



## Indicator-based Strategies for Sustainable Tourism Development

Authors: Johnsen, Julia, Bieger, Thomas, and Scherer, Roland

Source: Mountain Research and Development, 28(2) : 116-121

Published By: International Mountain Society

URL: <https://doi.org/10.1659/mrd.0973>

---

BioOne Complete ([complete.BioOne.org](https://complete.BioOne.org)) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](https://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Julia Johnsen  
Thomas Bieger  
Roland Scherer

# Indicator-based Strategies for Sustainable Tourism Development

## Insights from a Swiss Research Project

116

As globalization advances, Alpine regions, among others, are increasingly seen as competitive entities in Switzerland. Still, tourism development is often criticized as not being sustainable. The questions arise: How can the sustainability of tourism development be monitored? What indicators can be used to identify sustainable development? How can a strategy be developed to

integrate the outcomes of sustainability monitoring so that development is more sustainable? The goal of the research project described below was to develop indicators that can help those responsible in the various regions to shape tourism strategies in a more sustainable way. The indicators must be targeted to support regional management processes.

### The research project: a multipurpose monitoring system

#### Definition of sustainable tourism development

“Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled, while maintaining cultural integrity, essential ecological processes, biological diversity, and life support systems.” (WTTC/WTO/Earth Council 1996)

“Sustainable tourism” is not a new type of tourism; at its core, it is a management process (Box 1). For a region in the Swiss Alps, the important issue is to plan and shape tourism in such a way that the focus is not only on the economic implications of tourism but also on how it affects the inhabitants and the man-made and natural environment. The main goal of our research project was therefore to build an individually shaped monitoring system that can serve different purposes:

- *Monitoring*, ie to evaluate tourism and regional development with respect to sustainable development;
- *Management*, ie to guide development and control processes based on observed development trends;
- *Benchmarking*, ie to assess internal developments, processes, and products in comparison with other competitors such as neighboring areas or regions visited by the same guest segment. Here, it must be kept in mind that comparability between regions is limited;

- *Sustainability check*, ie to assess the internal development level with respect to sustainable development aspects, eg as part of a national sustainability strategy;
- *Inner motivation*, ie using understandable and meaningful indicators to initiate a discussion about long-term development expectations.

To build the indicator system, the project had 4 modules:

Desk research, with the aim of analyzing existing studies and monitoring systems to find the **normative framework for the indicator system** and **“basic indicators”** that can be used in all regions, mainly for benchmarking purposes and initial sustainability checks.

Case studies in 4 regions in Switzerland (Figure 1), including workshops with inhabitants and hearings with researchers from other institutions and countries, with the aim of finding a good methodology for analyzing tourism development (especially institutional, cultural, and social aspects, as well as integration of tourism in networks) and regional policy. The final results of this module consisted of a **set of “region-specific” indicators** that show the special situation of each region and can be used mainly for monitoring purposes.

Data collection, analysis, and synthesis of the basic and region-specific indicators to address the issue of which development paths can be detected in the regions and what can be learned for management purposes.

Modeling of the whole indicator system and transferring it to an Excel application that makes it manageable, and integrating the indicator system into a management model that uses the indicator system transparently in the different steps of a management process.

The focus of the present paper is on Modules 1 to 3; it concludes by presenting the results, using the indicator systems for the 4 case studies.

### Module 1: desk research

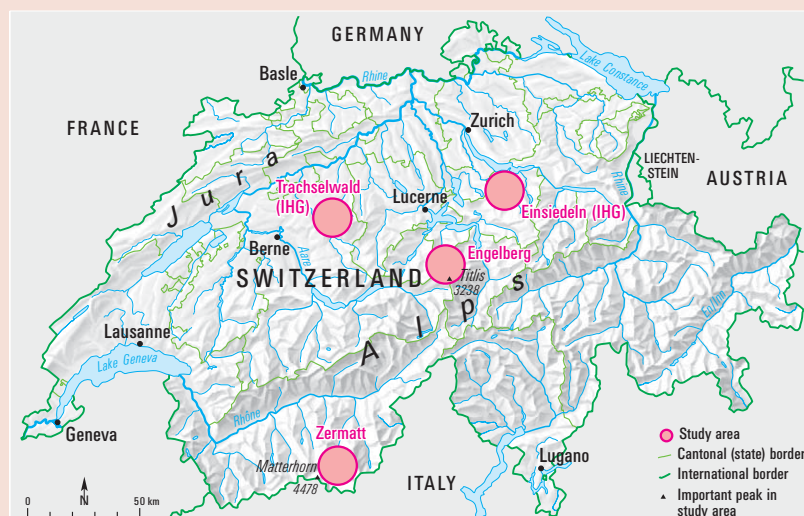
After analyzing existing monitoring systems from different institutions and authors (eg World Tourism Organization, Friends of Nature International, Destination 21, etc), we found that existing monitoring systems have some shortcomings: our main criticism is that most existing indicator systems focus on only one dimension of sustainability, eg either ecology or economy, and do not consider interdependencies between them. Also, the investigated indicator systems are not based on, or at least do not present, a clear normative framework. As most indicator systems are “stand-alone systems” that are not developed based on existing systems, they show a lack of compatibility and comparability with other regions’ indicator systems. This is mainly a problem for regions with benchmarking objectives. Another shortcoming of the systems is rooted in their development process: they lack a participatory process, which makes it difficult to find acceptance with regional actors.

We derived 3 main results from these shortcomings: First, a strong *framework* is needed to show how the term “sustainable tourism development” is understood. Second, the development of a monitoring system should be a *participatory process* that includes the target groups in the regions. Otherwise the system lacks acceptance. Third, only a *combination of qualitative and quantitative indicators* can show the whole picture of tourism development in a region.

#### Framework for sustainable tourism development

It is only possible to select indicators for sustainable tourism development if a comprehensible *frame of reference* is available. This frame of reference simultaneously demarcates the items being examined by the indicator system and links the indicator system to the international theoretical discussion about sustainable development.

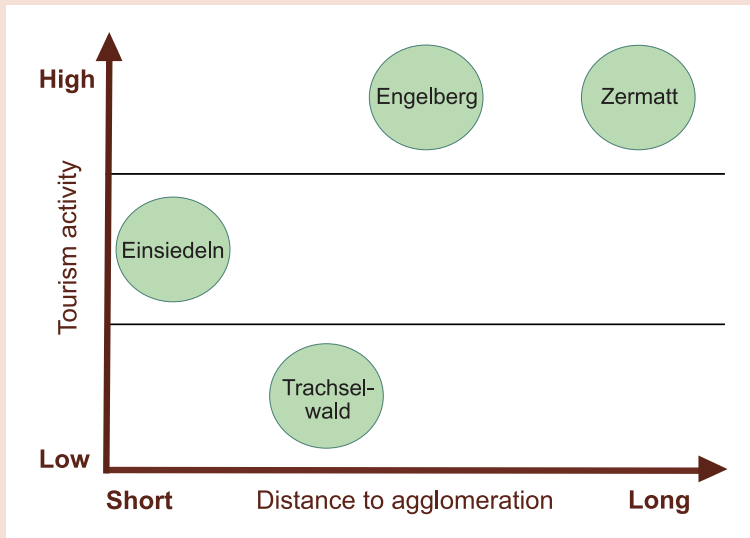
FIGURE 1 Location of the 4 study areas in Switzerland. (Map by Andreas Brodbeck)



The frame of reference for the indicator system developed by the research project follows traditional management theories, which distinguish between a *normative*, a *strategic* and an *operative* management level.

- *Normative goals* form the *framework of the indicator system*. These express which long-term development for Alpine tourism regions is generally preferable. As such they transform the different existing definitions of sustainable tourism into normative goals. They *focus* the monitoring system on *tourism, Alpine regions and sustainable development*, thus establishing its boundaries compared to other indicator systems for other topics. An example of a normative goal is: “Tourism helps to satisfy the needs of guests.”
- *Strategic goals* provide *direction to sustainable tourism development*. They include instructions on how the region should acquire key strategic resources or preserve them, which competitive strategies it wants to adopt, and how to bundle its energy and resources. An example of a strategic goal deduced from the above-mentioned normative goal regarding what is necessary to satisfy guests’ needs was: “The region offers up-to-date, innovative high quality along the whole value chain.”
- *Operative goals* lay out a concrete plan for implementing development strategies within the normative framework. They are based on literature review as

**FIGURE 2** Characterization of the 4 study areas. **Tourism intensity** is measured as the ratio of the total number of day visits and nights spent in a location by visitors compared to the number of days and nights spent in the location by the population. **Agglomeration proximity**, in turn, influences the region's economic sensitivity. Regions that are close to densely populated areas offer the population other types of economic activities and opportunities for work than tourism regions can.



well as on workshops with regional stakeholders. Discussion with the regional stakeholders also made it possible to integrate region-specific topics and problems in the operative goals. An example: “Tourism provides high-quality services for guests.”

### Module 2: case studies

In Module 2 a participatory approach was chosen to find out what currently exist-

**FIGURE 3** Engelberg: this beautiful setting is attracting amenity migrants from the Zurich metropolitan area. (Photo by Ch. Perret)



ing problems alpine regions are struggling with. This information was needed to identify region-specific indicators to grasp the whole situation of the regions and not only some details. The 4 pilot regions in Switzerland were part of the research project within the framework of the Swiss National Research Program 48 (NRP48). These regions were selected on the basis of 2 criteria, namely “tourism intensity” and “agglomeration proximity” (Figure 2).

### Pilot regions in Switzerland

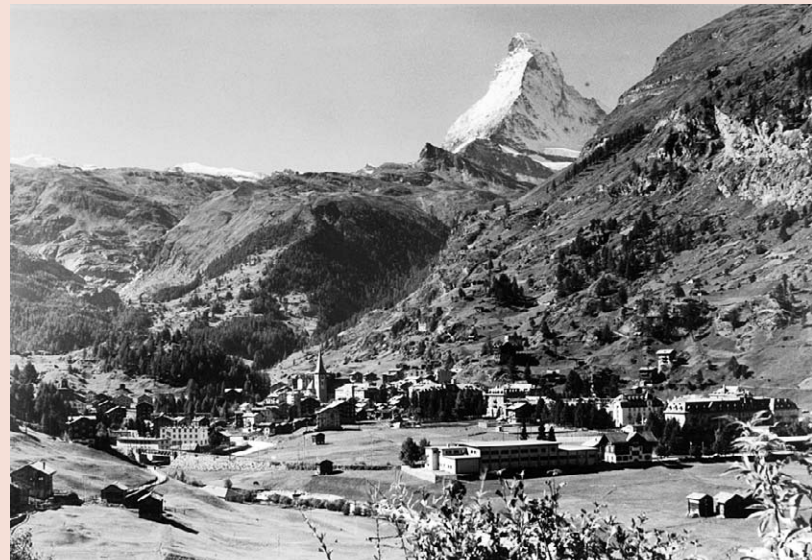
The four regions—Engelberg, Zermatt, Einsiedeln and Trachselwald—are characterized by their geographical setting and their specific problems.

- “To be successful as a hotelier you need more than twice as much initiative and personal activity compared to 10 years ago” (hotel manager, Engelberg): Engelberg is situated close to 3 important agglomerations in Switzerland: Lucerne, Berne, and Zurich. As such, its tourism structure is mainly influenced by a high number of day trippers, who account for more than 50% of all tourists in the region (Figure 3). Also, because of its geographical position Engelberg is characterized by a high quality of living, leading to inbound amenity migration and a boom in second home construction. This leads to a high volume of traffic, as well as a rising demand for building land. The main attraction of the region, Mount Titlis, is a top international site attracting global travellers.
- “Overcapacity in tourism infrastructure built for the winter months is the main problem of summer tourism, as it leads to hard price dumping” (hotel manager, Zermatt): Zermatt, one of the top Alpine tourism destinations in Switzerland, is situated in a peripheral region. It exhibits a high dependency on tourism development, as two thirds of all jobs are in the tourism sector. The construction of capacities for the winter months (infrastructure, hotel rooms, etc) is a major problem in Zermatt (Figure 4) during the summer months, as the cost of maintaining this infrastructure burden the region’s budget. The Matterhorn,

one of Switzerland's best-known mountains, is situated in the municipality of Zermatt and functions as a main attraction for the region.

- *"If we do not raise local people's awareness of the importance of tourism, we will never be successful"* (hotel manager, Einsiedeln): Einsiedeln is a region in the central part of Switzerland, mainly known for its large monastery. It was dominated by pilgrim tourism in recent decades. Due to an outdated hotel infrastructure, Einsiedeln lost many tourists in the last 30 years. Also, structural change, eg loss of agricultural activity, has affected the economic development of the region. Today, Einsiedeln is recognized as an attractive place to live, with good infrastructural links to Zurich and well-developed recreational areas for its inhabitants. (Figure 5)
- *"The gentle and sustainable tourism which we aim for does not bring high income at the moment. We need a new concept"* (hotel manager, Trachselwald): Trachselwald, a region in the Emmental, is situated close to the agglomeration of Berne, Switzerland's capital city. Its economy is still dominated by agriculture. The region represents 17 communes. It is a popular destination for day trippers. Overnight tourism makes only a limited economic contribution. The main problem of the region is structural change in agriculture and weak tourism infrastructure. (Figure 6)

Region-specific indicators must fulfill at least 3 main requirements to address the question of how sustainable tourism development is to be achieved: a) *Frame of reference*: first and foremost, an indicator must be relevant in relation to sustainable tourism development and regional development, ie to normative goals. b) *User-friendly/manageable*: the collected data must have appropriate information content and be meaningful for a phenomenon, must be linked to users' environment, be easy to understand and communicate, and be subject to political influence. c) *Objectivity and measurability*: the indicators must be logical and have a scientific foundation. A cross-section of indicators should also be



quantitatively measurable to identify progress over time. However, qualitative indicators should also be used where appropriate.

Development of the indicators followed a mixed top-down/bottom-up approach. In a first step, existing indicator systems were analyzed and the indicators used were tested with regard to fulfilling the above-mentioned principal requirements. In a second step, the chosen indicators were discussed with regional stakeholders in a participatory process to find out whether they fit the specific situation of Alpine regions. As all regions

**FIGURE 5** Einsiedeln: view of the Benedictine monastery founded in the 10th century—a major European pilgrimage center. (Source: www.randonneurs.ch)



**FIGURE 6** Trachselwald, a popular destination for 1-day outings from the Berne metropolitan area. (Photo courtesy of Region Trachselwald)

face different problems with regard to sustainable development of tourism, they all have different indicator needs. Based on these needs, additional region-specific indicators were developed that can be used in addition to the basic indicators derived from the literature in Module 1 (Table 1).

### Module 3: data collection, analysis, and synthesis

To collect the data, different sources were necessary: on the one hand, national and regional statistics were used. On the other, field research was necessary mainly for the qualitative indicators, using standardized surveys and interviews with inhabitants and lead persons in companies and institutions. While collecting the data we realized that it is useful for the regions to begin with a time-series of development over the last 5–10 years. This allows the region to gain an overview of real and not only perceived development. Also, the time-series can help a region to better formulate its own development goals. While analyzing the data and discussing the results with the regional stakeholders in the form of workshops in the regions, it became clear that the monitoring system developed could be used to perform different tasks in the management process:

- During the **agenda setting** phase the monitoring system supplies current data concerning the state of sustainability of tourism development.
- During the **visions and goals development** phase, the indicator system supplies a catalogue of applicable normative objectives for tourism development and offers the necessary indicators for monitoring achievement of these objectives. Region-specific objectives can be added in this phase.
- During **strategy development** an ex-ante project evaluation is possible by using project indicators.
- During **project implementation** the project indicators can be used for monitoring projects and measures.
- For measuring the **achievement of goals**, the indicator system supplies the possibility of a long-term benchmark if the dataset is updated on a regular basis.

### Analysis of basic and region-specific indicators

After collecting and analyzing the quantitative and qualitative data in the indicator system described above, we concluded that Swiss Alpine tourism regions devel-

TABLE 1 Examples of basic and region-specific indicators.

Strategic goal	Basic indicators (Module 1)	Additional region-specific indicators (Module 2)
“The region offers up-to-date, innovative high-quality products and services along the whole value chain.”	Quality of infrastructure (qualitative indicator)	Innovation potential of tourism (qualitative indicator)
	Quality of services (qualitative indicator)	Number of employees in certified companies (quantitative indicator)
	Number of tourism companies with quality-management systems (quantitative indicator)	Openness of population to tourists (qualitative indicator)
		Satisfaction with cultural choices (guests and inhabitants) (qualitative indicator)

oped differently during recent years, but overall development was more positive than assumed. The main driving forces of the different development paths were identified. One driving factor is structural change in agriculture, which makes it imperative for local people to search for employment in other sectors. Three pilot regions were successful in managing resistance to structural change, while others were not. Assuming that structural change will proceed in the coming years, a sharp decrease in employment in the farming sector will have to be absorbed.

Another important driving factor, especially for tourism regions, is the competitive position of tourism in the region. While some regions developed international attractions and brands, others degenerated into 1-day tourism destinations. Mainly the regions with an interna-

tionally competitive position, eg Zermatt and Engelberg, were able to make use of a strong international demand.

The third driving force, agglomeration proximity, is important because regions close to an agglomeration often positioned themselves as places of residence with a high quality of living. The other side of the coin in these regions is increasing traffic and the increasing price of real estate. Especially in Switzerland, where the individual cantons (states) are responsible for tax policy, tax rates might be interpreted as a fourth driving factor. A positive correlation between the tax rate for private persons and the immigration rate can be shown in the pilot regions. This driving factor is only valid for regions close to agglomerations that are already interesting housing areas due to this proximity.

#### ACKNOWLEDGMENTS

The results presented in this paper are part of a common research project in the framework of NFP48. The authors would like to thank all the stakeholders for their collaboration: Dr. Heinz Rütter, Dr. Ursula Rütter, Adrian Berwert, Anja Umbach-Daniel, Klaus-Dieter Schnell, and all the workshop participants in the pilot regions.

#### AUTHORS

**Julia Johnsen, Thomas Bieger, Roland Scherer**  
Institute for Public Services and Tourism, University of St Gallen, Dufourstrasse 40a, 9000 St Gallen, Switzerland.

julia.johnsen@unisg.ch; thomas.bieger@unisg.ch;  
roland.scherer@unisg.ch

*Julia Johnsen is a Research Fellow at the Institute for Public Services and Tourism. Her main research interests are regional sciences, regionally conscious behavior, branding of regions, and country-of-origin research.*

*Thomas Bieger is Director of the Institute for Public Services and Tourism and Professor of Business Studies at the University of St Gallen. His main research areas are services management and destination management.*

*Roland Scherer is Vice-Director of the Institute for Public Services and Tourism and a lecturer at the University of St Gallen. His main research interests are regional economics and regional governance.*

#### FURTHER READING

**Bätzing W.** 2002. Der Stellenwert des Tourismus in den Alpen und seine Bedeutung für eine nachhaltige Entwicklung des Alpenraumes. In: Luger K, Rest F, editors. *Der Alpentourismus. Entwicklungspotenziale im Spannungsfeld von Kultur, Ökonomie und Ökologie*. Innsbruck, Austria: StudienVerlag, pp 175–196.

**Bieger T.** 2001. Perspektiven der Tourismuspolitik in traditionellen alpinen Tourismusländern—Welche Aufgaben hat der Staat noch? In: Kreilkampf E, Pechlaner H, Steinecke A, editors. *Gemachter oder gelebter Tourismus? Destinationsmanagement und Tourismuspolitik*. Vienna, Austria: Linde, pp 11–40.

**Bieger T.** 2006. *Tourismuslehre—Ein Grundriss*. 2nd edition. Berne, Switzerland: Haupt UTB.

**Hassan S.** 2000. Determinants of market competitiveness in an environmentally sustainable tourism industry. *Journal of Travel Research* 38(3):239–245.

**Johnsen J, Umbach-Daniel A, Schnell KD.** 2003. Monitoring system for sustainable tourism in Swiss Alpine regions. *European Regional Science Association (ERSA) 2003 Congress, Jyväskylä*. Available at <http://www.ersa.org/ersaconfs/ersa03/cdrom/papers/271.pdf>; accessed on 7 February 2008.