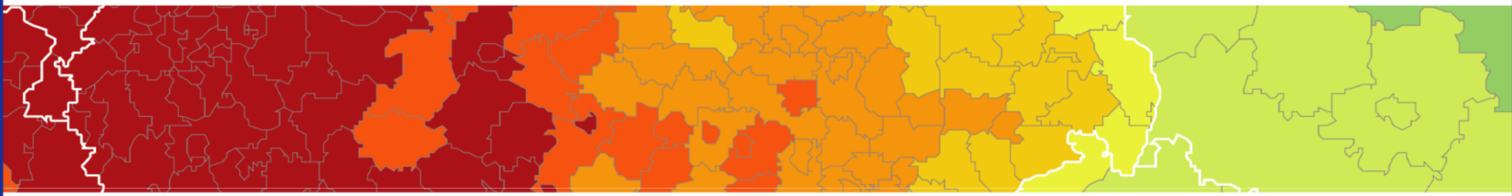
Co-financed by the European Regional Development Fund

Inspire policy making by territorial evidence



Carrying capacity methodology for tourism

Targeted Analysis

Synthesis Report

Synthesis Report

This targeted analysis activity is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

Authors
Bernd Schuh, Martyna Derszniak-Noirjean, Roland Gaugitsch, ÖIR GmbH (Austria)
Sabine Sedlacek, Christian Weismayer, Bozana Zekan, Ulrich Gunter, Daniel Dan, Lyndon Nixon Modul University Vienna GmbH (Austria)
Tanja Mihalič, Kir Kuščer, University of Ljubljana, School of Economics and Business (Slovenia)
Miša Novak, Miša Novak s.p. ALOHAS (Slovenia)

Case study authors
Bled: Miša Novak, Miša Novak s.p. ALOHAS (Slovenia)
Brežice: Kir Kuščer, University of Ljubljana, School of Economics and Business (Slovenia)
Divača: Tanja Mihalic, University of Ljubljana, School of Economics and Business (Slovenia)
Gorizia – Nova Gorica: Bozana Zekan, Christian Weismayer, Modul University Vienna GmbH (Austria)

Advisory Group
ESPON EGTC: Sandra Di Biaggio (Senior Project Expert – Policy Analysis and Project Development), György Alföldy (Financial Expert)

Information on ESPON and its projects can be found on www.espon.eu.

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This delivery exists only in an electronic version.

Contact: info@espon.eu

Synthesis Report

Carrying capacity methodology for tourism

Version 11/11/2020

Disclaimer:

This document is a final report.

The information contained herein is subject to change and does not commit the ESPON EGTC and the countries participating in the ESPON 2020 Co-operation Programme.

The final version of the report will be published as soon as approved.

Table of contents

List of Figures

1 Introduction to the project

The aim of the ESPON Targeted Analysis project “Carrying capacity methodology for tourism” was to develop a universal methodology for tourism destinations allowing them to measure their carrying capacity. The project is driven by destinations needs to accurately predict future tourism developments, identify the carrying capacity for tourism in their destination and to set up management concepts reacting to those thresholds and predicted developments. The challenge related to this is to ensure any methodology can adapt both to regions suffering from high tourism pressure with the need to reduce that pressure while still reaping the benefits of being a tourist destination, as well as to regions suffering from low tourist influx and wanting to expand in the sector.

Based on a review of existing methodologies and carrying capacity concepts, the project has developed a methodology fitting the needs of the project stakeholders. This methodology was tested in four case study destinations located in Slovenia (Bled, Brežice and Divača) and one in a cross-border destination of Nova Gorica/Gorizia at the Slovenian and Italian border.

The case study destinations’ preconditions for tourism, past developments and therefore also future challenges are diverse thus creating an ideal testing basis for the methodology. The appearance of the COVID19 crisis during the running time of the project allowed furthermore to test how such a methodology can adapt to strong external “shocks” which shift the situation for tourism in a destination considerably.

Final products of the project are a comprehensive handbook leading through the methodological steps to assess the carrying capacity of any destination, a supporting visualisation tool (dashboard) as well as territorial evidence on the impact of tourism in the case study regions (case study reports). Case study reports are accompanied by recommendations on managing tourism flows to ensure sustainable development of the region. Finally, the project team has investigated the requirements for rolling out this methodology to other destinations and which steps would be necessary to support them in the application.

2 The carrying capacity methodology

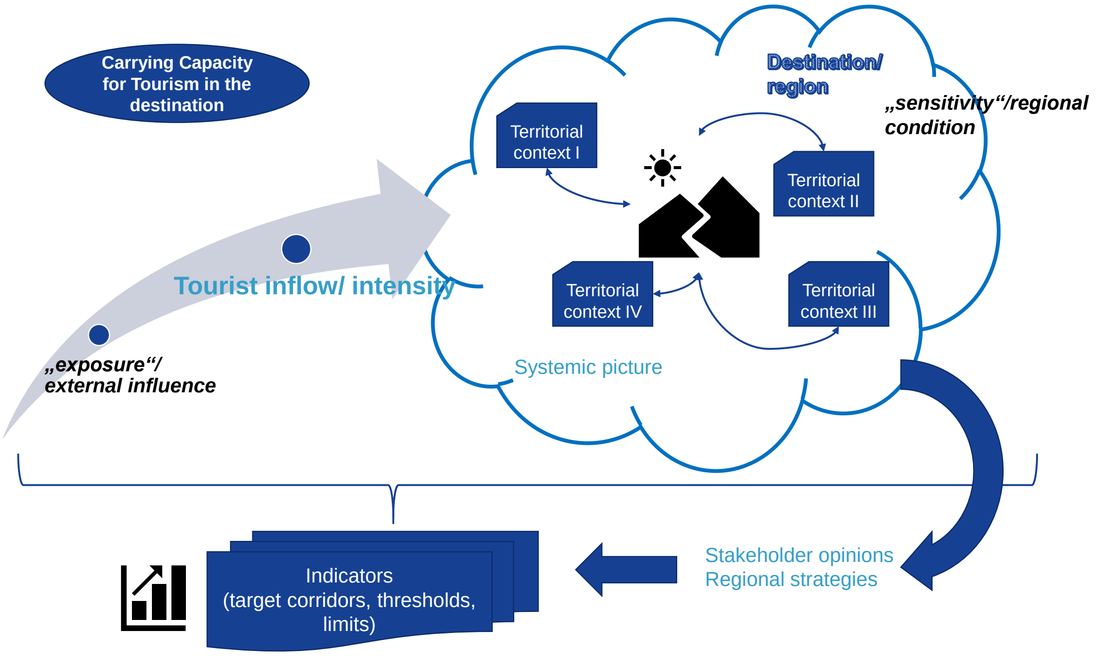
The development of the methodology in the project is rooted in the review of existing methodologies and their strengths and weaknesses. The review of the existing methodologies has shown that there is no single solution for assessing carrying capacity that would fit all destinations. As a conclusion of the reflection on existing methodologies, the project team deducted the following characteristics for the carrying capacity methodology developed:

- **There is no single denominator for carrying capacity –** a multitude of aspects in the socio-economic context of destinations are touched upon and carrying capacity is strongly related to the dimensions of sustainability and its conceptual components (i.e. economy, society and the environment). Still the challenge is to establish a causality between tourism as a sub-sector of the economy and spatial phenomena (flows and concentration) and all these multiple aspects.
- There is **no single way of capturing the carrying capacity** along the different dimensions (social, economic and environmental). The methodological approach meets this challenge by allowing for different ways to assess normative borders for carrying capacities.
- There is **no unified way to take territorial specifics of tourist destinations into account** when assessing their carrying capacity. Not only will carrying capacity be different in different regional circumstances, but there is also no one-size-fits-all approach for assessing carrying capacity of tourist destinations.

Thus, when capturing carrying capacities in tourism, multidimensional issues that depict territorial characteristics and external influences on this territory should consider:

- Tourism intensity and concentration in territorial terms and in time
- Tourism flows into and within the destination
- The consequences in terms of causal loops that refer to user conflicts and the opportunity costs connected to them – on the territorial conditions of the destination – economic, social and environmental.

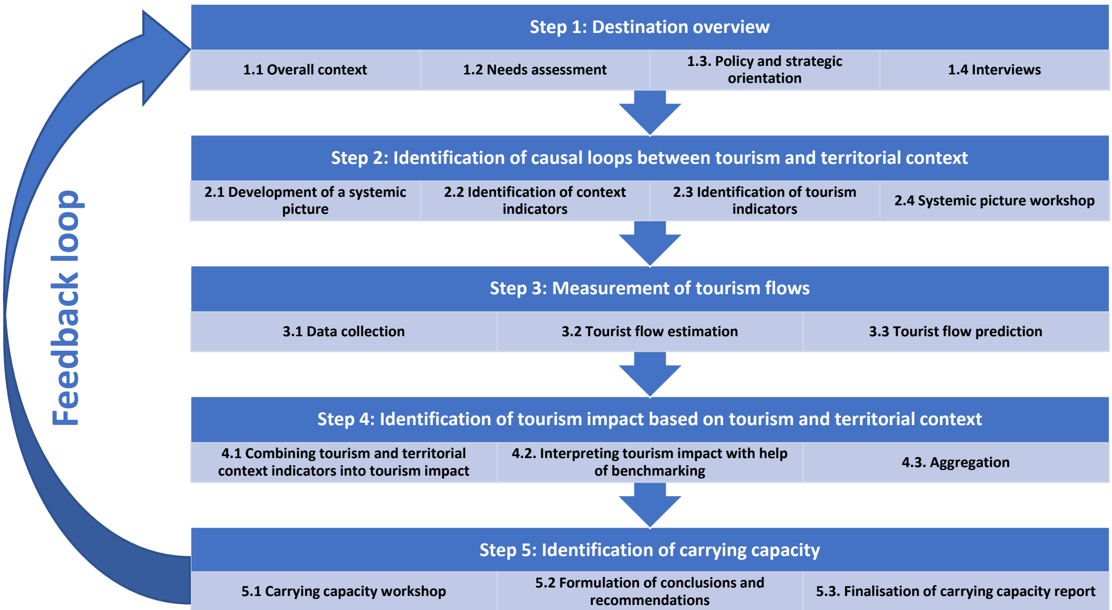
Figure 2.1: Background to the carrying capacity methodology.



Source: Consortium, 2020.

The figure above presents the described interrelations. The framework of the carrying capacity methodology implies a step-by-step approach. Each individual step can be considered as an individual vertebra, together forming a unified methodological backbone (*universal approach*). At the same time, the steps offer enough flexibility for adaptation to destination- or region-specific conditions and circumstances (*tailor-made approach*). Moreover, it is possible to further adapt in situations where an external shock such as the COVID-19 pandemic necessitates re-orientation and recovery (*resilience approach*). The methodology is an attractive tool as destinations and regions experience and learn about their carrying capacity based on their own destination- and region-specific understanding and knowledge. This case-specific knowledge is needed since there is no single universally accepted definition and measure of carrying capacity. The methodology has with this step-wise approach a strong process orientation. As a result, it is recommended to have the process accompanied by external moderation and expertise, which may open room for more productive reflection and decision making. Figure 2.2 summarizes the five steps of the methodology.

Figure 2.2: Carrying capacity methodology



Source: Consortium, 2020.

Step 1: Destination's overview

The destination- and region-specific conditions need to be evaluated carefully. In **Step 1,** the facilitator works closely with the regional stakeholders in the destinations with the aim of collecting information about the overall context **(Sub-step 1.1),** conducting a needs assessment **(Sub-step 1.2),** reporting about the policy and strategic orientation **(Sub-step 1.3),** and validating and complementing the findings in a round of telephone or face-to-face interviews **(Sub-step 1.4).**

Step 2: Identification of causal loops between tourism and the territorial context

Following the findings from the destination's overview, Step 2 focuses on defining causal loops and interlinkages between regional development aspects (such as the socio-economic and territorial situation) and the tourism situation of the destination. A systemic picture aims to visualise causal connections between tourism exposure and territorial context. In other words, it shall engage with the question: in which ways and how does tourism affect your region/ destination? Territorial context indicators (Sub-step 2.2) and tourism indicators (Sub-step 2.3) are selected based on the interlinkages depicted in the systemic picture. The systemic picture and indicator selection are validated in a systemic picture workshop with destination stakeholders (sub- Step 2.4).

Step 3: Measurement of tourism flows

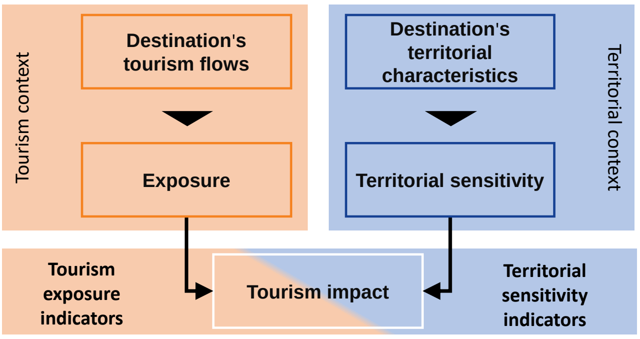
After the completion of Step 1 and 2, the measurement of tourism flows is based on the identified indicators and starts with data collection for the detailed destination analysis of tourism and territorial context. **Step 3** is structured along three Sub-steps, data collection **(Sub-step 3.1),** followed by tourist flow estimation **(Sub-step 3.2)** which allows to understand the tourism situation of the destination. Data used in the context of the project include both classical statistical- as well as big data such as Instagram-based data. The visualisation of this data helps to set the grounds for an accurate prediction of the study regions' tourist flows and to determine its development over time. After visualizing tourist flows in sub-step 3.2, the next **Sub-step 3.3** is dedicated to predicting tourist flows into the future. Based on the structure of the included variables, appropriate forecasting models need to be employed. The dashboard developed offers such R-based forecasting models, however individual approaches are possible as well.

Step 4: Identification of tourism impact based on tourism and territorial context

Step 4 provides an overview of the tourism impact based on examining the tourism effects in the territorial context. The key element of this Step is a combination of indicator pairs **(Sub-step 4.1)** (both statistical and big data) which depict both territorial and tourism contexts of the destinations. In the next step, the outcome of pairing indicators is benchmarked considering neighbouring territories to obtain a better understanding of the impact **(Sub-step 4.2).** The dashboard allows for conducting various types of pairwise indicator comparisons.

This methodology is based on a theoretical concept of tourism impact which is illustrated in Figure 2.3. The concept defines tourism impact as a cause-effect reaction of tourism exposure on the one hand and territorial sensitivity on the other hand. Tourism exposure is defined by tourist flows and territorial sensitivity by the destination's territorial characteristics.

Figure 2.3: A theoretical concept of tourism impact.



Source: Consortium, 2020.

In order to measure tourism impact, both types of indicators (tourism exposure indicators and territorial sensitivity indicators) need to be displayed against each other. Thus, the two aspects – tourism (1) and territorial context (2) – are regarded as two related dimensions to the concept of carrying capacity.

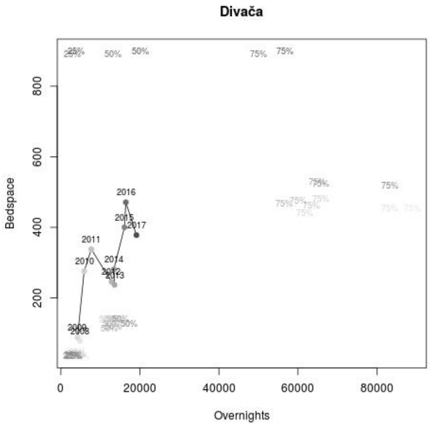
The selection of relevant indicators of both types is developed according to defined policy objectives and needs, based on the work conducted in Steps 1 and 2. This includes the stakeholders' greatest concerns when it comes to carrying capacity problems as derived from desk research, interviews and workshops.

In order to provide a context to the performance of the indicators and facilitate their interpretation, two visualization options are offered in the dashboard:

(a) This allows stakeholders to evaluate their destination's development in comparison with the quartile thresholds of all other destinations in the broader surrounding (e.g., LAU or any other local administrative unit can be selected depending on the data specifications in the dashboard) contained in the database over time. Quartile thresholds are calculated by ranking all destinations in the database, splitting all of them into four equal parts, and determining the cut-off values at the 25%, 50%, and 75% percentiles.

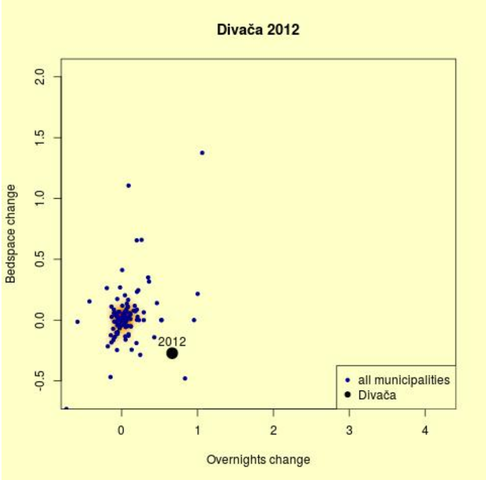
(b) The second type of visualization allows stakeholders to evaluate their destination in comparison with all other destinations in the broader surrounding (e.g., LAU or any other local administrative unit can be selected depending on the data specification in the dashboard) for a specific year and to have a look at this over several years. The plot shows the density of all other LAU regions' observations and highlights the destination under study. The user is able to browse through the years to observe the development of the specific destination.

Figure 2.4: Quartile-benchmarking example (Overnights/Bed places) for Divača



Source: Consortium 2020

Figure 2.5: LAU 2 benchmarking example (Overnights change/Bed places change) for Divača



Source: Consortium 2020

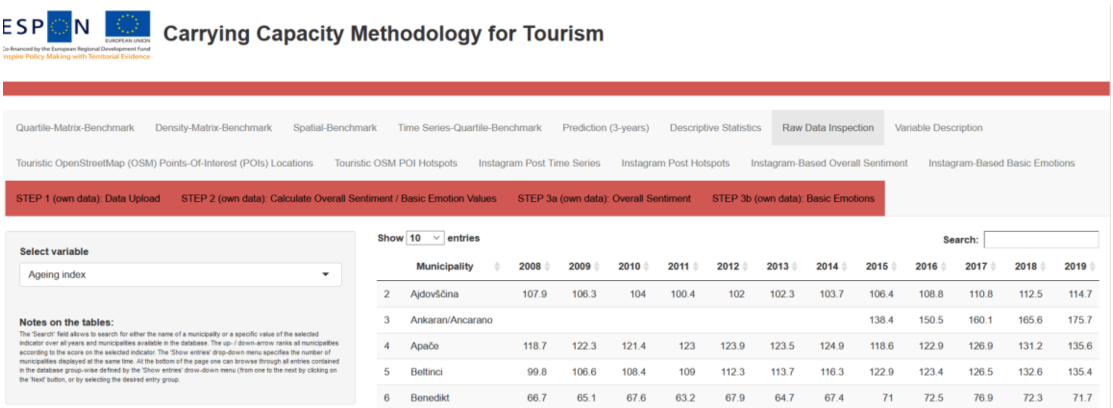
Step 5: Identification of carrying capacity

Step 5 focuses on interpreting the results from the application of the methodology in a particular destination and formulating concrete statements for stakeholders. The results of the applied methodology are be presented, discussed, and interpreted to provide statements on carrying capacity in the destination. In this step, it is necessary to jointly discuss the results of these matches against their historical development and benchmarking with other municipalities in order to deduce conclusions and policy recommendations. There are three Sub-steps foreseen: **Sub-step 5.1** is the organisation of the carrying capacity workshop, **Sub-step 5.2** formulation of conclusions and policy recommendations, and **Sub-step 5.3** is the finalisation of the carrying capacity report.

2.1 Dashboard and visualisations

Visualisations accompanying the methodological steps are developed in an open source Shiny dashboard which has to be understood as a supporting tool for step 3 and step 4 of the methodology and not as a stand-alone tool (see Figure 2.6). The dashboard[1] is R-based, which is an open source statistical program[2] offering rich packages, good visualization capabilities, and most importantly, statistical computations. The dashboard includes both statistical and big data collected for the case studies. New data can be entered into the dashboard in order to examine carrying capacities for other destinations along the developed methodology.

Figure 2.6: Insights into the dashboard



Source: Consortium 2020.

[1] Shiny from R Studio: https://shiny.rstudio.com/

[2] R project for statistical computing: https://www.r-project.org/

3 Overview of the case study results

The implementation of case studies has had a twofold purpose: 1) to pilot the application of the methodology and 2) to provide policy-recommendations for destination stakeholders. The experience gained during the implementation of the methodology allows to introduce necessary adjustments and improvements to the five steps. Case study work has resulted in recommendations on addressing carrying capacity problems in destinations. Some of these findings could be useful for other European destinations. In order to formulate such transferable recommendations, it is necessary to highlight that all four case studies have different types of carrying capacity problems. Therefore, they offer different categories of recommendations.

Destinations suffering from rapidly increasing numbers of tourists (based on Bled)

In many destinations, tourist numbers are growing rapidly which puts under pressure local infrastructures, environment and population. Based on the experience in Bled, such destinations should manage the flows of tourists in a way that leads to a more even distribution and mitigates their negative effects. As in the case of Bled, this could be done by increasing tourist interest in non-hotspot sites which should lead to a more symmetrical distribution of tourists. Moreover, sudden influx of tourists, especially linked to a high seasonality, can lead to a conflict with local populations. In such cases, it is vital to ensure the approval of locals by means of participative engagement into tourism activities and implementation of a common vision.

Destinations still defining their offer (based on Brežice)

There are many destinations which are experiencing mixed patterns of yet undefined tourism development. For example, the numbers of domestic tourists in Brežice are decreasing, while the numbers of international tourists are increasing. Many such destinations are receiving some interest but have not yet reached a critical mass to become a popular destination based on certain defined offer. The upside of such phenomenon is that, while increasing their tourism potential, such places have an opportunity to consciously steer their development as they proactively reach out to tourists based on the offer that they have defined. This contrasts somewhat with destinations such as Bled, which have been attracting tourists due to endogenous factors (such as natural sites like the Lake of Bled). Thus, Brežice has the opportunity to develop in a more controlled manner. As in case of Brežice, certain point of attraction, such as terme, can be used to promote the destination, highlighting its other attractions and emphasising the sustainable nature of their tourism offer.

However, despite efforts, such destinations may not be able to have a sufficient force. For this reason, they would benefit greatly from cooperation, professional branding and DMO support as well as from improving their socio-economic situation. In case of Brežice, the latter would mean measures to retain young people.

Destinations with underdeveloped potential (based on Divača)

Even more than destinations such as Brežice, there are destinations such as Divača which are even further from reaching critical mass. Divača is interested in increasing its touristic potential due to being in a close proximity to Skocjan Caves which is a touristic hotspot. However, in itself, the municipality has little involvement with tourism and is striving to become a destination. It could be perceived as entirely contrasting with destinations that suffer from over tourism, such as Bled. In cases such as Divača, cooperation, branding, DMO support and simultaneous improvement of socio-economic situation is even more significant than in the case of Brežice. Such activities can help destinations like Divača develop its offer and become attractive. In this context, particularly cooperation with neighbouring hotspots, such as Skocjan Caves, but also wider regions and other destinations may be particularly beneficial to direct flows of tourists. In order to attract these tourists, appropriate branding and offer development is necessary.

Cross-border destinations (based on Nova Gorica – Gorizia)

As Europe is a continent with many countries and many borders, cross-border cooperation is a very important cornerstone of not only the Cohesion Policy, but also individual development of countries and regions. Nova Gorica – Gorizia is an example of a place that has literally been divided and polarised by a border. Across European borders, there are many cross-border cities and regions with different historical and cultural heritage. They could be strengthened not only through socio-economic cooperation but also, and/or simultaneously, through cooperation on tourism. In such contexts, typical cross-border development projects may increase tourism offer as they work to reduce border effects and facilitate flows between borders. Thus, the specific tourism potential of such cooperation should be simultaneously explored. Cities and regions across borders would benefit from reflecting on how their cooperation and cross-border development would benefit from cross-border tourism. This consideration is valid also the other way around: how would the cross-border development benefit from cross-border development projects. As in other types of destinations, cooperation is vital.

4 Conclusions concerning understanding of carrying capacity

Specific case study recommendations were formulated for each case study destination and they are available in the case study reports. The work in the project allows to deduce additional types of recommendations that are transferable or applicable to all destinations. They concern different governance levels, often explicitly addressing a relationship and cooperation between them. Such general recommendations are described in sections below.

Carrying capacity as a fluid concept: the methodology was built on the assumption that carrying capacity is not a number that can be calculated. This assumption was tested and validated. Even if data would be available to calculate such number, it would not provide a sufficient picture of carrying capacity. This understanding can only be developed with involvement of inputs from local actors and stakeholders who are aware of issues relevant to carrying capacity in specific destinations. Any calculation should be analysed with such stakeholders in order to provide an interpretation in the light of carrying capacity for the destination.

The perception of a destination: a destination can be interpreted in various ways. A destination can be a sightseeing site, a town, a city, a park or an entire region. These, however, are likely connected. Tourists can be motivated to visit a city or a town due to a specific site however, while visiting this site, they will also benefit from attractions and infrastructure available in the town, city or even in the wider region. Thus, it is necessary to understand this multi-dimensional concept of a destination as well as interrelations between different territorial perceptions of a destination.

Understanding carrying capacity in tourism in a wider framework of regional development: the above recommendation is important as it highlights interrelations between different territorial entities and the flow and impact of tourists. In this context, it is important to emphasise also the strong relation between tourism and regional development. Tourism is linked with socio-economic situation in destinations. Both tourism and regional development impact and mutually reinforce each other. Socio-economic development can enhance tourism capacities and tourism offer, while the impact of tourism has important consequences for regional development and may require significant adjustments in development strategies. For example, local and regional authorities may have to react to impacts of tourism on the environment or on the conflicts with local population. At the same time, local and regional infrastructures may have to be adjusted in order to increase touristic attractiveness. This suggests that it is necessary to perceive tourism development and destination management in connection with regional development.

4.1 Conclusions concerning the application of the methodology

The necessary involvement of stakeholders: the five steps of the methodology foresee the involvement of local stakeholders at different points. Piloting the application of the methodology has confirmed that their presence is very important as their understanding of destinations cannot be substituted by desk research. Local stakeholders are relevant both for purposes of providing inputs for understanding the issues concerning carrying capacity as well as for interpreting statements about carrying capacity. The application of the methodology should comply with the participative approach embraced as it has proved to be very beneficial.

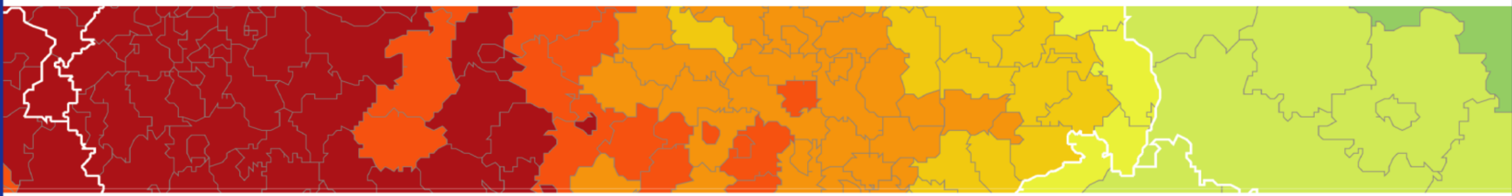
Carrying capacity methodology as process-oriented: the methodology consists of a set of logically connected steps. The application of a methodology is a process that gradually explores and reveals certain issues about the tourism development in a destination. Even though the final outcome provides valuable information and guidance, both experts and stakeholders gain important knowledge at every step through exchange of information and perspectives. Through this cooperation and the participative process, particularly local stakeholders gain new perspectives, and skills while, at the same time, developing the ownership over the process and the results.

The differentiation between needs/actions and recommendations: Step 5 has been designed to develop different types of policy statements. Each need, which reflects the work in early steps, is complemented by respective examples of action. These are complemented by policy recommendations. The differentiation between specific actions and more general policy recommendations is not only of a pragmatic character as it captures more specific, hands-on perspective and a more general policy orientation. It also provides inputs for different governance levels were actions are relevant for local stakeholders while the addressees of policy recommendations are regional and local authorities.

4.1.1 Conclusions and recommendations concerning data

Indicators are means not ends: the review of different methodologies has exposed a strong orientation towards indicators. However, without a methodology and a specific application idea, indicators alone cannot provide appropriate statements about carrying capacity. A disadvantage of many existing methodologies is that they offer indicators which are either not measurable or not realistically applied and monitored by authorities. This significantly lowers their usability and application in reality. Thus, while also basing on indicators, the approach here has been focused on selecting measurable indicators and outlining how to use them. What follows, next to their relevance for capturing carrying capacity, another basic requirement for such indicators was their measurability. This should result in a more practical and applicable methodology.

The importance of data collection and monitoring: as in many other contexts, the importance of consistent data collection at relevant territorial levels cannot be overstated. Indicator data can only be used for providing information when it is available and monitored. It is a basis for quantitative calculations and information that is a cornerstone of any methodology. Monitoring systems can provide not only statements about carrying capacity situation but also allow for their constant monitoring and provide the possibility of a relatively swift reaction and adjustment to changing situations. For this purpose, it is recommended that authorities at any levels work closely with statistical offices to facilitate and to mainstream the processes of data collection and monitoring.



ESPON 2020 – More information

ESPON EGTC
4 rue Erasme, L-1468 Luxembourg - Grand Duchy of Luxembourg
Phone: +352 20 600 280
Email: **info@espon.eu**
www.espon.eu, **Twitter**, **LinkedIn**, **YouTube**

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.