Measuring Sustainability of a Tourist Destination: Applying the Delphi Method to Build a System of Indicators

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Abstract

Today, measuring sustainability level of a tourist destination is one of the main obstacles to achieve sustainable tourism (Zamfir & Corbos, 2015). Indeed, sustainability assessment remains a difficult task because of subjectivity unavoidable in this process (McKercher, Mak, & Wong, 2014). Moreover, destination stakeholders' find the scientific methods very sophisticated and often incomprehensible. In this context, it is necessary to develop new instruments theoretically solid and feasible to measure the sustainable development of a tourist destination. Indeed, identification and measurement are the main unresolved problems of sustainable development because of the difficulties arising from the ill-defined nature of sustainability concept and the diversity of tourism stakeholders in a tourist destination (Farsari & Butler, 2007). The conflict of interest of stakeholders and the simplicity induced by this approach can cut the role of indicators to marketing argument without impacting the sustainability of the destination (Rajaonson and Tanguay, 2010). As a result, the Delphi method is an alternative approach that fills the inadequacies of the two previous approaches. It involves submitting indicators from the consensual policy process to scientist's evaluation to assess their relevance and applicability. The present paper proposes an alternative method of measuring sustainability of a destination; it presents the results of a Delphi survey conducted at local level of destination to measure the tourism transition towards sustainability. The results of these expert surveys highlight the list of indicators used for sustainable development monitoring; it is both recognized by the experts and acceptable destination's stakeholders.

Keywords: Indicators; Sustainability; Tourist destination; Delphi method

1. Introduction

Today, it is widely recognized that competitiveness is a priority of destination and its long run success (ECORYS, 2009; World Economic Forum, 2013). It has received a great attention in public policies and from scientist; it is a primary aim for public managers (Navarro Jurado et al., 2012). However, making tourism sustainable is often a slogan more than a specific goal, mainly because of the imprecise nature of sustainability concept. In fact, this vagueness is the main reason for the spread and general acceptance of the term, but also accounts for its rhetorical use and erosion of its meaning (Torres-Delgado & Palomeque, 2014).

Obviously, Sustainable tourism is a dominant topic in the tourism discipline despite the lack of understanding and the vagueness surrounding sustainability concept. The problem is more persistent when it comes to measuring the sustainable development of tourism

Indeed, competitiveness concept of a destination allows developing instruments that transform it from an abstract notion into a practical tool to achieve sustainability in a destination. This step should allow tourism sustainability to go from being a broad spectrum theory to an achievable reality adapted to specific circumstances of each destination..

Thereby, various metric systems have been proposed to measure sustainability with several limitations in application. Scientific method are more relevant but complex to be applied by destination's stakeholders, however, political method is likely to create a conflict of interests between them (Tanguay, Rajaonson, Lefebvre, & Lanoie, 2010) and is often associated with blockage and distortion sustainability' concept.

The present paper aims to shed light on measuring sustainability of a tourism destination at local level, using DELPHI method to build a highly useful indicator system for destination managers and other stakeholders. Its main purpose is to discuss the lack of a tool to measure the sustainability in tourim; it proposes to set up an observation system that uses indicators..

2. Literature review

(Choi & Sirakaya, 2006) point out that setting up system indicators has many advantages. It prove a trust relationship with tourism stakeholders by providing them knowledge and information about destination. However, indicators' creation is a questionable process because of it subjectivity. Indeed, selections of indicators, interpretation or implementation generate a choice-based subjectivity. The development of sustainability is a particular challenge for scientists and governments alike, because the development of sustainability indicators is a process of both 'knowledge production' and 'policy making' in the same time (Rametsteiner, Pülzl, Alkan-Olsson, & Frederiksen, 2011).

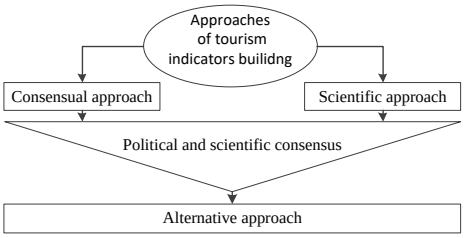

Figure: Approaches of tourism indicators building

Source: By authors

The scientific approach of constructing indicators aims to develop scientific tools and direct measurements but it still difficult to interpret by the other stakeholders and who are not experts in tourism like local elected and residents. Despite the relevance of this approach, it is rarely appropriate by the different stakeholders of the destination given to its complexity (Shields, Šolar, & Martin, 2002).

Indeed, the effective measurement of sustainability is able to harmonize between two approaches: First, the scientific approach that consists in developing sophisticated scientific tools, difficult to interpret and rarely appropriated by tourism stakeholders (Shield et al., 2002) and second, the easy consensual approach that proposes a scientifically questionable indicators but widely recognized.

Table: Approaches of tourism indicators construction

Approach	**Description**	**Advantages**	**Disadvantages**
Scientific approach	Development of complex and purely scientific indicators	Relevance of the content and validity of results	Lack of legitimacy among stakeholders. Difficulty of interpretation and implementation
Consensual approach	Consensual choice of indicators as a result of a dialogue between stakeholders	Ease of application and legitimacy of decision-making	Lack of coherence as a result of interest's conflict between stakeholders.
Alternative approach	validation of indicators by experts and scientists	Production of scientific and legitimate knowledge. Intelligibility by stakeholders	Long and selective process.

Source: by authors

In the consensual Approach, There is a political consensus among stakeholders regarding what is important for a destination; Consultation on the sustainability and

competitiveness of the tourist destination can lead to the development of a set of indicators that can be scientifically questionable but widely recognized and supported by stakeholders.

Indeed, a new alternative approach has developed to fill up the inadequacies of the two previous approaches and benefiting from their advantages; it consists in submitting synthetic indicators resulting from the consensual and concerted process to expert's examination to assess their relevance and applicability. Thus, the chosen indicators will be the subject of a compromise between politics and science. The combination of scientific validity and collective ownership makes the development of indicators a process of knowledge production about the destination (Rametsteiner et al, 2011).

3. Methodology

Sustainable tourism concept is often confused by the wide range of implementation methods and tools; transition from concept to tools is the source of contradiction and misunderstanding around the sustainability' concept.

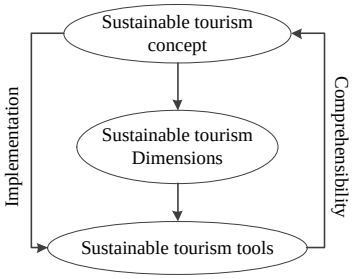

Figure: Transition between sustainable tourism concept and tools

Source : By authors

The methodology of this research combines two approaches: first, conceptual and phenomenological research, and second, applied research. Its starts with a literature review on sustainable tourism and instruments for its quantification like indicator systems. Theoretical and operational frameworks provide a range of indicator system for measuring tourism sustainability at the local level.

The systemic review of tourism sustainability indicators enables us to define a list of indicators adapted to the context of local tourism. Thus, literature review extracts some sustainability indicators that we submit for validation by the experts. The diagram below describes the methodology pursued in the present research.

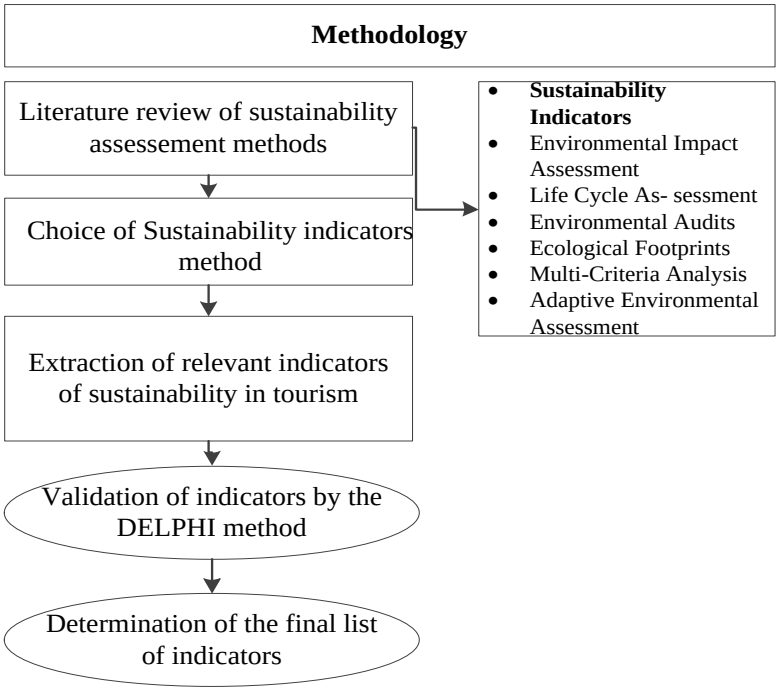

Figure: Methodology of present research. **Source:** by author

The first step in building the indicator system of sustainable tourism was to collect a set of indicators and set up a first selection to assess impact of tourism in a quantitative way. It started by establishing a long first list of simple indicators based on extensive literature research and empirical studies on this topic. By applying several criteria (table below), the first list contains 20 key indicators that were considered by expert as optimal and sufficient to tourism sustainability in a local destination.

To select the panel of experts, we are based on specialization in issues related to the sustainable development of tourism (ranging from ecology to competitiveness and sociology) and in-depth knowledge of the subject under study. Panel was included university researchers, elected representatives of municipalities, regional government institutions and private companies.

Table: Criteria of indicators selection

Evaluation criteria	Signification
Relevance	Indicator is applicable to tourism
Consistency	Indicator can give complete information
Availability	Indicator data is available
Reliability	Indicator is reliable; operate without failure under specific

	conditions.
Communicativeness	Indicator is understandable
Usefulness	Indicator can provide useful information
Simplicity	Indicator can be easily built
Comparability	Indicator allows temporal and spatial comparability
Adaptability	Indicator is adaptable according to the level of analysis (national, regional and local)

Source: By authors

Indicator validation is the result of a two-cycle Delphi survey, leading to expert advice on developing indicators to measure transition from destination to sustainability.

4. Results

The scientific verification and validation process resulted in an improved proposal: a system of final indicators including 26 indicators (see table below). The next step was to consolidate the effectiveness and utility of obtained indicators system to study sustainability of tourism at local level.

Table: Most relevant indicators of destination sustainability

Indicators	Strength of the indicator (frequency / average)
Commitment to the local community	0,02795181
Competition and conflict between tourists and residents for services, facilities and recreation available	0,02746988
Trust and mutual respect	0,0260241
Maximize social and economic benefits for the local community	0,02506024
Habitat destruction, the direct impact of fauna and flora	0,02506024
Gender equity	0,02409639
Environmental awareness	0,02409639
Artificialization of the natural environment	0,02409639
Accessibility Management	0,02361446
% of residents who believe that sustainable tourism is beneficial to the community	0,02361446
Percentage of tourism enterprises separating different types of waste	0,02361446
Sensitivity to local values	0,02361446
Responsible purchasing policy	0,02313253
Appropriation of eco-sustainable technology	0,02313253
Continuing traditional activities by local residents	0,02313253
Availability of the fund and the maintenance resource of the	0,02313253

cultural site	
% of residents who believe they benefit from tourism	0,02216867
Local ecological footprint	0,02168675
The risks of excessive marketing of heritage and culture	0,02120482
Walkabilité	0,02072289

Source: By authors

The results of the Delphi study showed the 20 most relevant indicators to assess the sustainable development of a destination; this number of indicators is the object of consensus among experts as sufficient to measure sustainability. The first results show that most of the indicators emerged from this study that has a social aspect. Indeed, the human side is more important in the tourist experience at the local level. The experts consider that the social side is the most primordial for sustainable development of the destination. This finding joins the literature dealing with local destinations (Campón-Cerro, Hernández-Mogollón, & Alves, 2017; Maxim, 2015; Pupphachai & Zuidema, 2017)

5. Discussion

Firstly, the literature review on the evaluation of tourism sustainability allows to explore the different methods used which are often a complex scientific methods and mostly unintelligible to stakeholders. Only the indicators method allows more adaptability, flexibility and implementation.

The literature review and tourism indicator studies allow us to collect more than 80 indicators that are often used. Subsequently these indicators are submitted and evaluated by a group of experts in tourism field and validated by another group of experts in the second round.

On account of the small size of the destination, the group of experts agreed on the number of indicators useful for at local level, which is between 18 and 22. This approach allows us to have finally a list of 20 indicators ready for use. As a result of this procedure, 20 frequent indicators are identified and received a higher score than others. The score is obtained from the aforementioned evaluation criteria; the weight of each criteria is determined by the experts based on a survey.

Indeed, the first remark concerning the list of indicators: It shows the dominance of the social aspect and the minority of the economic aspect. Indeed, the list of selected indicators shows that the social aspect is more obvious. The social aspect is present in 75% of indicators, whereas the economic aspect is almost absent and represents only 5%. Indeed, social aspect of tourism sustainability is the prime concern of small destinations.

The concern by the social side shows that the sustainable development of the destination is dependent on its social development. As a result, the economic

component of sustainability must contribute to social development of community. However, the ecological component is almost unrepresented in the monitoring of the sustainability of the destination. The results show that small destinations are rarely concerned about respect for the environment. This finding supports several studies on local tourism (Blangy, 2008; Pomeanu, 2017)

6. Conclusion

Without indicators and other monitoring tools, sustainable tourism stills a meaningless concept or an advertising slogan. Assessment of tourism sustainability gives more information about the impacts of tourism and determines its acceptability by stakeholders (see McCool, Moisey, & Nickerson, 2001). Today there is a multitude of methods to assess destination's sustainability; the most used is the method of indicators used in this study. Indeed, the indicator method has the advantages of rigor and political acceptance that allows an ease of implementation. Delphi method is more convenient to create a dashboard of destination's sustainability.

From a list of 85 indicators used in the literature and previous studies, a list of 20 indicators is derived from the Delphi method and ready for implementation. They constitute the monitoring tools and dashboard of sustainable tourism in small destination.

At local level, the selected indicators are dominated by the social aspect and insensitive to the economic aspect. Indeed, the list of experts has dominated by the social aspect because of the size of the destination and its socio-economic fragility. Consequently, when the standard of living of the residents is low, tourism is perceived as a source of income for the host community more than a protection factor of the environment.

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