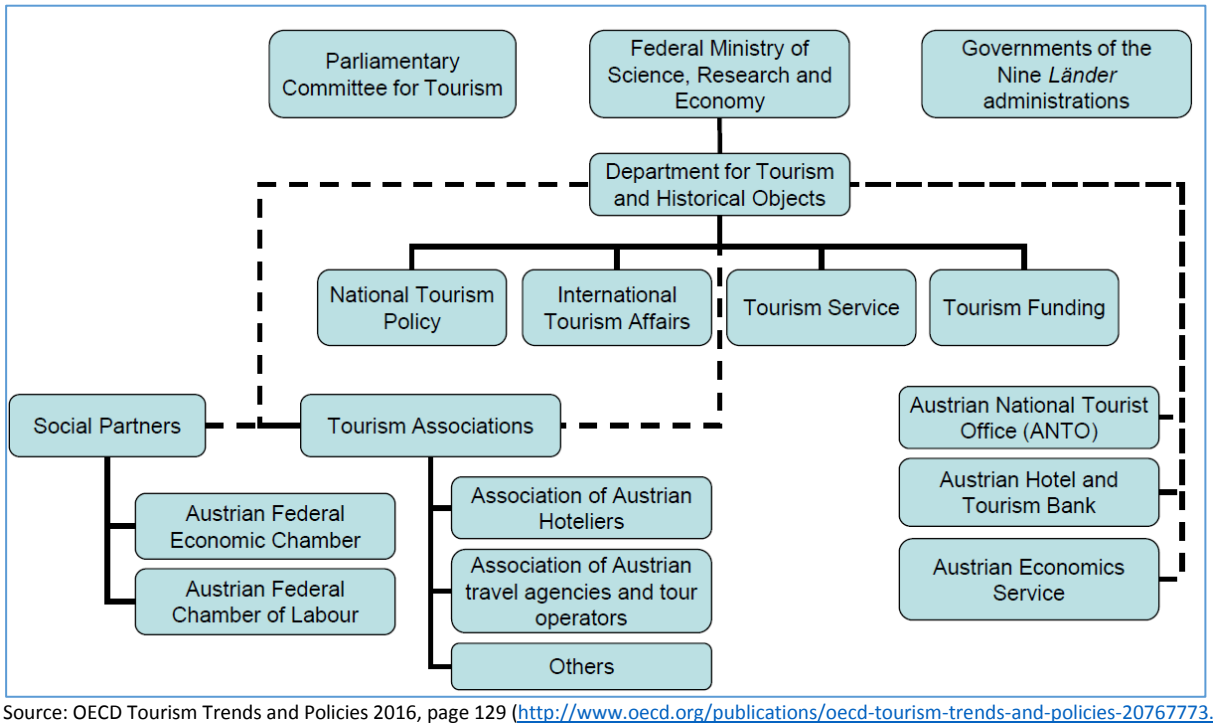
In Austria - apart from the "Austrian National Tourism Organization" (ANTO) - there are plenty of **local and regional tourism boards**. Austrian tourism destinations are small and medium-sized and develop their own tourism policies. Cooperation among the tourism destinations is promoted but not comprehensively achieved.

2.1 Tourism governance in Austria

According to the **Austrian Federal Constitution**, the nine Austrian "Federal Provinces" have the legislative and executive competencies for tourism affairs. Nevertheless, as tourism is a typical **cross-cutting sector**, both federal and European laws apply.

Since tourism is a **multidisciplinary topic** which concerns various areas horizontal co-operation projects with other ministries, departments and institutions are organised for specific topics either on a longer term via permanent working groups or round tables (sustainable mobility, labour market, visa, tourism ethics, etc.) or on a case by case basis (e.g. new funding schemes, new legislation affecting tourism, etc.; see also Figure 3).

Figure 3: Tourism Governance in Austria



Source: OECD Tourism Trends and Policies 2016, page 129 (http://www.oecd.org/publications/oecd-tourism-trends-and-policies-20767773.htm).

2.1.1 National level

At the **national level**, tourism policy is the responsibility of the "Federal Ministry of Science, Research and Economy" (BMWFW; http://www.en.bmwfw.gv.at/Seiten/default.aspx).

The **BMWFW** is the competent authority for the following **tourism-related issues**:

- Trade law (and, in this context, for regulating apprenticeship training);
- Tourism statistics, governed by European and national legislation (e.g. accommodation statistics) and by private contracts (e.g. TSA);
- Conclusion of international agreements in tourism (e.g. tourism issues with regard to foreign countries, international organisations and tourism entities);
- Financial support to tourism (task performed by the BMWFW under private law).

Within the federal government's responsibilities **the following areas** have **major implications** for the tourism and leisure industry:

- Trade law;
- Transport law;
- Labour law;
- Internal security;
- Duties and taxes;
- Various aspects of environmental protection;
- Financial support (task performed under private law);
- Competition law.

For several years already, Austrian tourism has pursued the concept of **quality tourism**. Instead of capacity building measures, the emphasis lies on quality improvement in every field - aiming at a high-quality tourist offer including **ecological and social aspects**. In the actual understanding of "quality" this does not only refer to the single components of a journey like accommodation or services. "Quality" today also means preserving a healthy **environment as well as cultural and regional identity**. The objective is to improve the economic and social living conditions by simultaneously safeguarding the ecological basis of life. Thus "quality in tourism" and "sustainable development" are not conceived as opposites but rather as the basis of a sound future tourism development.[3])

ANTO is the country's **national tourism marketing organisation**. The core competencies of ANTO are market research, brand management, innovative marketing, both domestic and international, and tourism networking and information brokering. In its international strategy, it focuses on increasing Austria's market share in the most promising international markets. [4])

2.1.2 Regional level

In Austria tourism basically comes under the **responsibility of the nine "Federal Provinces"**. The field of tourism and leisure is a horizontal issue embedded in a highly fragmented environment of competent authorities. The **tasks** at the Federal Provinces level concern:

- The Federal Provinces are responsible for enacting "tourism legislation" and providing rules for "events". In addition, they are the competent regulatory authorities for specific aspects of environmental issues, regional planning, building codes and infrastructure (e.g. regional roads).
- In terms of tasks performed under private law, they are responsible for regional support programmes.[5])

[3] See also http://www.en.bmwfw.gv.at/Tourism/CurrentTourismPolicies/Seiten/SustainableTourism.aspx.
[4] See also http://b2b.austria.info/uk_b2b.
[5] See also http://www.en.bmwfw.gv.at/Tourism/TourisminAustria/Seiten/default.aspx.

2.1.3 Tourism Strategy in Austria

A special tourism strategy has been developed for Austria and was presented to the public in 2010. Called "New Ways in Tourism", this initiative focuses on five areas: enhanced coordination of marketing, more innovation, targeted financial support, better infrastructure and improved business conditions for enterprises.

The strategy of this programme is intended to secure **Austrian tourism industry's competitiveness** not only over the short-term but also over the medium- and long-term. All domestic tourism stakeholders are involved in implementing the policies set out in the tourism strategy.[6])

The strategy also identifies 3 key elements: the Alps, the Danube and cities and culture.

Due to the success of these three elements they remain as well as the **five areas** marketing, innovation, subsidies, infrastructure and business environment identified in 2010. To respond to current challenges there is an additional focus on the following issues: labour market, financing, bureaucracy, digitalization, seasonality, internationalization and climate change (see also Boxes 1 and 2).

Box 1: Engaging the Austrian tourism industry in climate change

The Federal Ministry of Science, Research and Economy, in cooperation with the Federal Ministry of Agriculture, Forestry, Environment and Water Management and others, supports awareness raising and information measures within the tourism industry about the implications of climate change and possible response strategies. The Ministry has also supported the national research programme on climate change. Several studies on the effects of climate change on the tourism sector have been carried out (e.g. Hot town, summer in the city – the effects of summer days on recreation and leisure behaviour and sightseeing programmes, using the example of Vienna; Impacts of Climate Change on Tourism in Austria 2030). Information is disseminated in a number of ways, including: The publication of best practices and guidance (e.g. a handbook Energy efficiency measures for hotels and gastronomic businesses published in 2015), holding a series of workshops and providing contact points. Initiatives have been taken to promote sustainable transport in tourism. Subsidies are given for relevant actions in the use of green energy, water, construction and mobility.

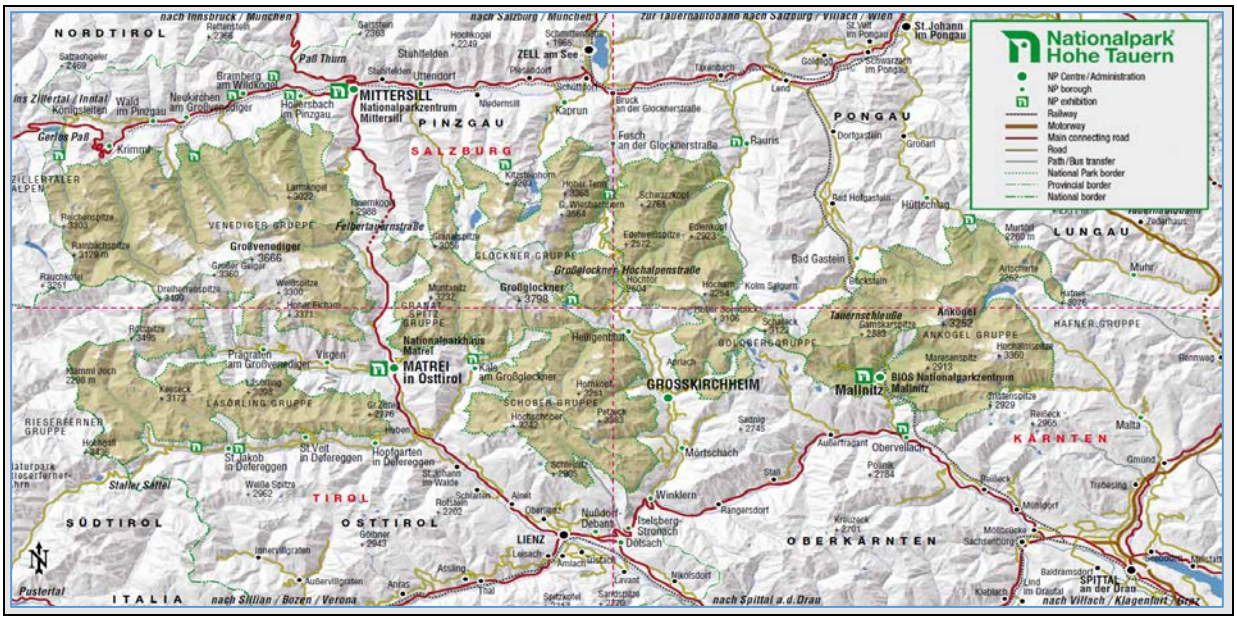
Box 2: National Park "Hohe Tauern"

With a surface area of 1,856 square kilometres, the Hohe Tauern National Park is by far the largest nature reserve in the entire Alpine region. The National Park is home to 10,000 varieties of animals and 1,500 varieties of plants; it accommodates numerous glaciers, glacial streams, high-alpine lakes and tarns and offers impressive mountain panoramas.

This large alpine nature reserve is characterised by a huge diversity of habitats. Its surface stretches over 30 National Park municipalities - a local municipality is considered to belong to the National Park if its territory stretches proportionately in the National Park Hohe Tauern. Mostly this does not apply for public owners because many private real estate lie in the protected area.

The municipalities are the starting point for the discovery of the National Park. Additionally to hotels and further excellent accommodation facilities guests also find information centres in these towns where they can gather detailed information about the Park. Also many facilities propose here various leisure time programmes for guests (swimming pools, rafting, further leisure time activities in summer, toboggan runs and several skiing areas located close to the National Park. [7])

[6] See also http://www.en.bmwfw.gv.at/Tourism/CurrentTourismPolicies/Seiten/TourismStrategy.aspx.
[7] See also http://www.hohetauern.at/images/dateien-hp/2013/Rat/KontrollPDFHoheTauernFlyer1EN.pdf and http://www.hohetauern.at/en/plan-your-visit/2012-06-26-13-22-10.html.



2.1.4 Challenges of the Austrian tourism

Similar to other countries tourism in Austria faces several challenges, which are mainly the following:

- Tourism is still **concentrated in space and time**. In winter it is mainly the western alpine part of Austria where tourism occurs; in summer tourism is spread all over the country, but nevertheless the western and southern part of Austria remain the tourism intensive one. Furthermore more than half of "overnights spent" occur in February, March, July and August. This increases the pressure on the nature and the social environment as well.
  Recognizing this situation **several official measures** were introduced preserving the environment as much as possible. Combatting seasonality (development over time, summer and winter peaks, climate change) and year-round product development is of high priority.
- There is still a high dependence on a **small number of core markets** (about three quarter of all nights spent in Austria are effected by three markets – Germany, Austria and the Netherlands) and a better diversification of markets and the coordination of marketing efforts is still of high priority.
- Encouraging investment and innovation as well as **improving the size and quality of tourism enterprises** (i.e. tendency to 5-/4-star hotels) are the main objectives for the coming years.
- The high relevance of **improving accessibility, connectivity and sustainable transport** (high dependence on car traffic, Alpine topography, etc.) has to be focused on.
- Employment and labour market issuesare required (e.g. increasing the attractiveness of jobs in tourism and satisfying the high demand for skilled employees).
- The improvement of the **administrative and regulatory environment** (new legislation at European and national level, e.g. the package travel directive, national tax reform, digitalization, seamless travel, etc.) has to be supported.

3. Sustainability measures for the Austrian tourism

In order to direct tourists and suppliers of tourism facilities towards more environmentally friendly and more sustainable behaviour, regulatory, economic and information and social instruments are used.

3.1 Measures to keep or improve sustainability

Sustainable development in tourism should be achieved in the areas of ecology, economy and social affairs. It should also aim at developing visions for the future so called "ideal scenarios". Achieving the vision of an ideal scenario sustainable development is demonstrated in a pyramid: [8])

- The **basis of the pyramid** has to fulfill the basic reqirements. That means that no tourism product contradicts the "three-pillar model" (ecological, social and economic sustainability). Irrespective of the sector to which the three-pillar model is applied, it always means thinking and acting long-term and not simply aspiring to short-term successes; thus, any method of sustainability measurement must be guaranteed in the long run.
- The **second level of the pyramid** goes beyond the specific tourism products and focuses on the designing of specific sustainable tourism projects. At this level several stakeholders are involved and a success mainly depends on professional cooperation within a tourism destination.
- The **third level of the pyramid** comprises a sustainable development on the national level and focuses on one or more coherent visions.

3.2 Sustainability on the government level

Government's regulatory measures to invoke a change from a purely expansionary tourism strategy towards an **environmental friendly and more sustainable strategy** can be:

- environmental impact assessment procedures for tourism related projects, e.g. "Climate Alliance";
- strategies for developing environmentally friendly building and construction practices for tourism facilities (e.g. rules for construction);
- implementation and enforcements of environmental quality standards ("Ecolabels")[9]);
- regional management plans for mountain areas;
- regional traffic management plans (including tourism related transport).[10])

Economic instruments, such as charges, fees, taxes, subsidies, expenditure etc. may promote the internalisation of measurable externalities:

- reviewing capital investment programs (for tourism development and tourism related transport);
- price incentives can be used to diversify tourism regionally and temporarily;
- fines for illegal activities in protected zones (e.g. illegal camping or picking flowers);
- expenditure or subsidies for environmental infrastructure (sewage treatment facilities or waste disposal facilities);
- tourism subsidies can be interlinked to the fulfilment of environmental standards.

[8] See also https://www.austriatourism.com/wp-content/uploads/2012/09/nachhaltigkeit_positionspapier.pdf.
[9] For further information: http://ec.europa.eu/environment/ecolabel/
[10] Catalogue of criteria: http://www.umweltzeichen.at/cms/upload/20%20docs/publikationen/umschlag_a5_fibel_komplett.pdf

Information and social instruments are focusing on increasing tourists' and local residents' awareness of environmental concerns through information on the consequence of their choices and behaviour. They include information and public awareness instruments, designed to change structural consumer preferences over time (advertising campaigns, environmental education) and participation/ communication instruments, such as public participation in policy development.

The **following possibilities** may be taken into account:

- development of public education campaigns and providing information and advice on the environmental impacts of tourism;
- promotion of eco-label programs through marketing campaigns;
- implementation of a worldwide tourism code of ethics for governments, tourism industry and tourists;
- provision of training for personnel in tourism facilities ("Umweltbeauftragte: Environmental protection officers");
- offering alternative forms of tourism in order to spread the demand geographically and to lengthen the season (development of specialised products);
- cooperation of tourist destinations with the federal railways encouraging to travel by train;
- tourist destination cards offering within a defined region reduction for museums, parks and other tourist attractions combined with unlimited or low priced use of the public transport system. These cards encourage tourists to use public transport rather than their own car.

When **combining economic, social and environmental** data there is a range of policy questions from different organisations or tourism policy decision makers on different regional levels that might be addressed.

3.3 Stakeholders related to (tourism) sustainability in Austria

Tourism itself is an economic area which **concerns a lot of economic sectors**. Considering sustainability, the development of **integrated statistical approaches** considering the economic, environmental and social domains have to be taken into account. This depends primarily on the success in **managing the variety of stakeholders**, mainly producers and users of statistics. Both groups need to be engaged in the process of developing measures of sustainable tourism.

In the **Austrian case** there are a variety of stakeholders in this respect who themselves have different strategies and objectives, but trying to focus on sustainability. The following list of stakeholders is not exhaustive; nevertheless, it is necessary for the integration of multiple datasets since one institution or agency does not have all datasets:

- Federal Ministries:
  - BMWFW (http://www.en.bmwfw.gv.at/Seiten/default.aspx)
  - BMLFUW (https://www.bmlfuw.gv.at/en/)
  - BMVIT (https://www.bmvit.gv.at/en/index.html)
  - BMASK (https://www.sozialministerium.at/siteEN/Social_Policy_Consumers/Social_Issues/Corporate_Social_Responsibility/Corporate_social_responsibility)
- Statistics Austria (http://www.statistik.at/web_en/statistics/index.html)
- Other data producers, especially for environmental and cultural data:
  - Federal Environment Agency (UBA; http://www.umweltbundesamt.at/en/)
  - Traffic Club Austria (VCÖ; https://www.vcoe.at/)
- Austrian tourism industry (e.g. ANTO , OEHV)

- Academic experts, universities and other governmental/non-governmental organisations dealing with tourism, economic analysis, statistics, environment/ecology, social/cultural, geography:
  - MODUL University (https://www.modul.ac.at/)
  - Universities of Applied Science (Innsbruck, Krems, Vienna etc.)
  - Naturfreunde Österreich (http://www.naturfreunde.at/)
  - Naturefriends International (http://www.nfi.at//index.php)
  - Forum Nachhaltigkeit (http://www.forum-nachhaltigkeit.at/)
  - Etc.

4. Measuring Sustainable Tourism in Austria – selected results

4.1 Preliminaries

According to UNWTO-guidelines related to „Designing pilot studies“[11]) there are four broad areas of data that should be brought together:

1) **Economic activity data on tourism demand and tourism supply** (including employment and visitor numbers);
2) **Environmental data on resources used by tourism characteristic industries** (e.g. water, energy) and **residuals** generated by tourism characteristic industries and tourists (e.g. GHG emissions, solid waste);
3) **Environmental data** on the condition and changes in condition of **ecosystems** within the selected area. This area of data may be extended to include measurement of ecosystem services noting that some flows of ecosystem services will be measured on the basis of information from areas 1 and 2;
4) **Cultural and social data related to tourism activity** (e.g. numbers of cultural sites, visitation rates).

Related to the pilot study it is anticipated that **statistics on a selection of variables** from each of the broad areas would be collected to form the basis for the development of integrated statistics and to assess the integration challenges. The pilot study should **widen the scope of the indicator** set covering other aspects of sustainability (apart from economic ones; social and ecological as well as cultural aspects) so as to make it more useful for the analysis of tourism policies and of sustainable tourism developments.

The **following data and results for Austria** are mainly influenced and guided by the **defined key topics and in particular by the data availability**. Therefore, only a limited number of topics and datasets are considered.

The results are taking into account the **initial discussions** related to sustainability within the UNWTO[12]) and the UN SDG strategy 2030[13]). This document is also taking into account the work done related to indicators[14]) referring to the OECD Document “Indicators for the Integration of environmental concerns into Tourism”[15]).

Therefore, the **following chapter** is

- providing a **critical overview** of those indicators being in line with tourism policy question, taking into account relevance and implementation aspects;
- pointing out the **challenges of integrating these indicators** into a tourism statistical system as well as of possible data sources and data access;
- evaluating the **usefulness of the proposed indicators** for the operational work, taking into account in particular the policy relevance, analytical value and measurability;
- **describing** and **interpreting** preliminary **results**.

[11] UNWTO, Developing a statistical framework for Measuring Sustainable Tourism (MST), Designing pilot studies, Version 2.0, 13 July 2016.
[12] See also http://statistics.unwto.org/content/mst.
[13] See also http://www.un.org/sustainabledevelopment/sustainable-development-goals/.
[14] Laimer, P., Öhlböck, P., Indicators measuring the sustainability of tourism several considerations and results from the Austrian perspective, supporting paper for the „Statistical commission and economic commission for Europe conference of European statisticians fifty-third plenary session (Geneva, 13-15 june 2005).
[15] OECD, Indicators for the integration of environmental concerns into tourism policies, elaborated by the Working Group on Environmental Information and Outlooks, ENV/EPOC/SE(2001)3/REV1, Paris 2002.

4.2 Sustainability – definitions

To overcome a one-dimensional often reduced to an ecological view sustainability is rooted on **three pillars** which should equally be taken into account:[16])

1) **Ecological sustainability:** Natural resources should only be claimed for use in such a way that they are able to renew themselves. The careful use of natural spaces worthy of protection contributes just as much to ecological sustainability as the conscious and economical use of energy and resources.
2) **Social sustainability:** Taking account of the interests of the local population, involving regional actors in relevant projects, creating good working conditions and training staff are as much a part of social sustainability as taking account of local identity.
3) **Economic sustainability:** The resource provision necessary for specific projects is also guaranteed for the future. There is sufficient market demand for a product/a service. Economic success is guaranteed as a result.

Related to the item "sustainability" **various definitions** are available which differ according to the field of interest taken into account. Therefore, the common understanding of "sustainability" depends on "who" is working with and applying indicators; there are as many definitions of sustainability as there are researchers and organizations dealing with the term:

- "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[17])
- "To be sustainable, development must improve economic efficiency, protect and restore ecological systems, and enhance the well-being of all peoples." (International Institute for Sustainable Development" IISD)[18])
- "Sustainability is a new way of thinking about an age-old concern: ensuring that our children and grandchildren inherit a tomorrow that is at least as good as today, preferably better. We want to make sure that the way we live our lives is sustainable - that it can continue and keep improving for a long, long time." (Sustainable Seattle)[19])
- "A sustainable society is one which satisfies its needs without diminishing the prospects of future generations." (Lester Brown, Founder and President of the Worldwatch Institute).[20])

Within the framework of the „UN 2030 Agenda for Sustainable Development" 17 "**Sustainable Development Goals**" (SDG) and 169 targets are defined and demonstrate the scale and ambition of this new universal Agenda. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.[21])

The **UNWTO** defines "**sustainability**" as follows: "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities."[22])

According to the **German Forum on Environment & Development**[23]) "Sustainable tourism has to meet social, cultural, ecological and economic requirements. Sustainable tourism holds a long-term view, for present and future generations, ethically and socially just and culturally adapted, ecologically viable and economically sensible and productive."[24])

[16] See https://www.austriatourism.com/wp-content/uploads/2012/12/nachhaltigkeit_paper_2012_en.pdf.
[17] Bruntland Report for the World Commission on Environment and Development (1992; http://www.globalfootprints.org/sustainability).
[18] See https://www.iisd.org/topic/sustainable-development.
[19] See http://www.oecd.org/site/worldforum/33732840.pdf.
[20] See http://rwu.edu/campus-life/campus-beyond/green-living.
[21] See https://sustainabledevelopment.un.org/post2015/transformingourworld.
[22] See http://sdt.unwto.org/content/about-us-5.
[23] See http://www.forumue.de/en/
[24] See http://www.nfi.at//index.php?option=com_content&task=view&id=366&Itemid=145.

The **European Commission** (EC) states that „the competitiveness and sustainability of the tourism industry go hand-in-hand as the quality of tourist destinations is strongly influenced by their natural and cultural environment, and their integration into the local community. Long-term sustainability requires a balance between economic, socio-cultural, and environmental sustainability. The need to reconcile economic growth and sustainable development also has an ethical dimension."[25])

4.3 Measuring sustainability – challenges

The development of indicators in the tourism industry represents an approach to render sustainable development measurable. What is not measured can neither be managed nor improved. **Monitoring progress implies considering all dimensions of sustainability** and assessing the interactions between tourism and the environment on the one hand and tourism and social conditions on the other hand. The great challenge is to establish a consistent and most notably significant, reliable and practicable set of ecological as well as economic and social indicators demanding as little data research and expenses as possible.

"So far, sustainable development has been invariably defined as a set of objectives. These objectives, however, have defied accurate identification and thus process monitoring - a shortcoming which has also entailed problems in the assessment of sustainability. Older indicator systems often just relate to ecological factors. Social, cultural and primarily institutional conditions as well as the concept of quality have been insufficiently analysed and integrated into assessment systems. Most of the time, existing systems get bogged down at the level of indicator development and fail to come up with the methodology designed to make them operational. This is even true for the newly developed European ETIS system (European Tourism Indicator System)."[26])

However, the **following major challenges** related to "Measuring Sustainable Tourism" by indicators have to be taken into account:

- The evaluation of sustainability is **always region/destination-based**, since a sustainable enterprise (hotel, etc.) is part of a region which may support "sustainability", but it does not determine "sustainability" for a whole region. Nevertheless, at present various grades do exist on enterprise level, but not on region level. Furthermore, the client´s decision of visiting a destination mainly focuses on the region and its diversity and characteristics, but not on the single accommodation establishment. In other words, a "sustainable hotel" is of less interest than a "sustainable region". - Therefore, sustainability and its measurement is a regional phenomenon; an evaluation of sustainability on higher aggregated (national) level is not feasible since in general the regions are too heterogeneous.[27])
- **Benchmarking with fixed quantitative target** values for each indicator is **not possible**:
  - On the one hand the indicator itself implies a qualitative evaluation only (e.g. cultural aspects or intraregional quality of life cannot be measured in figures).
  - On the other hand some indicators dealing with important sustainability issues are closely connected with mostly biased evaluation where quantitative evaluation fails.
- **Interregional comparison by means of quantitative indicators is hardly possible**. As regards the regions' diverse characteristics and situations the determination of specific target values seems counterproductive. For example a region's bearing capacity of car-related tourism strongly depends on its geographical location:

[25] http://ec.europa.eu/growth/sectors/tourism/offer/sustainable/index_en.htm.
[26] Baumgartner, C., Destination-oriented Assessment of Sustainability in Tourism, Vienna 2016, page 1 (http://www.responseandability.com/images/downloads/artikel/2016_SustAssessment_Tourism.pdf).
[27] See also Baumgartner 2016.

- An alpine mountain valley certainly bears less traffic than a flat and vast region. The indicator's significance would not be enhanced by referring to the number of local residents' cars.
- Holiday activities' impact on the environment is affected by similar problems, for it cannot be measured by a quantitative indicator.

➢ Most of the indicators listed below (see chapter 4.4) are **quantitative indicators**, expressing mainly the economic and ecological states and developments in figures. Quantitative indicators can be rather easily obtained and are comparable with other regions and nations; this means these indicators can be classified as very practicable and demands little data research and expenses. - Yet, **significance** and **reliability** is to be questioned:

- Regions and municipalities may have land use plans developed including local transport plans with visitor management but the indicator does not give any information as regards the plans' quality.
- In addition the question is raised if quantitative indicators alone might be sufficient for interpreting the results.[28])

➢ Tourism within a certain region is hardly spread but **concentrated in small geographical units** around lakes, beaches, valleys or thermal springs etc.:

- **Each region** has its **particular features** comprising tourism intense municipalities as well as less tourism intense ones. - This points out, that indicators cannot be solely calculated on a **national level**. Those indicators that refer to the national level are designed to be used in an international context.
- Moreover, particular attention has to be given to **environmentally sensitive areas**, which are characterised by specific environmental conditions and a rich biodiversity: National Parks, managed wildlife and nature parks, mountain regions, and urban areas.

➢ Significant results are to be **achieved by classifying indicators** for each level (national, regional, municipal level), which reflect the progress of sustainable tourism development in a useful way. Furthermore, **seasonal variations** must be taken into account.

4.4 Measuring sustainable tourism in Austria – preliminary results

In following part of the pilot study preliminary results for several indicators are presented and critically discussed as far as possible. However, it has to be remarked that the following **analysis** has to be seen as **preliminary**, which has to be discussed with any institution, expert or region concerned. The examples below were primary chosen taking into account the data availability and quality.

The **following results** are mainly **based** on information of the accommodation statistics, TSA, "Travel Balance of Payments" (TBoP), environmental and energy statistics.

[28] Qualitative interviews with local experts could back up or, if so, refute the quantitative indicator which cannot fulfill all the features an indicator claims: to be significant, reliable and practicable, and at the same time as little time- and cost-extensive as possible. Nevertheless, such interviews are very expensive and timeextensive; furthermore, local experts' judgment may tend to be biased and short-sighted simply because they are often involved themselves into municipal politics and tourism related concerns. A combination of qualitative as well as quantitative indicators seems to be meaningful, therefore.

4.4.1 Tourism demand and supply of tourist accommodation

Increasing the occupany of bed-places and the number of **high quality tourist accommodation** are – among others - the main objectives of the Austrian tourism policy. - Therefore, the analysis of nights spent in tourist accommodation by domestic and inbound tourism and kind of accommodation is a key issue, illustrating tourism trends and economic sustainability:

- In Austria over the last fifteen years a general trend to high quality accommodation could be perceived since the number of nights spent and of arrivals in 5-/4-star hotels increased above average (2000-2015: +55,5% and +78,0%).
- However, during the same period of time the number of overnight stays in 2-/1-star hotes and private tourist accommodation faced notable decreases (-21.7% and -5.0%) while for the number of arrivals rather low increases – compared to average (+49.4%) could be observed (+15.0% and +9.0%).
- In general the increases of arrivals are higher than those of overnights which indicate that more tourists with a lower duration of stay are visiting Austria (see Table 1).

Table 1: Nights spent and arrivals in Austria 2000, 2007 and 2015 by kind of accommodation

Kind of accommodation	2000	2007	2015	2000-2007	2007-2015	2000-2015
	in 1000			Change in %		
	Nights					
5-/4-star hotels	31.534	40.998	49.033	30,0	19,6	55,5
3-star hotels	26.495	26.858	27.564	1,4	2,6	4,0
2-/1-star hotels	13.620	11.311	10.670	-17,0	-5,7	-21,7
Private accommodation	22.976	20.786	21.835	-9,5	5,0	-5,0
Other accommodation	19.062	21.497	26.100	12,8	21,4	36,9
Total	**113.686**	**121.451**	**135.201**	**6,8**	**11,3**	**18,9**
	Arrivals					
5-/4-star hotels	9.322	12.551	16.590	34,6	32,2	78,0
3-star hotels	6.716	7.703	9.268	14,7	20,3	38,0
2-/1-star hotels	3.158	2.968	3.631	-6,0	22,3	15,0
Private accommodation	3.729	3.577	4.065	-4,1	13,6	9,0
Other accommodation	3.453	4.340	5.861	25,7	35,0	69,7
Total	**26.378**	**31.141**	**39.415**	**18,1**	**26,6**	**49,4**

Source: Statistics Austria

Possible conclusion: Data showing a rising number of nights and arrivals of tourists in 5-/4-star hotels, while private accommodation is decreasing, although nothing is said about price-development and other areas of tourism supply (transport systems, restaurants/food and beverage, etc.).

The **development of the number of nights** and **arrivals** correlates very much with the **development** of the **capacities** in the different kind of accommodation. While the number of establishments and beds in 5-/4-star hotels has been steadily increasing (2000-2015: +41.8% and +47.5%), that in private accommodation has been decreasing (2000-2015: -20.1% and -17.9%). However, as the capacity increase in 5-/4-star hotels is lower than that of nights spent (+41.8% vs. +55.5%) the occupancy rate during the winter season has been increasing during that period of time (+5.2%-points to 49.1% in 2015).

In private accommodation the winter **occupancy rate** has been increasing as well, from 20.9% in winter 1999/2000 to 24.6% in winter 2014/15; this is due to the fact that in that period of time the number of beds has been decreasing by 17.9% while that of nights by -5.0%, only (see Table 2).

Table 2: Number of establishments and beds 2000, 2007 and 2015 in Austria by kind of accommodation

Kind of accommodation	2000	2007	2015	2000-2007	2007-2015	2000-2015
	in 1000			Change in %		
	Establishments [1]					
5-/4-star hotels	1.865	2.261	2.645	21,2	17,0	41,8
3-star hotels	5.885	5.740	5.294	-2,5	-7,8	-10,0
2-/1-star hotels	7.767	6.203	4.686	-20,1	-24,5	-39,7
Private accommodation	54.545	48.355	43.567	-11,3	-9,9	-20,1
Other accommodation	5.565	6.526	7.690	17,3	17,8	38,2
Total	**75.627**	**69.085**	**63.882**	**-8,7**	**-7,5**	**-15,5**
	Beds [1]					
5-/4-star hotels	183.731	220.670	270.943	20,1	22,8	47,5
3-star hotels	232.195	214.639	213.530	-7,6	-0,5	-8,0
2-/1-star hotels	172.287	138.417	115.869	-19,7	-16,3	-32,7
Private accommodation	365.934	324.618	300.565	-11,3	-7,4	-17,9
Other accommodation	145.630	178.042	201.393	22,3	13,1	38,3
Total	**1.099.777**	**1.076.386**	**1.102.300**	**-2,1**	**2,4**	**0,2**
	Occupancy rate					
	Winter 1999/2000	Winter 2006/07	Winter 2014/15	Winter 2000-2007	Winter 2007-2015	Winter 2000-2015
	in %			Change in %-points		
5-/4-star hotels	43,9	50,8	49,1	15,6	-3,3	11,8
3-star hotels	30,8	34,9	35,6	13,2	1,9	15,3
2-/1-star hotels	25,1	25,9	27,5	3,4	6,1	9,7
Private accommodation	20,9	22,1	24,6	5,9	11,4	18,0
Other accommodation	35,5	32,8	34,2	-7,6	4,2	-3,7
Total	**29,8**	**33,2**	**35,1**	**11,4**	**5,7**	**17,7**

Source: Statistics Austria. - 1) Excl. campsites.

Possible conclusion: In terms of measuring economic sustainability, the indication of the occupancy rate in commercially run accommodation establishments is crucial, as it displays the usage of tourism supply and might legitimate **capital investment** from a macroeconomic point of view. At the same time the occupancy rate in private accommodation establishments is neglectable from a sustainability point of view, as the income generated from tourism is not decisive for the room owner but a wellcome additional (pocket) money.

One of the important objectives of the Austrian tourism policy is **diversification of its tourism markets** which means to keep the level of the most important market Germany but to strenghten the marketing activities for other markets. In 1974 about 59.43 million German guest nights were observed, which was by 15.5% or 9.23 million nights less in 2015 (50.20 million). Between 1974 and 2015 the overnight stays from the Netherlands - the second most important country of origin abroad – doubled to 9.18 million (+96,0%); in 2015 the nights spent from guests from Switzerland were nearly five times higher than in 1974 (+360.7% to 4.91 million).

Between 1974 and 2015 also other important countries of origin could increase their market shares: United Kingdom (+99.9%), Italy (+457.5%), Belgium incl. Luxembourg (+91.0%), Czech Republic (from 64.000 nights to 3.62 million), France (+73.5%), Poland (from 105.000 nights to 1.71 million), USA (+ 25.0%), Hungary (+885.49%) and Denmark (+112.3%; see Table 3).

Table 3: Development of nights by the most important markets in Austria 1974, 2000, 2007 and 2015

Country of origin	1974	2000	2007	2015	1974	2000	2007	2015	1974-2000	2000-2007	2007-2015	1974-2015
	in 1000				Share in %				Change in %			
Germany	59.430	52.334	48.167	50.199	58,7	46,0	39,7	37,1	-11,9	-8,0	4,2	-15,5
Austria	24.779	31.153	33.008	36.425	24,5	27,4	27,2	26,9	25,7	6,0	10,4	47,0
Netherlands	4.682	7.376	9.089	9.176	4,6	6,5	7,5	6,8	57,5	23,2	1,0	96,0
Switzerland	1.066	2.892	3.703	4.912	1,1	2,5	3,0	3,6	171,3	28,1	32,6	360,7
United Kingdom	1.776	3.066	3.932	3.550	1,8	2,7	3,2	2,6	72,6	28,2	-9,7	99,9
Italy	525	2.534	3.056	2.927	0,5	2,2	2,5	2,2	382,6	20,6	-4,2	457,5
Belgium (incl. Luxembourg) [1]	1.533	2.216	2.755	2.928	1,5	1,9	2,3	2,2	44,6	24,3	6,3	91,0
Czech Republic	64	685	1.391	2.379	0,1	0,6	1,1	1,8	972,5	103,0	71,1	3.624,1
France	1.010	1.461	1.702	1.753	1,0	1,3	1,4	1,3	44,6	16,5	3,0	73,5
Poland	105	755	1.037	1.708	0,1	0,7	0,9	1,3	619,8	37,4	64,8	1.529,6
USA	1.340	1.876	1.458	1.675	1,3	1,7	1,2	1,2	40,0	-22,3	14,8	25,0
Hungary	169	729	1.511	1.665	0,2	0,6	1,2	1,2	331,7	107,1	10,2	885,4
Denmark	696	879	1.445	1.479	0,7	0,8	1,2	1,1	26,3	64,3	2,3	112,3
Russia [2]	.	.	787	1.189	.	.	0,6	0,9	.	.	.	.
China [3]	.	.	245	964	.	.	0,2	0,7	.	.	.	.
Other countries abroad	4.063	5.731	8.165	12.322	4,0	5,0	6,7	9,1	41,0	42,5	50,9	203,3
Total	**101.239**	**113.686**	**121.451**	**135.249**	**100,0**	**100,0**	**100,0**	**100,0**	**12,3**	**6,8**	**11,4**	**33,6**
of which												
Central European Countries [4]	636	2.599	5.972	8.721	0,6	2,3	4,9	6,4	308,8	129,7	46,0	1.271,5
Asia [5]	101	1.069	1.489	3.970	0,1	0,9	1,2	2,9	958,4	39,3	166,6	3.830,7

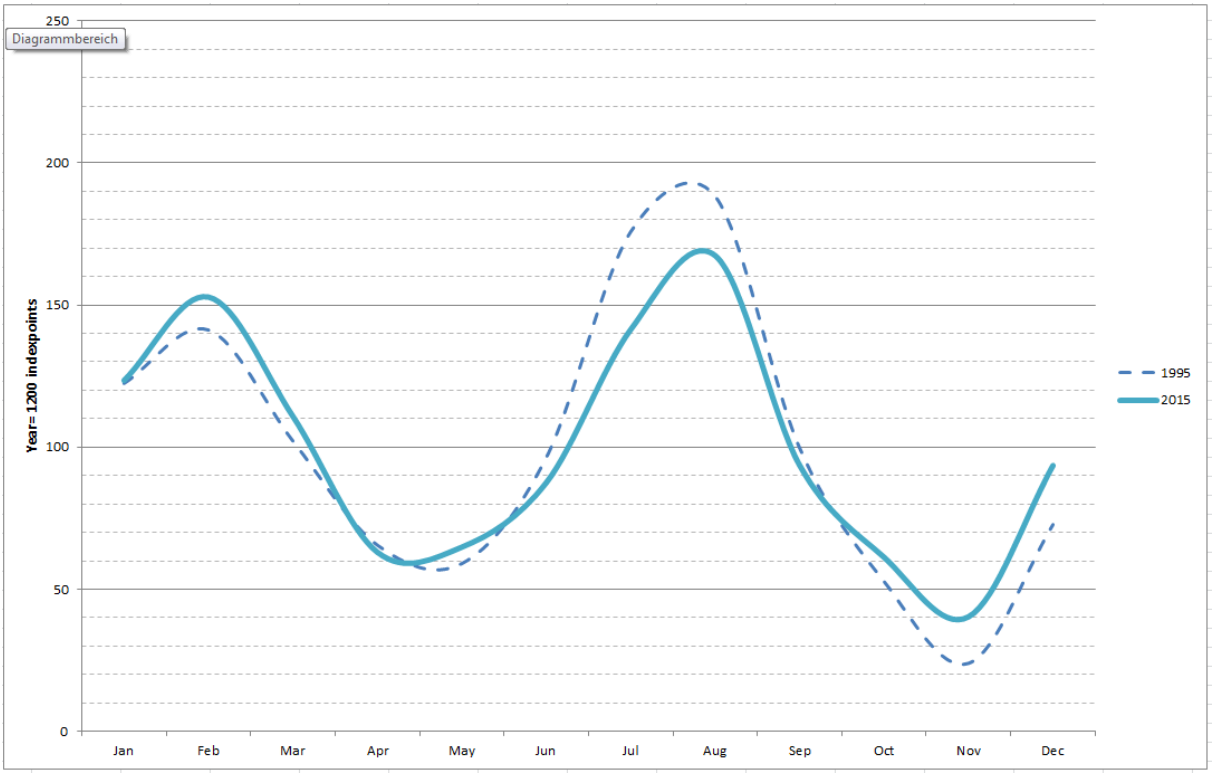
Source: Statistics Austria, accomodation statistics. - 1) Belgium and Luxembourg were seperately observed since 1997. - 2) 1974 and 2000 Russia under CIS-countries. - 3) 1974 and 2000 China under south-east Asia. - 4) Bulgaria, Estonia, other CIS countries, former Yugoslavia, Croatia, Latvia, Lithuania, Romania, Russia, Slovakia, Slovenia, Czech Republic, Ukraine, Hungary. - 5) Arabic countries of Asia, China, Japan, Saudi-Arabia, India, South Corea, South-East Asia, Taiwan, UAE, Other Asian countries, Iran (until 4/1992).

However, this development shows, that the share of German nights in regard to total nights decreased from 58.7% (1974) to 37.1% (2015), while other tourism generating countries such as the Netherlands (from 4.6% to 6.8%), Switzerland (from 1.1% to 3.6%), the CEE-countries (from 0.6% to 6.4%) or Asian countries (from 0.1% to 2.9%) could increase their market shares. Furthermore, domestic tourism has been facing increases related market shares (from 24.5% to 26.9%). During the same period of time – despite the losses of German nights – the total night could be increased; this shows that the German decreases could be more than compensated by tourist night from CEE countries, countries from Asia and Austria, which is additionally indicating a better diversification of markets.

Possible Conclusion: A diversified mixture of countries of origin is fostering economic sustainability as a tourism destination does not only depend on one market. At the same time it is not obvious whether the market diversification meets the requirements of social sustainability as cultural and social peculiarities might be forfeited for the sake of achieving economic advantages.

The tourism in Austria is a **seasonal driven one** with peaks in the summer and winter season (less in Vienna, the capital of Austria). However, the tourism policy is supporting a more even distribution of night spent during the year in order to increase tourism also in low season periods guaranteeing a tourism income for the whole year (see Figures 4 and 5).

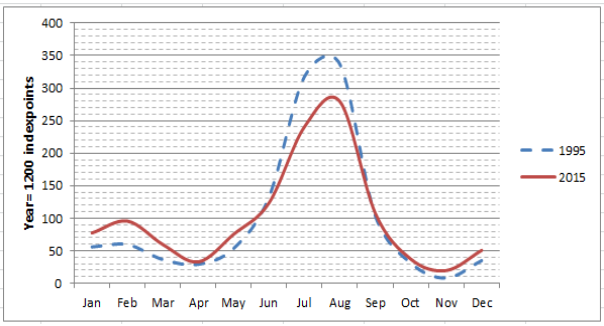
Figure 4: Sesonality shift 1995-2015 on the national level (Austria)



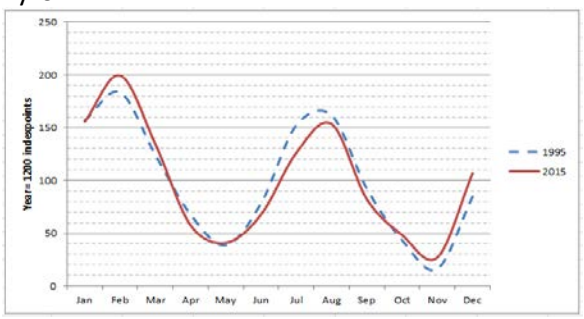
Source: Statistics Austria

Figure 5: Seasonality shift 1995-2015 on the regional level (Austrian Federal Provinces)

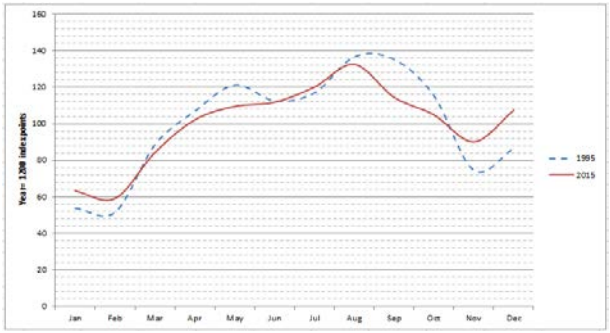
Carinthia



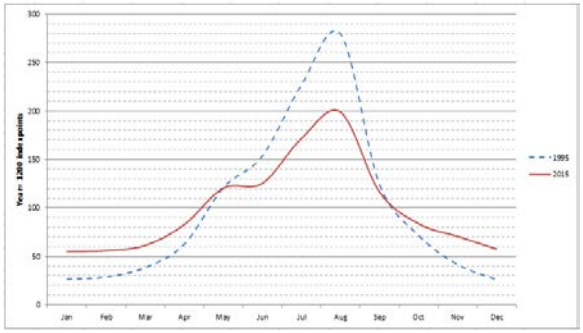
Tyrol



Vienna



Burgenland



Source: Statistics Austria

An analysis of the seasonality or the distribution of nights spent by months in Austria shows, that during the period 2000-2015 the low seasons months such as May and June (2000: 12.3%; 2015: 12.7%) or October and November (2000: 7.0%; 2015: 8.5%) could gain importance the last 15 years. Considering the year 1974, the low season months were less important (May/June: 9.0%; October/November: 3.8%; see Table 4).

Table 4: Monthly distribution of nights in Austria 1974, 2000, 2007 and 2015

Country of origin	1974	2000	2007	2015	1974	2000	2007	2015
	in 1000				share in %			
January	5.582	12.438	13.024	13.916	5,6	10,9	10,7	10,3
February	5.580	13.480	15.541	17.227	5,6	11,9	12,8	12,7
March	5.994	11.340	11.787	12.492	6,0	10,0	9,7	9,2
April	4.844	6.138	7.167	7.102	4,9	5,4	5,9	5,3
May	4.084	5.150	6.106	7.306	4,1	4,5	5,0	5,4
June	9.112	8.909	8.824	9.863	9,1	7,8	7,3	7,3
July	21.203	14.618	14.743	15.935	21,3	12,9	12,1	11,8
August	24.804	16.499	15.842	18.867	24,9	14,5	13,0	13,9
September	9.461	9.288	9.330	10.553	9,5	8,2	7,7	7,8
October	2.569	5.181	6.101	6.902	2,6	4,6	5,0	5,1
November	1.215	2.702	3.615	4.542	1,2	2,4	3,0	3,4
December	5.259	7.943	9.369	10.544	5,3	7,0	7,7	7,8
Total	**99.706**	**113.686**	**121.451**	**135.249**	**100,0**	**100,0**	**100,0**	**100,0**

Source: Statistics Austria - accommodation statistics.

Possible Conclusion: On a national level the seasonality shift might be outweighed by different developments on the regional level. For an in depths analysis of sustainability the better regional data are available the more conclusions might be drawn whether a tourism region or destination is able to generate tourism demand outside the peak season.

4.4.2 The macroeconomic importance of tourism in Austria

One of the major Austrian tourism policy goals is to **increase tourism income and importance of tourism** related to total economy.

Of the total spending in 2015 on vacation and business trips as well as visiting friends and relatives of €38.39 billion, 46.8% was spent by non-resident visitors, 52.9% by resident travelers; total spending by tourists staying in their weekend houses or second homes amounted to 0.3%.

Between 2000 and 2015 the total **tourism consumption expenditure** increased from €23.03 billion to €38.39 billion, which is an increase by about two third (+66.7%). The expenditure of resident visitors is above average (+83.5%), while that of non-resident visitors below (+51.2%; see Table 5).

Table 5: Tourism consumption expenditure by non-resident and resident visitors in Austria 2000 - 2015

Tourism demand	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	revised														preliminary	forecast
	in mn. €															
Non-resident visitors																
Total	**11.882**	**12.457**	**12.853**	**13.175**	**13.534**	**14.316**	**14.748**	**15.080**	**16.082**	**14.973**	**15.295**	**15.764**	**16.177**	**16.653**	**16.944**	**17.960**
Overnight tourists	10.414	10.868	11.090	11.395	11.729	12.390	12.701	12.849	13.352	12.365	12.899	13.097	13.486	13.851	14.095	14.757
Same-day visitors	1.468	1.589	1.763	1.779	1.805	1.926	2.047	2.231	2.730	2.608	2.395	2.667	2.691	2.802	2.849	3.203
Resident visitors																
Total	**11.061**	**11.542**	**12.040**	**12.268**	**13.092**	**13.545**	**14.159**	**14.719**	**15.245**	**15.127**	**17.572**	**18.794**	**19.042**	**19.054**	**19.474**	**20.292**
of which:																
Holiday	**9.135**	**9.444**	**9.906**	**10.061**	**10.908**	**11.298**	**11.667**	**11.974**	**12.288**	**12.660**	**15.145**	**16.075**	**16.269**	**16.252**	**16.542**	**17.237**
Overnight tourists	5.557	5.835	6.184	6.331	6.857	6.996	7.322	7.600	7.700	7.872	9.352	9.828	9.833	9.858	10.112	10.719
Same-day visitors	3.578	3.609	3.722	3.729	4.051	4.301	4.345	4.374	4.587	4.789	5.793	6.247	6.436	6.393	6.430	6.518
Business	**1.925**	**2.098**	**2.134**	**2.207**	**2.183**	**2.248**	**2.493**	**2.746**	**2.957**	**2.467**	**2.427**	**2.719**	**2.773**	**2.803**	**2.931**	**3.054**
Overnight tourists	1106	1.210	1.265	1.323	1.278	1.317	1.552	1.723	1.895	1.513	1.587	1.804	1.839	1.861	1.962	2.040
Same-day visitors	819	889	868	884	905	931	941	1.022	1.063	953	840	914	934	942	969	1.014
Tourism conumption expenditure in vacation homes																
Total	91	97	98	100	104	107	109	110	112	117	131	132	132	132	135	137
Total																
Total	**23.034**	**24.095**	**24.990**	**25.542**	**26.730**	**27.969**	**29.016**	**29.910**	**31.438**	**30.218**	**32.998**	**34.690**	**35.352**	**35.839**	**36.552**	**38.388**

S: STATISTICS AUSTRIA, Tourism Satellite Accounts for Austria; WIFO (Austrian Institute of Economic Research). Compiled on 10 May 2016. Holiday and business trips.

In 2015 the tourism industry related to TSA created €18.49 billion (excl. business trips) in **direct value added**, corresponding to 5.5% of "Gross Domestic Product" (GDP). The national economic importance of tourism and its contribution to total national value added is a key indicator for economic politics. In order to depict this key indicator, the TSA results need to be presented taking into account all direct and indirect effects from tourism but excluding business trips. The application of current input-output multipliers on the corrected TSA results to estimate the indirect effects showed direct and indirect value creation of €24.11 billion in 2015. This means that the direct and indirect contribution to GDP was 7.1%. - Between 2000 and 2015 the total direct and indirect tourism value added increased from €15.48 billion to €24.11 billion, which is an increase by more than one half (+55.7%; see Table 6).

Table 6: The direct and indirect macroeconomic importance of tourism in Austria 2000-2015

Tourism demand	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	revised														preliminary	forecast
	in mn. €															
Total[1])	**15.486**	**16.026**	**16.474**	**16.775**	**17.522**	**18.534**	**19.016**	**19.530**	**20.187**	**20.193**	**21.826**	**22.453**	**22.716**	**22.871**	**23.107**	**24.108**
Direct tourism value added	10.211	10.571	10.915	11.208	11.690	11.979	12.465	13.050	13.795	13.867	14.745	15.473	16.445	16.940	17.589	18.485
Indirect tourism value added	5.275	5.455	5.559	5.567	5.832	6.555	6.551	6.480	6.392	6.326	7.081	6.980	6.271	5.931	5.518	5.623
Percentage change from previous year																
Total[1])	.	***3,5***	***2,8***	***1,8***	***4,5***	***5,8***	***2,6***	***2,7***	***3,4***	***0,0***	***8,1***	***2,9***	***1,2***	***0,7***	***1,0***	***4,3***
Direct tourism value added	.	*3,5*	*3,3*	*2,7*	*4,3*	*2,5*	*4,1*	*4,7*	*5,7*	*0,5*	*6,3*	*4,9*	*6,3*	*3,0*	*3,8*	*5,1*
Indirect tourism value added	.	*3,4*	*1,9*	*0,1*	*4,8*	*12,4*	*-0,1*	*-1,1*	*-1,4*	*-1,0*	*11,9*	*-1,4*	*-10,2*	*-5,4*	*-7,0*	*1,9*
Percentage share in GDP																
Total[1])	***7,3***	***7,3***	***7,3***	***7,3***	***7,3***	***7,3***	***7,1***	***6,9***	***6,9***	***7,1***	***7,4***	***7,3***	***7,2***	***7,1***	***7,0***	***7,1***
Direct tourism value added	*4,8*	*4,8*	*4,8*	*4,9*	*4,8*	*4,7*	*4,7*	*4,6*	*4,7*	*4,8*	*5,0*	*5,0*	*5,2*	*5,2*	*5,3*	*5,5*
Indirect tourism value added	*2,5*	*2,5*	*2,5*	*2,4*	*2,5*	*2,6*	*2,4*	*2,3*	*2,2*	*2,3*	*2,4*	*2,3*	*2,0*	*1,9*	*1,7*	*1,6*

S: STATISTICS AUSTRIA, Tourism Satellite Accounts for Austria; WIFO (Austrian Institute of Economic Research). Compiled on 10 May 2016. – 1) Without business trips.

The high economic significance of tourism also includes its **effects on employment**, thereby making a significant contribution to overall employment in Austria. A further evaluation criterion for the importance of tourism to the economy as a whole is therefore an assessment of the contribution to the employment situation of a country.

According to the findings of the "TSA-Employment Tool" (TSA-ET), 334 300 self-employed and employed persons – or 270 500 gainfully employed persons (measured in "Full-Time Equivalents" (FTEs) – could be directly attributed to the characteristic tourism industries in 2013. As a percentage of the workforce in the overall economy, this gives purely computational shares of 7.5% and 7.3%.

Altogether 8.2% of all self-employed persons (FTEs across all sections of the economy) can be assigned to the characteristic tourism industries, whereas the figure for employed persons is just 7.2%. 60.2% of all gainfully employed persons in tourism work in the "Hotels and restaurants" sector, with 39.1% of those in this economic sector working in "Hotels and similar establishments" and 60.9% in "Restaurants and similar establishments" (see Table 7).

Between 2003 and 2013 the number of employed persons in tourism characteristic industries increased from 236 600 to 270 500 (+14.3%), the share related to the workforce in the overall has been remaining rather the same (7.1% and 7.3%, respectively).

Table 7: Number of jobs and full time equivalents (FTE) in tourism characteristic industries in Austria 2013 [1)]

Tourism characteristic industries	Number of jobs		Full time equivalents (FTE)					
			Employees		Self-employed		Total	
	in 1 000	Share in %	in 1 000	Share in %	in 1 000	Share in %	in 1 000	Share in %
Hotels and restaurants								
Total	**210.4**	***62.9***	**131.8**	***57.8***	**31.0**	***73.0***	**162.9**	***60.2***
Hotels and similar	82.5	*24.7*	52.3	*23.0*	11.4	*26.8*	63.8	*23.6*
Restaurants and similar	128.0	*38.3*	79.5	*34.9*	19.6	*46.1*	99.1	*36.7*
Passenger transport, travel agencies and tour operators								
Total	**96.0**	***28.7***	**80.3**	***35.2***	**6.5**	***15.3***	**86.9**	***32.1***
Railway passenger transport	7.7	*2.3*	6.6	*2.9*	0.0	*0.0*	6.6	*2.4*
Other land passenger transport	46.2	*13.8*	37.7	*16.5*	4.5	*10.5*	42.1	*15.6*
Water passenger transport[2)]	0.0	*0.0*	0.0	*0.0*	0.0	*0.0*	0.0	*0.0*
Air passenger transport	5.0	*1.5*	4.4	*1.9*	0.1	*0.3*	4.5	*1.7*
Passenger transport supporting services	0.8	*0.3*	0.7	*0.3*	0.0	*0.0*	0.8	*0.3*
Travel agencies, tour operators	36.2	*10.8*	30.9	*13.6*	1.9	*4.5*	32.8	*12.1*
Culture, entertainment, sport								
Total	**27.9**	***8.4***	**15.7**	***6.9***	**5.0**	***11.7***	**20.7**	***7.7***
Culture and entertainment	18.0	*5.4*	10.2	*4.5*	3.2	*7.6*	13.4	*5.0*
Sport	9.9	*3.0*	5.6	*2.4*	1.8	*4.1*	7.3	*2.7*
Total								
Total	**334.3**	***100.0***	**227.9**	***100.0***	**42.6**	***100.0***	**270.5**	***100.0***

S: STATISTICS AUSTRIA, Tourism Satellite Accounts for Austria; WIFO (Austrian Institiute of Economic Research). Compiled on 18 March 2015. – 1) Preliminary results. – 2) Due to rounding "0".

The "**Travel Balance of Payments**" (TBoP) compares the expenditure of Austrian residents for travel abroad and the income from incoming tourism (excluding international passenger transport).

For calendar year 2015 the currency net inflow (difference between income and spending) from tourism was approx. €8.4 billion, an increase by €850 million compared to 2014. In total the income from incoming travel was €16.5 billion, i.e. +€820 million compared to 2014. Spendings by Austrian residents abroad slightly decreased by €25 million to €8.1 billion.

Between 2000 and 2015 the travel receipts (excl. international passenger transport) increased by 55.7% to €16.50 billion, the travel expenditure of Austrians abroad by 20.0% to €8.12 billion. Since the increase of travel receipts has been higher than tzaht of travel expenditure, the net travel receipts have been more than doubled from €3.83 billion to €8.37 billion (+118.8%; see Table 8 and Figure 6). From a sustainability point of view the inflows are much more important than the outflows.

Possible Conclusion: The Austrian tourism industry seems to be quite robust against external shocks, as a comparison of the development of travel credits and the rest of the current account backs this assumption.

Table 8: International travelling: Receipts and expenditure in Austria 2000-2015 (in million €)

Year	Travel receipts [1])	Travel expenditure[1])	Net travel [1])	Receipts passenger-transport	Expenditure passenger-transport	Net passenger-transport	Travel receipts [2])	Travel expenditure[2])	Net travel[2])
2000	10.593	6.768	3.826	1.608	833	776	12.201	7.601	4.602
2001	11.046	7.365	3.681	1.745	929	816	12.791	8.294	4.497
2002	11.579	7.287	4.292	1.619	889	730	13.198	8.176	5.022
2003	11.917	7.635	4.282	1.611	1.003	608	13.528	8.638	4.890
2004	12.203	7.473	4.730	1.694	1.269	425	13.897	8.742	5.155
2005	12.904	7.505	5.399	1.796	1.416	380	14.700	8.921	5.779
2006	13.255	7.642	5.613	1.889	1.667	222	15.144	9.309	5.835
2007	13.641	7.698	5.943	1.844	1.652	192	15.485	9.350	6.135
2008	14.677	7.721	6.956	1.836	1.736	100	16.513	9.457	7.056
2009	13.896	7.744	6.152	1.479	1.399	80	15.375	9.143	6.232
2010	14.027	7.717	6.310	1.678	1.574	104	15.705	9.291	6.414
2011	14.267	7.531	6.736	1.920	1.701	219	16.187	9.232	6.955
2012	14.706	7.825	6.881	1.955	1.839	116	16.661	9.664	6.997
2013	15.237	7.738	7.499	1.889	1.883	6	17.126	9.621	7.505
2014[3])	15.675	8.148	7.527	1.769	1.871	-102	17.444	10.019	7.425
2015[4])	16.497	8.124	8.373	1.906	1.786	120	18.403	9.910	8.493

Q: STATISTICS AUSTRIA, Travel Balance of Payments; OeNB (Central Bank of the Republic of Austria). Compiled on 3 May 2016. – 1) Excl. international passenger transport. – 2) Incl. international passenger transport. – 3) Revised data. – 4) Preliminary data. – 2000 - 2013 final data.

Figure 6: Travel and rest of the current accounts credits in Austria 1995 (2008)-2015

S: Statistics Austria

Whilst the rest of the current accounts showed a more dynamic growth between 1995 and 2015 (+350%) the increase in travel credits was more moderate (+160%); the effect of the financial shocks beginning with 2008 did not have that crucial impact on travel compared with the rest of the current accounts. Also the phase of recovery since 2008 seems to be more stable and free of fluctuations, again compared with the rest of the current accounts.

4.4.3 Tourism density

In the following some analysis is provided showing the tourism intensity in various Austrian regions. However, it has to be mentioned that the data are presented on a **high aggregated and administrative level** (Federal Provinces); representing an average; this does not allow any interpretation or application on local level, therefore.

Table 9 shows the **tourism supply density** on the regional level broken down by Federal Provinces. - Significant differences between the regions can be perceived:

- While in Vienna the residents per bed is the highest (2000: 37.1; 2015: 25.2), in Tyrol – a rather intensive tourism region – this value is the lowest (2000: 1.9; 2015: 2.1).
- Data showing that in all Austrian provinces the number of 5-/4-star hotels are increasing (2000-2015: between +11% and +82%); furthermore, the number of beds are increasing, while the total number of establishments are decreasing.
- Between 2000 and 2015 the number of residents per bed has been increasing in several Austrian provinces, apart from Vienna, Styria, Lower Austria, Burgenland and Salzburg.

- The number of beds per km² are significantly increasing in Vienna (+70.7%), while in Carinthia the development is the opposite (-23.3%).
- Apart from Vienna (-20.6%), the number of beds per tourist accommodation is increasing in all Austrian provinces.

Table 9: Tourism supply density 2000 and 2015 by Austrian Federal Provinces

Aggregates	Burgen-land	Carin-thia	Lower Austria	Upper Austria	Salz-burg	Styria	Tyrol	Vorarl-berg	Vienna	Austria
	2000									
Accommodation establishments	1.234	12.829	3.349	4.655	13.712	7.326	25.909	6.193	420	**75.627**
of which:										
5-/4-star hotels	33	235	104	113	349	143	609	147	132	**1.865**
3-star hotels	107	1.038	470	345	1.126	849	1.477	347	126	**5.885**
2-/1-star hotels	219	1.084	583	795	945	762	2.817	472	90	**7.767**
Beds	22.738	163.090	62.218	76.241	201.663	101.770	356.892	73.332	41.833	**1.099.777**
Beds/accommodation establishment	18,4	12,7	18,6	16,4	14,7	13,9	13,8	11,8	99,6	**14,5**
Households	99.922	215.286	584.452	527.652	201.632	451.450	253.569	129.685	773.434	**3.237.083**
Residents	276.083	560.129	1.537.266	1.371.579	513.853	1.182.684	669.479	349.257	1.551.236	**8.011.566**
Area in km²	3.962	9.538	19.186	11.980	7.156	16.401	12.640	2.601	415	**83.879**
Accommodation establishment/km²	0,3	1,3	0,2	0,4	1,9	0,4	2,0	2,4	1,0	**0,9**
Beds/km²	5,7	17,1	3,2	6,4	28,2	6,2	28,2	28,2	100,9	**13,1**
Residents/accommodation establishment	223,7	43,7	459,0	294,6	37,5	161,4	25,8	56,4	3.693,4	**105,9**
Residents/bed	12,1	3,4	24,7	18,0	2,5	11,6	1,9	4,8	37,1	**7,3**
	2015									
Accommodation establishments	1.233	8.560	3.278	3.563	11.526	6.702	22.761	5.355	904	**63.882**
of which:										
5-/4-star hotels	60	261	160	151	485	253	862	227	186	**2.645**
3-star hotels	164	745	441	338	990	813	1.323	311	169	**5.294**
2-/1-star hotels	114	644	464	539	507	440	1.605	291	82	**4.686**
Beds	23.998	124.985	69.225	68.817	212.853	110.571	348.566	71.824	71.461	**1.102.300**
Beds/accommodation establishment	19,5	14,6	21,1	19,3	18,5	16,5	15,3	13,4	79,0	17,3
Households	120.770	247.981	704.039	615.420	233.749	531.065	313.632	160.426	889.683	**3.816.765**
Residents	288.356	557.641	1.636.778	1.437.251	538.575	1.221.570	728.826	378.592	1.797.337	**8.584.926**
Area in km²	3.962	9.536	19.178	11.982	7.154	16.392	12.648	2.601	415	**83.868**
Accommodation establishment/km²	0,3	0,9	0,2	0,3	1,6	0,4	1,8	2,1	2,2	**0,8**
Beds/km²	6,1	13,1	3,6	5,7	29,8	6,7	27,6	27,6	172,2	**13,1**
Residents/accommodation establishment	233,9	65,1	499,3	403,4	46,7	182,3	32,0	70,7	1.988,2	**134,4**
Residents/bed	12,0	4,5	23,6	20,9	2,5	11,0	2,1	5,3	25,2	**7,8**
	Change 2000-2015 (in %)									
Accommodation establishments	-0,1	-33,3	-2,1	-23,5	-15,9	-8,5	-12,2	-13,5	115,2	**-15,5**
of which:										
5-/4-star hotels	81,8	11,1	53,8	33,6	39,0	76,9	41,5	54,4	40,9	**41,8**
3-star hotels	53,3	-28,2	-6,2	-2,0	-12,1	-4,2	-10,4	-10,4	34,1	**-10,0**
2-/1-star hotels	-47,9	-40,6	-20,4	-32,2	-46,3	-42,3	-43,0	-38,3	-8,9	**-39,7**
Beds	5,5	-23,4	11,3	-9,7	5,5	8,6	-2,3	-2,1	70,8	**0,2**
Beds/accommodation establishment	5,6	14,9	13,7	17,9	25,6	18,8	11,2	13,3	-20,6	**18,7**
Households	20,9	15,2	20,5	16,6	15,9	17,6	23,7	23,7	15,0	**17,9**
Residents	4,4	-0,4	6,5	4,8	4,8	3,3	8,9	8,4	15,9	**7,2**
Area in km²	0,0	0,0	0,0	0,0	0,0	-0,1	0,1	0,0	0,1	**0,0**
Accommodation establishment/km²	-0,1	-33,3	-2,1	-23,5	-15,9	-8,5	-12,2	-13,5	115,1	**-15,5**
Beds/km²	5,5	-23,3	11,3	-9,8	5,6	8,7	-2,4	-2,1	70,7	**0,2**
Residents/accommodation establishment	4,5	49,2	8,8	36,9	24,7	12,9	23,9	25,4	-46,2	**26,9**
Residents/bed	-1,0	29,9	-4,3	16,1	-0,7	-4,9	11,5	10,7	-32,2	**6,9**

Source: Statistics Austria

In Vienna beds per accommodation enterprise are at an average of 101, whereas in Austrian Federal Provinces small and medium size enterprises dominate with an average of 14 to 26 beds per enterprise. Because of the high population concentration in Vienna 105 beds per km² and 35 residents per bed on the one hand and 3,597 residents per enterprise on the other hand (Austrian peak values), Vienna can hardly be compared with other Austrian regions and must be treated separately.

However, an analysis on a **more disaggregated level might be useful**, in order to see the different developments on sub-regional/local level. As the capital and the biggest municipality of Austria the developments are different compared to other provinces - the comparability is less meaningful, therefore.

Possible Conclusion: The accommodation capacity and its relation to the local population and spatial concentration imply an aspect of **social sustainability**; "tourist nights spent per local inhabitant and area" may give information about advantages and disadvantages for local residents. Induced negative and positive effects could be for example: Excessive prices in shops, frequent traffic congestions, overuse of natural resources on the expenses of local residents etc. as well as advanced infrastructure, variety of leisure facilities, cultivated, high-quality environment etc.

However, the results must be proved by **qualitative investigations** collecting data which reflect locals' perceptions: High tourist density (nights or beds per local resident or per area) does not necessarily mean that the above mentioned advantages and disadvantages can be derived from these indicators and applied for social sustainability.

Considering the tourism demand (arrivals), the number of residents/tourists and the area (in km^2) several indicators might be developed showing the tourism density and the differences among the Federal Provinces (see Table 10).

The percentage in the last column presents the **share of the number of tourists per km^2 comparing to residents per km^2**. In particular in Tyrol and Salzburg the values are the highest, while in Lower Austria (with high number of population, big surface and low number of arrivals) the figure is rather low (157%; arrivals per km^2 about 2.5 times more than residents per km^2). However, Vienna – as other urban areas - is again an exception and can hardly be compared with other Austrian regions and must be treated separately (e.g. related to arrivals/km^2).

Table 10: Tourism demand density 1974, 2000, 2007 and 2015 by Austrian Federal Provinces

Provinces	Area (in km^2)	Residents (in 1000)	Arrivals (in 1000)	Arrivals/ day	Residents + Arrivals (in 1000)	Arrivals/ km^2	Residents/ km^2	Residents + Arrivals/ km^2	Share of Arrivals/km^2 related to residence/km^2 (in %)
					1974				
Burgenland	3.962	272	231	633	503	58	69	127	85
Carinthia	9.538	537	1.790	4.903	2.326	188	56	244	334
Lower Austria	19.186	1.434	900	2.465	2.333	47	75	122	63
Upper Austria	11.980	1.255	1.220	3.343	2.475	102	105	207	97
Salzburg	7.156	422	2.858	7.831	3.281	399	59	458	677
Styria	16.401	1.202	1.423	3.897	2.624	87	73	160	118
Tirol	12.640	563	4.284	11.737	4.847	339	45	383	761
Vorarlberg	2.601	294	1.001	2.741	1.295	385	113	498	340
Vienna	415	1.621	1.437	3.937	3.058	3.466	3.909	7.375	89
Austria	**83.879**	**7.599**	**15.143**	**41.488**	**22.742**	**181**	**91**	**271**	**199**
					2000				
Burgenland	3.962	276	609	1.668	885	154	70	223	221
Carinthia	9.538	560	2.256	6.182	2.817	237	59	295	403
Lower Austria	19.186	1.537	1.830	5.013	3.367	95	80	175	119
Upper Austria	11.980	1.372	1.946	5.332	3.318	162	114	277	142
Salzburg	7.156	514	4.532	12.417	5.046	633	72	705	882
Styria	16.401	1.183	2.394	6.560	3.577	146	72	218	202
Tirol	12.640	669	7.876	21.577	8.545	623	53	676	1.176
Vorarlberg	2.601	349	1.669	4.572	2.018	642	134	776	478
Vienna	415	1.551	3.266	8.947	4.817	7.876	3.741	11.617	211
Austria	**83.879**	**8.012**	**26.378**	**72.268**	**34.390**	**314**	**96**	**410**	**329**
					2007				
Burgenland	3.962	280	844	2.313	1.125	213	71	284	301
Carinthia	9.538	560	2.625	7.191	3.185	275	59	334	469
Lower Austria	19.186	1.593	2.320	6.357	3.913	121	83	204	146
Upper Austria	11.980	1.405	2.240	6.138	3.646	187	117	304	159
Salzburg	7.156	526	5.457	14.951	5.983	763	73	836	1.038
Styria	16.401	1.203	2.902	7.952	4.106	177	73	250	241
Tirol	12.640	698	8.649	23.695	9.347	684	55	739	1.239
Vorarlberg	2.601	365	1.875	5.138	2.240	721	140	861	514
Vienna	415	1.665	4.227	11.581	5.892	10.194	4.017	14.210	254
Austria	**83.879**	**8.295**	**31.141**	**85.317**	**39.436**	**371**	**99**	**470**	**375**
					2015				
Burgenland	3.962	288	970	2.658	1.258	245	73	318	336
Carinthia	9.538	558	2.847	7.800	3.405	298	58	357	511
Lower Austria	19.186	1.637	2.576	7.058	4.213	134	85	220	157
Upper Austria	11.980	1.437	2.701	7.401	4.139	225	120	345	188
Salzburg	7.156	539	6.807	18.649	7.346	951	75	1.026	1.264
Styria	16.401	1.222	3.748	10.268	4.970	229	74	303	307
Tirol	12.640	729	10.873	29.790	11.602	860	58	918	1.492
Vorarlberg	2.601	379	2.313	6.336	2.691	889	146	1.035	611
Vienna	415	1.797	6.589	18.052	8.386	15.891	4.335	20.225	367
Austria	**83.879**	**8.585**	**39.424**	**108.012**	**48.009**	**470**	**102**	**572**	**459**

Source: Statistics Austria

Data for **mountain specific infrastructure** was collected on a regional basis (municipal data available, though not shown in Table 11) including km of ski runs, total number of ski lifts and accommodation enterprises per km of ski run. This indicator reflects the impact of mountain specific infrastructure and gives partly indication of the impact of winter sport activities on the environment and illustrates the concentration of winter -sport in certain regions.[29])

There are undoubtedly two leading Austrian winter sport regions (Tyrol, Salzburg) regarding km of ski runs and ski lifts. On the contrary, Lower and Upper Austria conclude the ranking, since they have but little winter sport tourism.

Table 11: Km of ski runs and number of ski lifts 2002 and 2015 by Austrian Federal Provinces

Federal Provinces	Skiruns (km)	T-bar lifts	chairlifts	cablecars	funiculars	Ski-lifts (total)	Accommod.establishments	acc/km of ski run
	2002							
Carinthia	734	169	48	15	5	237	11.898	16,2
Lower-Austria	170	56	19	1	1	77	3.232	19,0
Upper-Austria	174	76	15	3	6	100	4.339	24,9
Salzburg	2.965	539	269	92	21	921	13.174	4,4
Styria	623	216	55	6	6	283	7.161	11,5
Tyrol	3.412	542	380	81	51	1.054	25.173	7,4
Vorarlberg	792	123	97	19	10	249	9.893	12,5
Austria	**8.870**	**1.721**	**883**	**217**	**100**	**2.921**	**74.870**	**8,4**
	2015							
Carinthia	707	148	52	20	4	224	11.486	16,2
Lower-Austria	184	59	20	1	1	81	3.255	17,7
Upper-Austria	264	84	21	9	5	119	4.215	16,0
Salzburg	3.054	396	328	195	24	943	12.988	4,3
Styria	660	185	59	13	2	259	7.181	10,9
Tyrol	4.182	586	464	206	34	1.290	24.989	6,0
Vorarlberg	1.926	241	242	42	36	561	5.839	3,0
Austria	**10.977**	**1.699**	**1.186**	**486**	**106**	**3.477**	**69.953**	**6,4**
	Change 2002-2015 (in %)							
Carinthia	-3,7	-12,4	8,3	33,3	-20,0	-5,5	-3,5	0,2
Lower-Austria	7,9	5,4	5,3	0,0	0,0	5,2	0,7	-6,7
Upper-Austria	51,7	10,5	40,0	200,0	-16,7	19,0	-2,9	-36,0
Salzburg	3,0	-26,5	21,9	112,0	14,3	2,4	-1,4	-4,3
Styria	6,0	-14,4	7,3	116,7	-66,7	-8,5	0,3	-5,4
Tyrol	22,6	8,1	22,1	154,3	-33,3	22,4	-0,7	-19,0
Vorarlberg	143,2	95,9	149,5	121,1	260,0	125,3	-41,0	-75,7
Austria	**23,8**	**-1,3**	**34,3**	**124,0**	**6,0**	**19,0**	**-6,6**	**-24,5**

Source: Statistics Austria, www.bergfex.at and https://www.wko.at/Content.Node/branchen/oe/TransportVerkehr/Seilbahnen/Startseite_-_Seilbahnen,_Fachverband.html

Possible Conclusion: This leads to the conclusion that - at first sight - indicators on mountain specific infrastructure are more important for those regions being identified as important winter-sport destinations. Looking at the results it turns out that each region providing winter-sport tourism - no matter how large the resorts are - faces its particular problems and needs to find appropriate measures to counter negative effects and developments.

[29] However, data collection is very difficult: The Association of Austrian Cable Car Operators (within the Austrian Chamber of Commerce) is eager to publish data fit for marketing reasons: Number of cable cars, km of ski-runs and partly there is data available on area covered with artificial snow and number of ski-huts. Figures could be retrieved from the internet, either on www.bergfex.at (figures based on winter-sport resort) or on https://www.wko.at/Content.Node/branchen/oe/TransportVerkehr/Seilbahnen/Startseite_-_Seilbahnen,_Fachverband.html (figures based on cable car operators). Besides the specification of km of ski-run and number of cable cars, information on number of ski-huts and area covered by artificial snow could be found; yet, not all of the operators published their figures.

Tourist arrivals by transport mode give indication of different modes and stress of tourist travelling. Table 12 displays domestic tourist arrivals by the three most important transport modes (due to unimportance - scheduled flights, charter flights, bicycle and other transport modes are not considered).

The **data shows** that…

- …the most important means of transport for domestic holidays is the private car: 80.7% of all trips are taken by car, 13.7% by train, 4.2% by coach.
- …Burgenland, Lower Austria and Styria constitute the largest share of car used for tourism travelling. This is due to the fact that in particular in Burgenland, railways and other public transport systems do not sufficiently cover the region, flexibility without a car would be restricted.
- …Vienna is an exception: Only 42.8% of all trips are taken by car which is significantly below the Austrian average (80.7%). On the other side, the share of trips to Vienna being taken by train amounts to 51.8% which is higher than „car-tourism". This is due to the easy accessibility of Vienna by public transport in comparison to Burgenland, Lower Austria or Styria. Moreover, high parking fees, traffic congestions and an efficient public transport system encourage tourists to abandon their cars.
- …the most important destinations for coach tourism are Tyrol (7.0%), Carinthia (5.3%) and Burgenland (5.2%).

Table 12: Arrivals per transport mode in Austria 2015 (domestic tourism)

Destination	total trips	Car	%	train	%	coach	%	others	%
		2015							
Burgenland	622,7	567,0	91,1	20,0	3,2	32,1	5,2	3,6	0,6
Carinthia	1.160,5	961,7	82,9	101,8	8,8	61,9	5,3	35,1	3,0
Lower Austria	1.050,1	941,7	89,7	58,1	5,5	37,5	3,6	12,8	1,2
Upper Austria	1.063,5	869,1	81,7	149,3	14,0	27,9	2,6	17,3	1,6
Salzburg	1.293,9	1.043,8	80,7	178,2	13,8	61,4	4,7	10,6	0,8
Styria	2.052,5	1.836,6	89,5	134,8	6,6	59,6	2,9	21,5	1,0
Tyrol	977,4	744,2	76,1	147,2	15,1	68,5	7,0	17,4	1,8
Vorarlberg	211,1	126,1	59,7	75,8	35,9	9,2	4,4	-	-
Vienna	765,9	327,9	42,8	396,6	51,8	32,8	4,3	8,6	1,1
Austria	**9.197,6**	**7.418,1**	**80,7**	**1.261,8**	**13,7**	**390,9**	**4,2**	**126,9**	**1,4**

numbers cannot be statistically interpreted due to a too low number (< 160000) of trips

Source: Statistics Austria

Possible Conclusion: The data show domestic tourism, only, and they are referring to high aggregated regions (=Federal Provinces). Data related to same-day and inbound tourism by means of tranport are not available which have a significant effect on local/regional tourism destinations and resident population.

4.4.4 Tourism and the use of natural ressources

The **impact of leisure and tourism related infrastructure** on the consumption of land and space might be of interest. Based on the Austrian Housing Census Table 13 shows the Austrian Federal Regions' share of buildings used for „Hotels and similar" for the reporting years 1991, 2001 and 2011 as well as their change rates. The change rates related to „Hotels and similar" buildings are higher than those of the total number of buildings. Although Salzburg and Tyrol have the highest concentration of buildings used for tourist accommodation establishments, other regions, headed by Burgenland, have higher growth rates (+125.2%) and net growth rates (106.3%)[30]). Also in Styria the difference between the changes of total number of buildings and hotels and similar buildings is rather high (66.7%)

Table 13: Buildings used for tourist accommodation establishments in Austria 1991, 2001 and 2011

Austrian Province	2011			2001			1991			Change 1991-2011 (in %)		net change (in %)
	Total number of buildings	of which: hotels and similar	share of hotels and similar	Total number of buildings	of which: hotels and similar	share of hotels and similar	Total number of buildings	of which: hotels and similar	share of hotels and similar	Total number of buildings	hotels and similar	hotels and similar
Burgenland	123.109	1.491	1,2	114.403	1.369	1,2	103.529	662	0,6	18,9	125,2	106,3
Carinthia	172.465	5.149	3,0	162.075	5.271	3,3	143.929	3.118	2,2	19,8	65,1	45,3
Lower Austria	591.433	4.970	0,8	553.604	4.790	0,9	494.198	2.785	0,6	19,7	78,5	58,8
Upper Austria	383.429	3.755	1,0	352.326	3.673	1,0	307.850	2.316	0,8	24,6	62,1	37,6
Salzburg	129.233	4.943	3,8	119.818	4.478	3,7	102.691	3.124	3,0	25,8	58,2	32,4
Styria	350.651	5.354	1,5	325.822	5.081	1,6	288.802	2.846	1,0	21,4	88,1	66,7
Tyrol	177.745	8.597	4,8	161.261	8.077	5,0	138.537	5.278	3,8	28,3	62,9	34,6
Vorarlberg	98.469	2.061	2,1	89.236	1.995	2,2	75.831	1.170	1,5	29,9	76,2	46,3
Vienna	164.746	1.148	0,7	168.167	1.103	0,7	153.693	675	0,4	7,2	70,1	62,9
Austria	**2.191.280**	**37.468**	**1,7**	**2.046.712**	**35.837**	**1,8**	**1.809.060**	**21.974**	**1,2**	**21,1**	**70,5**	**49,4**

Source: Statistics Austria; Austrian Housing Census

Source: Statistics Austria

The measurement of **energy sources used for heating in tourism facilities** is rather important, since this might vary due to seasonal reasons. However, data was collected by Statistics Austria concerning this issue: Energy sources used for heating in "Hotels and similar establishments" and "Buildings for culture, leisure, education and health" (though the latter obviously includes to a high degree schools and hospitals which are no typical tourism used establishments) are shown in Table 14. These results (on regional level, though possible also on municipal level) reveal the penetration and acceptance of renewable energy sources in the Austrian Federal provinces. Fuel oil and gas are still widespread and represent the most important energy sources although they are not renewable. In general, renewable energy sources (e.g. wood chips, pellets etc.) or alternative heating, through solar energy for instance, did not gain ground yet in tourism facilities.

However, based on 2001 data **differences between Federal Provinces can be perceived**: Tyrol, having the most intensive tourism industry, is the region with a low share of buildings, both for "Hotels and similar" and "Buildings for culture, leisure, education and health" using renewable energy sources like timber or wood chips and pellets. Salzburg and Vorarlberg, being tourism intensive regions too, lead this ranking. These differences are due to subsidies from the federal governments: Several of them, like Vorarlberg and Salzburg, support alternative heating systems financially.

Possible Conclusion: Due to non-available data for more recenet years, more recent developments cannot be shown. It can be assumed that the value for „alternative heat sources" has been significantly increasing since 2001.

[30] The net growth rate is the growth rate of „Hotels and similar" minus the growth rate of the total number of buildings.

Table 14: Energy sources used for "hotels and similar establishments" and "buildings for culture, leisure, education and health" in Austria 2001

Austrian Provinces	Total number	Fuel oil		timber		wood chips, pellets, sawdust, straw		coal, coke, briquets		electric power		gas		alternative heat sources		other fuel		Long-distance heating		not centrally heated	
	total	total	in %	total	in %	total	in %	total	in %	total	in %	total	in %	total	in %	total	in %	total	in %	total	in %
	Energy source and number of hotels																				
Burgenland	1.369	485	35,4	85	6,2	24	1,8	8	0,6	64	4,7	379	27,7	7	0,5	-	-	19	1,4	298	21,8
Carinthia	5.271	2.455	46,6	382	7,2	130	2,5	29	0,6	326	6,2	226	4,3	35	0,7	2	0,0	100	1,9	1.586	30,1
Lower Austria	4.790	1.661	34,7	457	9,5	149	3,1	57	1,2	189	3,9	1.392	29,1	24	0,5	7	0,1	93	1,9	761	15,9
Upper Austria	3.673	1.698	46,2	249	6,8	172	4,7	40	1,1	84	2,3	726	19,8	39	1,1	4	0,1	169	4,6	492	13,4
Salzburg	4.478	2.754	61,5	164	3,7	135	3,0	18	0,4	299	6,7	346	7,7	26	0,6	5	0,1	269	6,0	462	10,3
Styria	5.081	2.599	51,2	534	10,5	168	3,3	80	1,6	105	2,1	595	11,7	30	0,6	5	0,1	264	5,2	701	13,8
Tyrol	8.077	6.195	76,7	287	3,6	66	0,8	6	0,1	235	2,9	401	5,0	46	0,6	4	0,0	62	0,8	775	9,6
Vorarlberg	1.995	1.191	59,7	79	4,0	97	4,9	3	0,2	73	3,7	185	9,3	16	0,8	3	0,2	66	3,3	282	14,1
Vienna	1.103	129	11,7	24	2,2	1	0,1	7	0,6	27	2,4	524	47,5	6	0,5	1	0,1	92	8,3	292	26,5
Austria	**35.837**	**19.167**	**53,5**	**2.261**	**6,3**	**942**	**2,6**	**248**	**0,7**	**1.402**	**3,9**	**4.774**	**13,3**	**229**	**0,6**	**31**	**0,1**	**1.134**	**3,2**	**5.649**	**15,8**
	Energy source and number of buildings for culture, leisure, education and health																				
Burgenland	708	129	18,2	3	0,4	25	3,5	-	-	95	13,4	232	32,8	7	1,0	1	0,1	27	3,8	189	26,7
Carinthia	1.010	305	30,2	6	0,6	64	6,3	1	0,1	102	10,1	100	9,9	13	1,3	-	-	201	19,9	218	21,6
Lower Austria	3.551	714	20,1	48	1,4	99	2,8	4	0,1	203	5,7	1.451	40,9	17	0,5	-	-	313	8,8	702	19,8
Upper Austria	2.824	640	22,7	12	0,4	146	5,2	3	0,1	130	4,6	898	31,8	53	1,9	-	-	465	16,5	477	16,9
Salzburg	992	290	29,2	2	0,2	55	5,5	-	-	58	5,8	224	22,6	5	0,5	2	0,2	204	20,6	152	15,3
Styria	2.458	698	28,4	18	0,7	178	7,2	-	-	151	6,1	447	18,2	10	0,4	-	-	526	21,4	430	17,5
Tyrol	1.369	640	46,7	11	0,8	28	2,0	-	-	76	5,6	182	13,3	11	0,8	-	-	117	8,5	304	22,2
Vorarlberg	704	210	29,8	6	0,9	31	4,4	2	0,3	21	3,0	309	43,9	20	2,8	1	0,1	35	5,0	69	9,8
Vienna	1.777	134	7,5	10	0,6	1	0,1	3	0,2	22	1,2	437	24,6	2	0,1	-	-	921	51,8	247	13,9
Austria	**15.393**	**3.760**	**24,4**	**116**	**0,8**	**627**	**4,1**	**13**	**0,1**	**858**	**5,6**	**4.280**	**27,8**	**138**	**0,9**	**4**	**0,0**	**2.809**	**18,2**	**2.788**	**18,1**

Source: Statistics Austria: Austrian Housing Census

Source: Statistics Austria

Water use for **snow cannons and guns** gives an indication of the pressure on water resources by winter sports. Although artificial snow shortens the growth phase during summer, it is a protection against damage caused by skiers and frost.

However, the negative effects of artificial snow on the environment have been stated by several studies.[31]) Limited air permeability of artificial snow results in oxygen deficiency and causes immediate damage on the soil and the whole vegetation.

For one m³ of artificial snow, 200 to 600 litres (depending on the quality) of water are needed (basic and additional snow making). The water used for the production has to fulfil certain quality criteria; in many regions drinking water quality is even required. [32])

In Austria there are about 19000 snowing cannons and guns available (360 skiing areas with 25 400 ha ski pists). About 67% of the overall skiing area have to be covered artificially when natural snow is scarce. 250 Gigawatt hours energy consumption is necessary to cover all ski runs with artificial snow during one season year. [33]) [34])

Possible Conclusion: By means of local experts' estimations, reliable figures for water abstractions and energy use by snow cannons could be calculated; more investigations have to be done.

[31] See e.g. http://www.oecd.org/env/cc/climatechangeintheeuropeanalpsadaptingwintertourismandnaturalhazardsmanagement.htm.
[32] See e.g. http://www.alpconv.org/en/publications/otherinfo/thesis/Documents/SNAJDR-Artifical%20snow.pdf?AspxAutoDetectCookieSupport=1.
[33] See also https://en.wikipedia.org/wiki/Snowmaking.
[34] See also http://www.salzburg.com/wiki/index.php/Beschneiungsanlage.

5. Conclusions

It is obvious that tourism is of great significance for the economy of many countries. Receiving a more detailed or concrete answer for policy makers related to its **sustainability**, additional measures have to be introduced getting more information on the **ecological and social agreeableness** of the tourism development. This is a prerequisite of tourism, its development and success in the (near) future.

Relevant indicators and measures would help to understand the size of tourism, its structure and its **interrelation with the ecological, social and economic environment**; furthermore, they support to manage tourism components and their relationship to the environment. They permit decision makers (on local, regional, federal as well as national level) a broader view of the whole tourism system moving away from the traditional, one-sided economic approach.

Therefore, "Measuring Sustainable Tourism" (MST) can be seen as the **translation of policy goals and as a consequence the foundation for further measures**: Fundamental tourism policy, development of new products, (new) marketing concepts, protection of flora and fauna, internal marketing campaigns (e.g. involvement of local residents, positive interaction of locals and visitors).

Besides the conventional tourism indicators (i.e. tourist overnights, tourist arrivals, TSA-values, stock of beds) that primarily reflect the economic aspect of tourism and its development over years, sustainability indicators take into account **a lot of information of different statistical fields**, aiming at a comprehensive overview of tourism in a wider sense within the socio-economic and ecological system.

However, based on the research done in the frame of the pilot study the **following preliminary conclusions** might be drawn:

- **Sustainability can never be measured by indicators alone** (regardless of qualitative or quantitative or both): Profound knowledge of the whole region, its resources, geographic circumstances, economic pillars, (tourism) infrastructure, the cultural and historical framework etc. is necessary to interpret the figures and draw reasonable conclusions from them. Therefore, a solid group of experts is demanded in order to gain feasible results.
- **Goals need to be established by each region**: As the results reveal, a general benchmark-system does not seem reasonable. The indicators should not only monitor and display developments but encourage regional policy-makers to establish a set of target-values and a catalogue of measures that should be taken in order to achieve satisfactory results.
- Doing analysis based on sustainable indicators requires **a regular monitoring system** which provides information on continuous basis revealing trends over time. Based on indicators´ results which signal unacceptable levels of impact or stress to the environment, standards governing tourism activities have to be developed.
- **MST requires data comparable over time and space**; in other words, it is important to ensure that data collection and compilation is done in a consistent way, according to internationally accepted standards and methodological rules. Indicators can only be built up when the data is not only available but also highly reliable.

Information society demands more and more data in shorter intervals than ever. In particular related to tourism for which nature and social stability is doubtless the prerequisite of tourism, MST is an important initiative to gain reliable information on tourism in its wider context.

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Annex: Examples of measuring sustainability

Annex 1: UN TSA/SEEA - environmental impacts by tourism industries

In the scope of the UN-strategy in regard to sustainability the **combination of TSA and SEEA** information is given high priority. In particular in the tourism sector social and environmental sustainability is a prerequiste for the economic one since tourists – in times of increasing population and increasing urbanisation with all their negative impacts on the environment - are prefering within their holiday and spare time intact nature.[35])

In order to monitor in particular **enviromental and social sustainability statistical indicators** might be helpful in this respect, although the interpretation of the results might be challenging. Nevertheless, there is a clear need to monitor economic and environmental progress, and for reliable indicators based on already existing conceptional frameworks.

In many countries environmental and tourism accounting is already well established which – a satellite to "National Accounts" (NA) – provides data related to **environment and tourism which is beyond the NA-system** but in line with the accounting rules of NA. Since neither tourism nor environment is functionally presented as an own sector in the NA satellite systems are providing a better understanding of these sectors based on "Supply-Use-Tables" (SUT). However, linking both systems might improve the understanding environemntal impacts through tourism activities and relativise the potential economic importance by environmental costs.

This might be done through various common industries which are considered within both systems; an investigation related to industries of the Austrian TSA and SEEA shows, that the following analysis is possible (see Table 15 below):

- Environmental taxes
- Air emissions
- Energy consumption
- Domestic material consumption
- Waste
- Environmental protection expenditure

However, based on this information some indicators due to **direct tourism production** for sveral tourism industries might be developed. Nevertheless, the **following challenges** become obvious:

- In all cases the environmental data are available on NACE 2-digit-level, only, which significantly limits the possibilities of analysis.
- For several environmental topics for all tourism indutries data are not availble.

[35] See also UN, FAO, EC, OECD, World Bank, System of Environmental-Economic Accounting 2012, Application and Extensions, white cover publication, pre-edited text subject to official editing, New York 2014 (http://unstats.un.org/unsd/envaccounting/ae_white_cover.pdf).

Table 15: Tourism industries (TSA) versus environmental variables (SEEA)

Tourism Industries	ISIC Rev.4	NACE Rev. 2	Environ-mental taxes	Air emis-sions (GHG and air pollutants)	Energy con-sumption (starting in 2016)	Domestic Material consumption	Waste (Environ-ment Agency Austria)	Environ-mental Protection Expenditure	Remarks
			"x" ....data available						
Accommodation for visitors									
	5510 Short term accommodation activities	I 55.10 Hotel and similar accommodation	x	x	x				Only for NACE 2-digits in total
		I 55.20 Holiday and other short-stay accommodation	x	x	x				Only for NACE 2-digits in total
	5520 Camping grounds, recreational vehicle parks and trailer parks	I 55.30 Camping grounds, recreational vehicle parks and trailer parks	x	x	x				Only for NACE 2-digits in total
	5590 Other accommodation	I 55.90 Other accommodation	x	x	x				Only for NACE 2-digits in total
	6810 Real estate activities with own or leased property	L 68.10 Buying and selling of own real estate	x	x	x				Only for NACE 2-digits in total
		L 68.20 Renting and operating of own or leased real estate	x	x	x				Only for NACE 2-digits in total
	6820 Real estate activities on a fee or contract basis	L 68.31 Real estate agencies	x	x	x				Only for NACE 2-digits in total
		L 68.32 Management of real estate on a fee or contract basis	x	x	x				Only for NACE 2-digits in total
Food and beverage serving activities									
	5610 Restaurants and mobile food service activities	I 56.10 Restaurants and mobile food service activities	x	x	x				Only for NACE 2-digits in total
	5629 Other food service activities	I 56.29 Other food service activities	x	x	x				Only for NACE 2-digits in total
	5630 Beverage serving activities	I 56.30 Beverage serving activities	x	x	x				Only for NACE 2-digits in total
Railway passenger transport									
	4911 Passenger rail transport, interurban	H 49.10 Passenger rail transport, interurban	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
Road passenger transport									
	4922 Other passenger land transport	Other passenger land transport							
		H 49.32 Taxi operation	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
		H 49.39 Other passenger land transport n.e.c.	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
Water passenger transport									
	5011 Sea and coastal passenger water transport	H 50.10 Sea and coastal passenger water transport	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
	5021 Inland passenger water transport	H 50.30 Inland passenger water transport	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
Air passenger transport									
	5110 Passenger air transport	H 51.10 Passenger air transport	x	x	x	x	x	x	Only for NACE 2-digits in total (in case of waste only for selected years)
Transport equipment rental									
	7710 Renting and leasing of motor vehicles	N 77.11 Renting and leasing of cars and light motor vehicles	x	x	x				Only for NACE 2-digits in total
		N 77.12 Renting and leasing of trucks	x	x	x				Only for NACE 2-digits in total
Travel agencies and other reservation service activities									
	7911 Travel agency activities	N 79.11 Travel agency activities	x	x	x				Only for NACE 2-digits in total
	7912 Tour operator activities	N 79.12 Tour operator activities	x	x	x				Only for NACE 2-digits in total
	7990 Other reservation service and related activities	N 79.90 Other reservation service and related activities	x	x	x				Only for NACE 2-digits in total
Cultural activities									
	9000 Creative, arts and entertainment activities	R 90.01 Performing arts	x	x	x				Only for NACE 2-digits in total
		R 90.02 Supporting activities to performing arts	x	x	x				Only for NACE 2-digits in total
		R 90.03 Artistic creation	x	x	x				Only for NACE 2-digits in total
		R 90.04 Operation of arts facilities	x	x	x				Only for NACE 2-digits in total
	9102 Museums activities and operation of historical sites and buildings	R 91.02 Museums activities	x	x	x				Only for NACE 2-digits in total
		R 91.03 Operation of historical sites and buildings and similar visitor attractions	x	x	x				Only for NACE 2-digits in total
	9103 Botanical and zoological gardens and nature reserves activities	R 91.04 Botanical and zoological gardens and nature reserves activities	x	x	x				Only for NACE 2-digits in total
Sports and recreational activities									
	7721 Renting and leasing of recreational and sports goods	N 77.21 Renting and leasing of recreational and sports goods	x	x	x				Only for NACE 2-digits in total
	9200 Gambling and betting activities	R 92.00 Gambling and betting activities	x	x	x				Only for NACE 2-digits in total
	9311 Operation of sports facilities	R 93.11 Operation of sports facilities	x	x	x				Only for NACE 2-digits in total
	9319 Other sports activities	R 93.19 Other sports activities	x	x	x				Only for NACE 2-digits in total
	9321 Activities of amusement parks and theme parks	R 93.21 Activities of amusement parks and theme parks	x	x	x				Only for NACE 2-digits in total
	9329 Other amusement and recreation activities n.e.c.	R 93.29 Other amusement and recreation activities	x	x	x				Only for NACE 2-digits in total

Annex 2: Eurostat - energy, transport and environment indicators

Extended „Supply-Use-Tables“ (SUT) and Input-Output-Tables have been used to estimate **CO_2-emissions induced by the final use of products** within the EU-27 in 2011. Besides the CO_2 emitted by industries while processing products for final use, the estimates presented also take into account the CO_2 that is „embedded“ within the EU's imports; these emissions arise from the worldwide production chains of goods that are imported into the EU-27. CO_2-emissions that are embedded within products that are made in the EU but exported outside of the EU-27 are, in a similar vein, included in the accounts for non-EU Member States.

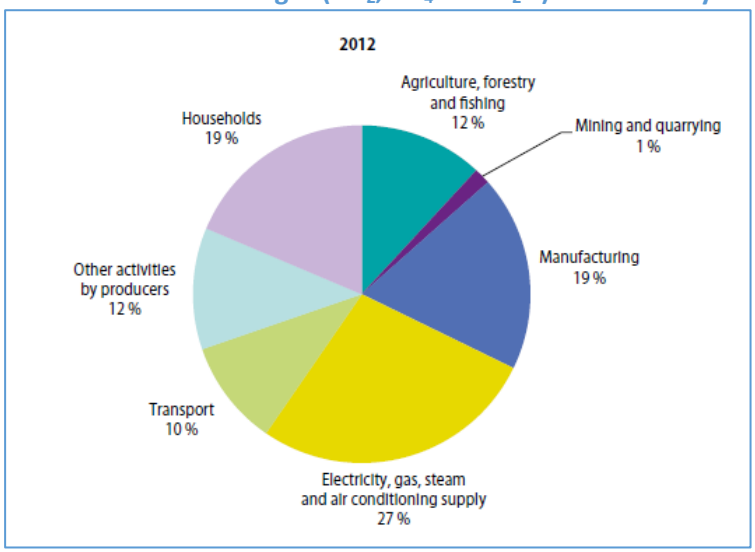
The EU-27 total of 7.8 tonnes of CO_2-emissions per inhabitant in 2011 was composed of **three main elements**:

- some 4.9 tonnes per inhabitant resulted from the consumption by households and governments of goods and services;
- a further 1.6 tonnes per inhabitant resulted from direct CO_2-emissions from private households in the EU-27 (for example, through the burning of fossil fuels for private vehicles or for heating);
- another 1.3 tonnes per inhabitant resulted from (production related to) fixed investments - also referred to as gross capital formation - in the EU-27 economy.

There was a slight reduction in CO_2-emissions per inhabitant in the EU-27 between 2009 and 2011, from an average of 8.0 tonnes to 7.8 tonnes per inhabitant. Direct CO_2-emissions from private households fell, on average, by 0.2 tonnes per inhabitant during this period.

The different product groups (of CPA 2008) and categories of final use are ranked according to their importance in the terms of their respective share of emissions: electricity, gas, steam and air-conditioning; constructions and construction works; food products, beverages and tobacco products; and coke and refined petroleum products ranked as the four product groups with the highest levels of emissions per inhabitant in 2011 as a result of their final use (see also Table 16).[36])

Table 16: Greenhouse gas (CO_2, CH_4 and N_2O) emissions by economic activity, EU-27, 2012



Source: Eurostat 2015, page 120; 2012: estimates.

[36] Eurostat, Energy, transport and environment indicators, 2015 edition, ISBN 978-92-79-49471-0, Luxembourg 2015, page 124 (http://ec.europa.eu/eurostat/documents/3217494/7052812/KS-DK-15-001-EN-N.pdf/eb9dc93d-8abe-4049-a901-1c7958005f5b).

Annex 3: „European Tourism Indicators System“ (ETIS)

Tourist destinations are increasingly being called upon to tackle social, cultural, economic, and environmental challenges. Because being able to measure their performance in relation to sustainability is essential, the European Commission has developed a „**European Tourism Indicators System**“ (ETIS). - ETIS is a **Europe-wide system suitable for all tourist destinations**, encouraging them to adopt a more intelligent approach to tourism planning. - It is

- a management tool, supporting destinations who want to take a sustainable approach to destination management;
- a monitoring system, easy to use for collecting data and detailed information and to let destinations monitor their performance from one year to another;
- an information tool (not a certification scheme), useful for policy makers, tourism enterprises and other stakeholders.[37])

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