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**Abstract:** The sustainability of a territory is a key element for tourism activity and its survival as a tourist destination. The aim of this paper is to provide a method for measuring the sustainability of a tourist destination from the perspective of several stakeholders. Therefore, the method incorporates the opinions of several stakeholders regarding the importance of indicators to measure the dual weak-strong sustainability of a tourist destination. In addition, the method uses a combination of the ´bottom-up´ and ´top-down´ approaches. The indicators obtained can be used to measure the sustainability of the tourist destination through the opinions of the stakeholders, and to also provide the priority lines of action that help to take strategic decisions.

**Keywords:** Sustainability; stakeholders; participation; tourist destination; multi-criteria analysis.

## 1. INTRODUCTION

Tourist destinations are facing an increasingly competitive environment and therefore there is a growingly intense need to offer visitors a compelling experience (Murray et al., 2016). In this regard, sustainability is essential in order for a tourist destination to be able to cope with competition (Angelkovaa et al, 2012, Richie and Crouch, 2003, Cucculelli and Goffi, 2016) and, in order to understand tourism phenomena, a useful approach is to focus on tourism destinations (Wanga et al, 2014).

A tourist destination is a very dynamic and complex system. Firstly, because it encompasses many interdependent components of interconnected economic, social and environmental factors, all of which have deep links to one another (Schianetz et al., 2009); and secondly, because they involve a wide range of interest groups, each of which has different management goals which could trigger unforeseen conflicts between the stakeholders.

The importance of involving stakeholders in the sustainability of tourism destinations is increasingly acknowledged and recommended in both academia and in practice (Waligo et. al. 2015). This assessment derives from the nature of tourism destinations as networks of interdependent stakeholders (Cooper, Scott & Baggio, 2009). There are several tourism studies that involve the identification and analysis of the stakeholders in the development of sustainable tourism (Aas et al., 2005, Byrd, 2007, Hardy and Beeton, 2002). Tourism literature refers to the different types of stakeholders (Baggio et al, 2010; Getz & Timur, 2005), which are grouped into six general categories: tourists, companies, local community, government, special interest groups and educational institutions. According to Kotler et al. 2003, one of the characteristics of the type of groups are variables such as size and shared interests.

Despite growing interest from stakeholders, their effective participation is complex, problematic and often underestimated (Friedman and Miles, 2006). According to several authors, collaboration is difficult due to the existence of multiple and different stakeholders who normally have different perspectives. In addition, they need the chance to discuss issues that influence their quality of life, and they need to be sufficiently trained to do so (Norton, 2005; Wall & Mathieson, 2006). The theory of stakeholders indicates that all the groups involved must participate in the entire tourism development process.

While not all the interested parties need to participate on an equal basis in the decision making process, it is necessary to identify as many as possible, and ensure that their interests are heard (Donaldson & Preston 1995).

It is clear that one of the crucial criteria of sustainability is participation in society. The analysis of sustainability and its indicators is increasingly linked to the participation of the local population (Perez et al., 2017, Fraser *et al*., 2006; Rosenström and Kyllönen, 2007). Singh et al. (2009, p.192) propose two approaches for defining and developing sustainable development indicators: (1) the ´top-down´ approach, where the opinion of experts and researchers is used to design the framework and selection process, and (2) the ´bottom-up´ approach which involves the different stakeholders in the creation of the method and is based on the participative philosophy generally accepted among post-positivist studies. However, as several authors mention (Castro, 2004; Ayres et al., 2010), in order for the indicators to have a real value, there needs to be a scientific model in order to make the concept of sustainable development possible, and in order to clarify which and define the class of indicators to use. The ´bottom-up´ approach is focused on the priorities defined by the stakeholders and tries to engage with and understand multiple perspectives (Pain, 2004). We can also look at the study of Pérez et al 2017 which uses the opinions of stakeholders in the destination in order to choose the indicators and to measure the degree of sustainability.

Measuring sustainability is complex due to the different interpretations, some of which contradict one another. Saarinen (2006) proposes three approaches for interpreting sustainability and adds that there is no such thing as unlimited sustainability: (1) The Resource-Based Tradition, (2) The Activity-Based Tradition, and (3) The Community-Based Tradition. The community based tradition is aimed at involving communities and other stakeholders in the development and management of tourism, therefore, the communities must have control over the uses and benefits of the (shared) resources that are used in the sector and it determines the limits; it is based on constructivism and is linked to information, knowledge and relations to power. The measurement and understanding of the attitudes of the residents in the tourist community have been priorities since the start of the 1980´s, but few studies have investigated the attitudes of residents to tourism within a framework of sustainability. Choi and Murray 2010 have shown that three components of sustainability can be important when it comes to understanding the perception of residents. Firstly, residents see tourism as a crucial economic activity and want to participate in decision making. Secondly, most residents

fully understand the value of protecting the environment, defending proper standards and regulations and creating a positive environmental ethics. Lastly, long-term planning could be the key to the success of sustainable tourism in the community, by alleviating negative impacts and strengthening the positive ones.

In accordance with Buhalis 1999, the policies should be developed via associations between the public and private sectors and just by investigating the multiple stakeholders, and using a wide range of multidisciplinary tools, it is possible to evaluate the real impact caused by the different activities carried out in tourist destinations. Specialist literature has also studied the governance of destinations, since they need all the stakeholders to share common objectives in order to obtain a competitive advantage over others (Go and Govers, 2000, Beaumont and Dregde. 2010, Bramwell and Lane,2011), 2001, Pulido and Pulido, 2016). The governance offers the opportunities to enhace the participation of the different stakeholders (Beaumont and Dredge, 2010; Beritelli, Bieger, and Laesser, 2007; Gill and Willian, 2011; Moscardo, 2011). It can offer a useful method to tourist destination planning and management, whereby different stakeholders interact in order to solve problems (Bramwell and Lane, 2011; Dinica, 2009; Caffyn, and Jobbins, 2003). According to Bramwell and Lane 2011 governance is a key requirement for implementing sustainable tourism.

The benefits of the participative and collaborative approaches for tourism planning have been extensively acknowledged in tourism research. They involve issues such as: helping to prevent adversarial conflicts, increasing the political legitimacy of planning, improving the coordination of policies, including the social, environmental and economic impact of tourism; “adding value” through the use of knowledge and the capacities of the stakeholders (Bramwell and Sharman, 1999, Schianetz et al, 2009). Therefore, it is necessary to establish mechanisms that link the participation of the stakeholders in the planning process to the sustainable tourism practices and to investigate the nature and applicability of such mechanisms (Hatipoglu et al, 2016).

In view of all this, many authors consider that multicriteria methods are useful in order to consider the contradictions that are implicit to the very concept of sustainability (Ruiz et al., 2011, Pérez et al, 2017, Schianetz et al., 2007). To that end, multicriteria social assessment is a suitable methodological tool in order to tackle this problem (Munda, 2004). The multicriteria social decision involves the aggregation of preferences of a series of decision makers, in order to obtain the group preferences. In scientific literature, it is possible to find multiple examples of the application of a multicriteria

methodology to problems linked to sustainability (Ginevicius and Podvezko, 2009) and multicriteria analysis for the aggregation of indicators (Ruiz et al, 2011, Pérez et al, 2017).

The aim of this study is to contribute a method that measures the degree of sustainability of the tourist destination, with a dual vision, strong and weak, viewed from the perspective of the different stakeholders. The scientific method proposed in this research study combines different aspects of multicriteria methodologies (Ruiz et al, 2011; Cabello et al., 2014) with an innovative characteristic. It is based on aggregate indicators with a synthetic approach, with a dual vision of sustainable development (weak-strong). The literature provides two views on sustainability: (1) weak sustainability, in which environmental capital may be replaced by other forms of capital, because natural resources have a market value (neoclassical eco-nomics); and (2) strong sustainability, in which natural capital must not be diminished, as environmental capital cannot be replaced with any other form of capital (ecological economics) (Singh et al., 2009). Therefore, the result of our analysis is a weak indicator, which measures sustainability aggregate, thus enabling compensation through different indicators, and a strong indicator, which measures the state of the worst of the weighted indicators, that is, it does not enable compensation. Furthermore, two reference points are incorporated: the reservation level (the level considered acceptable, that is, the values under the reservation level are unacceptable) and the aspiration level (the level deemed to be desirable or a target for each indicator). That results in the use of the achievement function (Wierzbicki, 1980) as the main mathematical tool that measures the proximity to the reference levels and it also involves a diagram for the standardisation of the indicators. According to Jacobs, ((1997, p. 181) "it is possible to quantify the concept of sustainability by adopting limits or targets for key indicators. Uncertainty means that in many cases it is perhaps not possible to establish these sustainability targets with great precision or confidence, but in most situations it is preferable to establish some kind of target rather than setting none at all".

The innovation of the method is the combination of the ´bottom up´ and ´top down´ approaches which can be used to analyse the overall sustainability of the destination of several stakeholders involved, as well as the sustainability of each aspect taken in isolation. This approach could be crucial when it comes to designing and evaluating public sustainability policies as it makes it possible to identify the priority lines of action, determined by the overall opinion of the stakeholders. In addition, it not only makes it possible to see the overall sustainability level perceived by the stakeholders, but

rather, it also enables the classification of municipalities and makes it possible to easily find the weak points of each of them. That makes it an important management tool for possible decision making processes and it serves to encourage managers to improve the sustainability of their municipalities (Dahl, 2012).

The next section describes the study area, the research methodology and the variables used in the method. Then, the paper presents the results that determine the stakeholders, the measurement of the overall sustainability of the Costa del Sol tourism destination, the ranking according to the compensation degree and the relative situations that the regions find themselves in and the detailed analysis of the sustainability of a municipality. Finally, the discussions, conclusions and future research lines are outlined.

## 2. METHODOLOGY

### *2.1 Study Area*

The Costa del Sol (Malaga, Spain) is one of the most important tourist destinations in the Spanish Mediterranean, with a well-established reputation that attracts more than nine million tourists a year. Since it first became a tourist destination at the end of the 1950s, tourism has been the most important productive sector in the area and has completely transformed the territory, and its society and economy. The Costa del Sol is divided into two zones: the western part, which is the larger and most developed of the two zones; and the eastern part, where tourism competes with intensive, highly profitable agriculture (under plastic or in greenhouses). The Costa del Sol is located in the centre of the Andalusian coastline, and is comprised of fourteen coastal municipalities, from West to East: Manilva, Casares, Estepona, Marbella, Mijas, Fuengirola, Benalmádena, Torremolinos, Málaga, Rincón de la Victoria, Vélez-Málaga, Algarrobo, Torrox and Nerja (Figure 1).

***Insert Figure 1**

Over the last 20 years, the Costa del Sol has undergone many changes resulting from tourist activity, the most notable being (Navarro, 2014): (1) the creation of the Growth Machine (where growth is not based so much on traditional economic activity but rather on property growth and expansion of communication infrastructures); (2) the incorporation of inland municipalities into this "tourism brand"; (3) the diversification of the tourism product by attracting new markets; (4) the changes experienced in tourism and territorial policy and (5) lower environmental and economic sustainability, with the drop in hotel profitability. Among the most striking changes of this latter aspect, what stands out is: a) the urbanisation of 75% of the beachfront of the coastline; b) greater growth in the offer of unregulated tourist spaces (836,880) in comparison to those which are regulated (146,207), which means that the economic turnover generated by tourists varies according to the type of accommodation. According to Navarro (2014), regulated accommodation generates 10.6 times more wealth and 11 times more employment per space built than unregulated accommodation.

According to the Costa del Sol Tourism and Planning reports, in 2017, the Costa del Sol enjoyed the best year for tourism in its history with 12.5 million visitors, with an overall economic impact in the province of 13.83 billion Euros. This means that the Costa

del Sol leads the tourism industry in the region and sustains more than 40% of the weight of this industry in Andalusia, granting it a privileged and leading position within the national context. These elements that confirm the leadership position of the destination in turn become components of responsibility that make it necessary to address the challenges that a tourism destination faces: innovation, sustainability, the capacity to adapt to the changes demanded by tourists, etc.

The study focuses on the territorial area of the Costa del Sol for four fundamental reasons; (i) it is identified as one of the most well-consolidated destinations in Spain and the Mediterranean; (ii) it is a destination with a well-established image and it is located in the Mediterranean, (iii) the loss of competitiveness is linked to the social and environmental sustainability of the destination, and (iv), there is a demand to participate from the stakeholders in the destination resulting from the difference of opinion with the tourism managers.

### *2.2 Analysis*

The analysis is divided into four phases, which are depicted in Fig. 2.

***Insert Figure 2**

Let us now describe each phase in further detail.

The first stage is aimed at obtaining detailed input from interviews with selected tourist stakeholders of tourist destinations in the context of sustainability. A snowball technique was employed to identify stakeholders who were considered to have relevant characteristics and valuable information regarding the purposes of the study. Snowball sampling is a very suitable sampling technique for studying a population of an unknown size that is difficult to access and about which there are no prior records to rely on. Using a key informant, the method makes it possible to identify an initial group of respondents, who after being interviewed, are requested to identify other people who belong to the population of interest. This process can be carried out in waves in order to obtain references from the references, which in itself causes a snowball effect. This method is widely used in several studies along with other identification methods (Medeiros de Araujo and Bramwell, 1999; Reed et al., 2009; Hubacek et al., 2006, Timur and Getz, 2009).

The interview process started with two key stakeholders (one of the most prestigious tourism researchers from the University XXX, and a journalist dedicated

exclusively to Tourism information from the Costa del Sol) who helped to define a list of stakeholders. This allowed us to identify a more complete web of legitimate stakeholders. When the saturation point was reached (point at which no new stakeholders emerge), the interviewing process was finalized. In total, 12 interviews were conducted in November 2013. In these interviews, the stakeholders were asked to identify others who form part of the group, making decisions and assessing the sustainability of the destination on the Costa del Sol. At the same time, they were asked to name stakeholders who do not make decisions, but who are affected by decisions, and who should therefore participate in the context of sustainability.

In the second stage, after obtaining the list of the stakeholders, a structured questionnaire was developed where the stakeholders were asked to assess the importance of different indicators that belong to a given dimension. This serves to assign the weight of the indicators, which measures their relative importance for each of the sustainability themes. In order to achieve that, the stakeholders of the Costa del Sol were asked, via face-to-face interviews (17 stakeholders) and via telephone (11 stakeholders), to establish the importance or the weight of each theme or each indicator within sustainability. The weights must be between the values 0 (it should not be considered) and 5 (extremely important).

The stakeholders who are not familiar with or who do not work with these indicators were given questionnaires where they only had to evaluate the importance of the theme in terms of sustainability, mentioning all the indicators that it contains (Figure 3), and this rating was then transferred to each of them.

***Insert Figure 3**

Suppose that $\omega_i^j$ is the weight assigned by the stakeholder $j$ to the indicator $i$. Let $\mu^j$ be the weight that we have assigned to the stakeholder $j$. Suppose that there are $J$ stakeholders in total, and that there are $I$ indicators in the category that we are considering. Then, following the framework proposed by Linares and Romero (2002), the group weights for each indicator $i$ of the category, $\overline{\omega}^i$, are calculated as the optimum solution of a Goal Programming problem :

$$\begin{cases} \min & d \\ \text{s.a.} & \overline{\omega}^i + n_i^j - p_i^j = \omega_i^j, \quad i = 1,...,I, \;\; j = 1,...,J \\ & \mu^j\left(n_i^j + p_i^j\right) \le d, \quad i = 1,...,I, \;\; j = 1,...,J \\ & 0 \le \overline{\omega}^i \le 5, \quad i = 1,...,I \\ & n_i^j, p_i^j \ge 0, \quad i = 1,...,I, \;\; j = 1,...,J \end{cases}$$

where $n_i^j$ and $p_i^j$ measure the deviations of the group weight in relation to each particular weight of the stakeholders, and the maximum distance is minimised, weighted by the weight that we have assigned to each stakeholder. Lastly, the weights are normalized by dividing each of them by the sum of all the weights. We use $\omega_{ki}$ to denote the normalized weight of the group for the indicator *i* of theme k.

The system of indicators used in this study follows the scheme proposed by the European Sustainable Development Strategy. 54 Indicators are identified, and classed into four main aspects (divided into issues): Social (health, education, inequality and demographics), Economic (activity and wealth), Environmental (biodiversity; quality and pollution; climate change; consumption and solid waste; land use) and Financial (legal, accounting and inhabitants). The indicators chosen to measure sustainability are not specifically related to tourism, but rather the territory, the destination, because by doing this it is possible to create more sustainable management and planning models (Ko, 2005; Mikulik et al., 2014).

Besides, two reference threshold values are established for each indicator (reservation - the level below which the values would not be acceptable -, and aspiration - the desired value -) for the municipalities on the Andalusian coastline, which are used to measure sustainability, in line with the study of Sarinnen (2006). To that end, three experts were selected for each theme or dimension of sustainability evaluated and each of them was provided with a questionnaire corresponding to their dimension. Once the individual information was collected, a Goal Programming scheme was applied (Linares and Romero, 2002) in order to unify those parameters and obtain the references for each indicator.

We are going to use the letter "*M*" to denote the number of municipalities on the Costa del Sol (a total of 14) to be considered in the study, and "*nd*" for the number of dimensions (in our case, $nd = 4$). For each $k \in \{1, \ldots, nd\}$, we denote by $p_k$ the number of indicators in dimension *k*, and by $q_{ki}^j$ the value of the indicator *i* of dimension *k* for municipality *j* ($i$=1,…, $p_k$, $j$=1,…, $M$). The indicators are evaluated as "more is better" or "less is better" by the group of experts, just like the two reference points. For each indicator *i*, belonging to the dimension *k*, its maximum and minimum values are denoted with $q_{ki}^{max}$ and $q_{ki}^{min}$ respectively.

$$q_{ki}^{max} = \max_{j=1,\ldots,M} \{q_{ki}^j\}, \qquad q_{ki}^{min} = \min_{j=1,\ldots,M} \{q_{ki}^j\},$$

In the third stage, the weight or the importance that is given to each stakeholder in the sustainability measurement is measured using the sum of the communication frequencies between stakeholders. In the same questionnaire where they are asked to assign the importance of the indicators in the sustainability measurement, they are asked to answer to a series of questions linked to the type of relationship that exists among them. One of the questions is: how often do you communicate with each of the stakeholders? (Daily, weekly, monthly, 1-2 times a year). That question is used to measure the frequency of communication, and thus discover the most stable network for the communication links (Ramírez, 1999), and locate the least connected groups. The formula applied is $\sum_{i=1}^{n} f_i$, where n is the number of stakeholders with whom a stakeholder communicates with a certain frequency; and $f_i$ can take values from 1, 2, 3 or 4 (1 if the frequency is 1-2 times a year, 2 if the frequency is monthly, 3 if it is weekly and 4 if it is daily). The weight of each stakeholder is obtained by dividing each rating obtained by the sum of all of them, so that the weights add 1. The intensity or frequency of communication is an indicator of proactivity in the development of relations. Participation involves communication, therefore the stakeholders that communicate more frequently with the others, have greater influence as they handle information easily within the network. Thus, it is the stakeholders themselves who decide who the most influential stakeholders in the network are and the weight of each stakeholder in the participation process in matters relating to the sustainability of the destination.

In the last stage, the model proposed to measure the sustainability is applied. The procedure follows the basic lines described in Ruiz et al. (2011) in order to calculate the synthetic indicators of each dimension for each municipality. For each of them ($i$ =1,…,$p_k$), bearing in mind the reference points, their corresponding individual achievement function is defined in the following way:

- If the indicator $i$ is the type "more is better":

$$f_{ki}\left(q_{ki}^{j},q_{ki}^{a},q_{ki}^{r}\right)=\begin{cases}1+\dfrac{q_{ki}^{j}-q_{ki}^{a}}{q_{ki}^{max}-q_{ki}^{a}}, & \text{si} \quad q_{ki}^{a}\le q_{ki}^{j}\le q_{ki}^{max},\\ \dfrac{q_{ki}^{j}-q_{ki}^{r}}{q_{ki}^{a}-q_{ki}^{r}}, & \text{si} \quad q_{ki}^{r}\le q_{ki}^{j}\le q_{ki}^{a},\\ \dfrac{q_{ki}^{j}-q_{ki}^{r}}{q_{ki}^{r}-q_{ki}^{min}}, & \text{si} \quad q_{ki}^{min}\le q_{ki}^{j}\le q_{ki}^{r}.\end{cases}$$

- If the indicator *i* is the type "less is better":

$$f_{ki}(q_{ki}^{j},q_{ki}^{a},q_{ki}^{r}) = \begin{cases} 1+\dfrac{q_{ki}^{a}-q_{ki}^{j}}{q_{ki}^{a}-q_{ki}^{min}}, & \text{si} \quad q_{ki}^{min} \le q_{ki}^{j} \le q_{ki}^{a}, \\ \dfrac{q_{ki}^{r}-q_{ki}^{j}}{q_{ki}^{r}-q_{ki}^{j}}, & \text{si} \quad q_{ki}^{a} \le q_{ki}^{j} \le q_{ki}^{r}, \\ \dfrac{q_{ki}^{j}-q_{ki}^{r}}{q_{ki}^{r}-q_{ki}^{max}}, & \text{si} \quad q_{ki}^{r} \le q_{ki}^{j} \le q_{ki}^{max}. \end{cases}$$

If, $f_{ki}$ takes values between -1 and 0, $q_{ki}^{j}$ is a value worse than the reservation level; if it takes values between 0 and 1, then $q_{ki}^{j}$ is between the reservation and aspiration level; and if it takes values between 1 and 2, $q_{ki}^{j}$ is a value better than the aspiration level.

Below, for each municipality *j* and each dimension *k*, a weak synthetic indicator $I_k^{jw}$, and a strong synthetic indicator $I_k^{js}$ have been built. The weak indicator allows compensation between the different indicators and therefore it shows the overall performance of the regions, taking into account all the individual indicators. The strong indicator does not allow compensation among the indicators and it has been built in a way that satisfies the following properties: (i) If a given region has the worst possible achievement value (in our case, −1) for the indicator with the greatest weight (the most important one), then the value of the strong indicator is the worst possible one (−1); (ii) If all the achievement values of a given region are greater than 1,then the strong indicator is also greater than 1.; (iii) The effect of the weights is the same for negative and positive achievement values.

*The weak indicator* is defined by the weighted sum:

$$I_k^{jw} = \sum_{i=1}^{p_k} \omega_{ki} f_{ki}(q_{ki}^{j},q_{ki}^{a},q_{ki}^{r})$$

which preserves all the interval properties, that is:

If $-1 \le f_{ki} \le 0$, $\forall i=1,\ldots p_k$, then $-1 \le I^{w} \le 0$, which means that if all the indicators are worse than their reservation levels, the weak indicator reflects it,

If $0 \le f_{ki} \le 1$, $\forall i=1,\ldots p_k$, then $0 \le I^{w} \le 1$, which means that if all the indicators are between their reservation and aspiration levels, the weak indicator also reflects it

If $1 \le f_{ki} \le 2$, $\forall i=1,\ldots p_k$, then $-1 \le I^{w} \le 2$, which means that if all the indicators are better than their aspiration levels, the weak indicator also reflects it. In general, the value of the

weak indicator can be interpreted as the position of the municipality in relation to hypothetical overall reservation and aspiration levels.

*Strong indicator (Weighted minimax)*

In order to construct the strong indicator, we follow the steps below:

We construct the corrected weights $\overline{\omega}_{ki} = \frac{\omega_{ki}}{\max_{l}\{\omega_{kl}\}}$, $i = 1,\ldots,p_k$.

- We calculate the subsets of indicators ($I = \{1, 2, \ldots, N\}$):

$$I^0 = \left\{i \in I : f_{ki}\left(q^j_{ki}, q^a_{ki}, q^r_{ki}\right) < 0\right\},$$
$$I^1 = \left\{i \in I : f_{ki}\left(q^j_{ki}, q^a_{ki}, q^r_{ki}\right) < 1\right\},$$

- We define the set of indicators $\bar{I}$:

$$\bar{I} = \begin{cases} I^0, & \text{si } I^0 \neq \emptyset \\ I^1, & \text{si } I^0 = \emptyset, I^1 \neq \emptyset \\ I, & \text{si } I^0 = I^1 = \emptyset \end{cases}$$

- We define the correction constant:

$$\alpha = \begin{cases} 0, & \text{si } I^0 \neq \emptyset \\ 1, & \text{si } I^0 = \emptyset, I^1 \neq \emptyset \\ 2, & \text{si } I^0 = I^1 = \emptyset \end{cases}$$

We define the corrected value of the indicators: $\overline{f}_{ki} = f_{ki}\left(q^j_{ki}, q^a_{ki}, q^r_{ki}\right) - \alpha \quad (i \in \bar{I})$

- We define the strong indicator:

$$I^{js}_k = \alpha + \min_{i \in \bar{I}} \{\overline{\omega}_{ki} \overline{f}_{ki}\}$$

Both indicators indicate better results for higher values. With regard to the strong indicator, a negative value indicates that the municipality is below the reservation level for at least one indicator. If the value is -1, that indicates that the municipality takes the worst possible value in the indicator with the greatest weight. A value over 1 indicates that all the indicators of the municipality take values better than their aspiration levels. With regard to the weak indicator, as it is a compensatory measure, it indicates the general situation of the municipality.

This means that with this measurement, a municipality is considered sustainable if it records values over 1 (by surpassing the aspiration level), intermediate, if it records values between 0 and 1 (it is not sustainable, but nor is it unsustainable) and unsustainable if the values are below 0 (under the reservation level).

Once the weak and strong indicators for each dimension have been calculated for each municipality, the *final aggregation* is determined with the aim of obtaining a single pair of overall synthetic indicators (weak-strong) for each municipality. In order to maintain a balance between the three basic pillars of sustainability (social-environmental-economic) the weights assigned to the economic-financial dimensions as a whole is the same as the weights of the social dimension and the environmental dimension, 0.33. Let us denote by $\omega_{ki}$ the final group weight for indicator $i$ of dimension $k$.

Similar to the procedure described above, the overall weak indicator for each municipality $j$ is:

$$I^{jw} = \sum_{k=1}^{nd} \mu_k I_k^{jw}$$

For the strong indicator, $I^{js}$, the same procedure described previously is used, but considering the weight $\mu_k$ instead of $\omega_{ki}$, and the strong indicators $I_k^{js}$, instead of the achievement function $f_{ki}$.

In conclusion, based on the total weight of each indicator, provided by the stakeholders, along with the aspiration and reservation thresholds provided by the experts, the achievement function of the indicators is obtained.

## 3. RESULTS

### *3.1 Identification of the stakeholders*

The results of the snowball show a total of 28 stakeholders who in turn have been divided into six groups grouped according to the activity that they carry out and therefore, that share common interests (Figure 4).

***Insert Figure 4**

One piece of data that stands out is that the stakeholders with highest weights are those that have access or possess the resources of the tourism destination such as the councils, Tourism Board, Confederation of Business People, Association of Hospitality Industry Business People, the Regional Government of Andalusia and the media. Furthermore, these stakeholders belong to all of the different groups, therefore the diversity of opinions in the assessment of the indicators of the groups is well distributed.

*Assessment of the indicators*

Let us look at the results of the evaluations of the indicators provided by the stakeholders for each of the dimensions, and at the situation in our study area, the Costa del Sol, for these indicators.

For the environmental dimension, air quality, pollution and climate change are the priority themes to take into account according to the stakeholders of the destination. The "air quality" (with a weight assigned by the destination stakeholders of 3.375, is affected by the emissions of road traffic and due to its geographic layout (a bay surrounded by mountains which retain the pollution), Marbella and Málaga record the worst results (1.9% and 8.3% on days with "bad" and "very bad" ratings). In Fuengirola, Torremolinos, Málaga, Benalmádena and Rincón de la Victoria the high $SO_2$ emissions (4.1; 2.0; 17.1; 1.2; 0.8 Tn/Km$^2$) and $NO_x$ emissions (39.5; 26.9; 19.6; 21.3; 12.6 Tn/Km$^2$) stand out, due to the greater density of traffic between the ring road and the Mediterranean Motorway. On the other hand, only Algarrobo is unsustainable for the "health rating of its bathing waters" due to the insufficient capacity of the wastewater treatment plant in the area. *Climate change,* measured in "equivalent $CO_2$ emissions per person" (with a weight assigned by the stakeholders of 2.511), records its worst value of the Costa del Sol in

Casares (9.8 Tn $CO_2$ equivalent per capita), while the other towns are sustainable, with the acceptable limit considered to be up to 7.37 Tn CO2 equivalent per capita.

In the financial dimension, the stakeholders did not establish very different weights for indicators, the least weight is recorded by "fiscal autonomy" (1.5) and "outstanding debt per inhabitant" (2.007), while the other indicators record similar values (2.25). Among these indicators, the "tax burden" stands out as it is greatest in the majority of municipalities especially in the municipalities of the western Costa del Sol. The greater tax burden is due to the need to provide services not only to residents but rather, to tourists also, and this is funded with an increase in taxation. A good example of this situation (more tourists - greater tax burden) is Marbella which has close to 150,000 recorded inhabitants, and during the high season its population reaches up to 400,000 between residents and tourists.

In the economic dimension, the most important aspect for the stakeholders in the tourist destination is the "unemployment rate" (3.024) and the "net income declared per capita" (2.01). The experts have assigned very generous thresholds (aspiration 7.5% and reservation 20%) to the "employment rate", because it is not considered sustainable when there are 7.5% of inhabitants unemployed. Undoubtedly the strong economic crisis affecting Spain has had an influence, especially in the building and property sector that is so closely linked to tourism in the Costa del Sol in particular and coastal tourism in general. Nerja records the highest "unemployment rate" (18%) on the Costa del Sol and Casares the lowest (12%). With regard to the "net income declared per capita", the municipalities with the greatest income on the Costa del Sol are Málaga (€7,032 per capita) and Rincón de la Victoria (€9,404 per capita) as a result of the concentration of activity, with the reservation level set at €2,250 per capita and the aspiration level at €12,000 per capita.

The social sustainability results are very interesting because the indicators measure the quality of service, facilities and the journey time to reach education or health services, which depends on physical distance and road capacity. Therefore, the geographic location is essential to explain why municipalities like Málaga, Marbella and Vélez Málaga record the best results, given that the three have a concentration of social facilities. According to the stakeholders, the indicator with the greatest weight should be the "level of education" (5), followed by the "journey time to the nearest hospital" (2.25). The municipalities with the greatest "level of education" (indicator whose aspiration level is 1. 3, and reservation level is 0.8), are Rincón de la Victoria (1.5) and Torremolinos

(1.4), due to their proximity to the administrative capital of the study area, which is home to the most educated population, with the highest economic level. For the indicator "journey time to the nearest hospital", Malaga records the best result on the Costa del Sol (3.8 mins) where the aspiration level is 20 minutes and the reservation level is 30 minutes. Both the infrastructures (the regional hospitals of Malaga, Vélez-Malaga and Marbella) and geographic location are crucial to explain how municipalities such as Marbella, Benalmádena, Vélez Málaga and Algarrobo record the best results for this indicator. One of the effects of tourism activity is the increased population of the municipalities and greater population size; therefore more health facilities are needed.

*3.2 Result of the synthetic indicators*

Applying the methodology described above, the results of the weak and strong synthetic indicators are obtained for each municipality in each dimension, and the overall ones for each municipality (Table 1).

***Insert Table 1**

The Costa del Sol does not attain sustainability, although it is not unsustainable from the weak overall perspective (Table 1), where all municipalities reach an intermediate situation. Nerja is the best placed one (0.67) and Algarrobo obtains the lowest values (0.37). The differences in the degrees of sustainability of the municipalities are not very notable. By measuring the overall strong sustainability (Table 1) the municipalities are unsustainable, with seven of the fourteen municipalities with the lowest result processed in the system (-1), meaning that they all have the worst possible value in at least one of the highest weighted indicators. On the other hand, Mijas has the highest value (-0.65).

The analysis of the results for the dimensions of the synthetic indicators confirms some of the premises of sustainability (Torres et al, 2015, Blanca, 2010, Othman et al. 2012), because the Costa del Sol is a mature tourist destination, with a high environmental impact but with significant economic benefits. For both types of indicators (weak-strong), the environmental and financial dimensions have a lower degree of sustainability than the social and economic dimensions, even for the strong indicator. The economic dimension is the only one that has an intermediate situation (Marbella, a destination specialising in luxury and golf tourism attains 0.110).

*3.3 Strong sustainability versus weak sustainability*

Another analysis that helps decision making is the comparison of the rankings of the municipalities for the weak and strong synthetic indicators (Figure 5).

***Insert Figure 5**

This analysis offers the chance to observe four possible situations for a given municipality: (1) very positive, with the best position for both synthetic indicators; (2) quite positive, with a better position for the weak indicator (WI) than for the strong indicator (SI); (3) not very positive, with a better position for the SI than for the WI; and (4) not positive at all, positioned last for both indicators. The graphic makes it possible to interpret if it is easier to improve the sustainability by only acting on one or a few indicators (situations 1 and 2), or if it would be necessary to act on a larger number of them (situations 3 and 4).

The municipalities of Mijas and Rincón de la Victoria have a *very positive* situation. Their situation is recommendable as it reflects the best weak and strong sustainability levels on the Costa del Sol.

Meanwhile, in the opposite case, with a situation that is *not positive at all*, we can find Torremolinos, Algarrobo, Marbella and Málaga, as they have many bad indicators, including those that are best valued by the stakeholders. In this case, sustainability is difficult to achieve because it is necessary to act on almost all the indicators. For example, Algarrobo records the worst "health rating of its bathing waters" (0% of the sampling points have very good quality), the worst record for the "number of population centres" (0.61 centres/ km2 and for the "disparity between female and male unemployment" (6.02 percentage points). Furthermore, it needs to correct three of the five economic indicators, which are the lowest on the Costa del Sol: "net income per capita" (€3,743 /capita.), "Business Tax per capita" (77.16 licences/1.000 capita.) and the "cadastral value of the properties" (€36,516 /capita.).

Torrox, Fuengirola and Benalmádena have a *not very positive* situation. Specifically, Torrox ranks second for the strong indicator and twelfth place for the weak indicator. This means that in these municipalities it is necessary to manage most of the indicators in a better way, although these do not include the indicators of greatest importance for the stakeholders in the destination.

Lastly, we find another scenario in the municipalities of Nerja, Estepona, Vélez, Málaga, Casares and Manilva, which have *quite a positive* situation as they have a better situation for the weak indicator than for the strong one. The most notable case is Nerja, located in last place for the SI and first for the WI. That means that, overall, the indicators are good and only fail on some indicators that are well evaluated by the stakeholders. The actions to take into account in order to improve the sustainability of the municipalities would involve managing a few indicators better. Let us look at what these indicators are and what the joint action measures are from the perspective of the stakeholders.

### *3.4 The sustainability of a municipality: the case of Nerja*

For the *environmental dimension,* Nerja has a very good situation in comparison with the other municipalities on the Costa del Sol, as it remains in first place for both the WI and the SI. For the WI it practically reaches sustainability with 0.99 although for the SI it is unsustainable (-1). In order improve its environmental sustainability level, Nerja needs to take action on the unsustainable indicators: ("area under organic farming", "glass waste collected", "irrigated area" and "variation in high-capacity communications infrastructures 1999-2007").

For the *social dimension*, Nerja has the highest levels of strong sustainability on the coast and it ranks fifth for weak sustainability. That means that the social situation is good, compared with the other municipalities on the coast and that the indicators of greatest importance for the stakeholders have results above the aspiration level. It only has three indicators below the reservation level: "inhabitants per health centre" (21,957 inhabitants.), "illiteracy rate" (4.9%) and the "pupil/teacher ratio" (12.08) and that means that it must improve the education levels of its population and have more health facilities.

Nerja records the highest "unemployment rate" (18%) on the Costa del Sol (the indicator of greatest importance for the stakeholders in the destination) and it ranks as the municipality with the lowest level of strong sustainability. In addition to this there is the "net income declared per capita" (the third lowest - €3,939/per capita.) which is close to the reservation level (€2,250/per capita). These indicators are the ones that are most important in terms of achieving economic sustainability according to the stakeholders. That is why improving them must be a priority with the aim of improving and achieving economic sustainability.

For the *financial dimension*, for both the WI (intermediate situation) and for the SI (unsustainable) it records the lowest sustainability levels on the coast. Nerja, just like the majority of the municipalities on the Costa del Sol, has a high capacity for "fiscal autonomy" (72.33%), it has a financial situation with a greater "tax burden" (€678/capita), it has a high "financial burden" (5.4%), as it presents very high values for the repayment and payment of interests resulting from the municipal debt in relation to current income. That means that, according to the interpretation of the financial sustainability of the stakeholders in the destination, in order to achieve greater levels of sustainability it is necessary to take action on various indicators, which are all considered to be equally important.

In conclusion, Nerja is among the municipalities with the highest degree of social and environmental sustainability of the Costa del Sol and, in order to achieve a higher degree of overall sustainability, it needs to work above all on the economic and financial dimensions.

## 4. DISCUSSIONS

There is notable progress on sustainability measures and discussion on how to make it operable is still a debate at present within the scientific community. The studies have advanced knowledge of sustainability, for example by addressing different focuses on sustainability defining weak and strong sustainability conditions (Singh et al., 2009, Ruiz et al, 2011) and by adopting one of the two approaches to sustainability: "top down" (Ruiz et al 2011) and "bottom-up" (Pain, 2004; Pérez et al 2017). In addition, the analysis of sustainability is increasingly linked to the participation of society. The study by Pérez et al 2017 constitutes an example of how it is possible to insert the stakeholders' perceptions into the measurement process of touristic sustainability. However, one of the shortcomings of their study is that they do not develop the consideration of objective indicators and do not create goals and exact and real target values.

In this study, the real sustainability of the tourist destination is measured, and not that of the tourist activity, using a weak-strong perspective, offering a view of sustainability through the participation of the stakeholders of the destination, and the experts also play a role. As Ritchie and Crouch 2000 stated, to do so, it is necessary to have a vision of the destination, which involves gathering the opinions of all the tourism agents.

The results of this study provide a number of useful findings. Firstly, one of the fundamental sustainability criteria is the involvement of society and this must begin with recognition of stakeholders (Aas et al., 2005, Byrd, 2007, Hardy and Beeton, 2002). For this purpose, the study shows that the Snowball sampling is a good technique to make use of community knowledge to determine them (Medeiros de Araujo and Bramwell, 1999; Reed et al., 2009; Hubacek et al., 2006, Timur and Getz, 2009).

Secondly, the resulting stakeholders show groups already found in other studies such as tourism organizations, local councils, government departments, local community organizations, local educational institutions. (Baggio et al, 2010; Byrd, 2007; Getz & Timur, 2005). Besides, the results show that stakeholders with access to or possession of resources have greater weight, results already confirmed in the study of Getz and Timur (2005).

Thirdly, the results indicate that all stakeholders in a destination are not perceived by others as equally salient. This finding can be intuitively understood and supports other

studies that have shown differences, for example the study by Byrd and Gustke 2007 on the degree of involvement between stakeholder segments. The use of communication frequency is shown to be a practical tool for determining the weight of each stakeholder in the process. As outlined as an indicator by Ramírez 1999, participation involves communication, therefore the stakeholders that communicate more frequently with the others, have greater influence as they handle information easily within the network. Furthermore, all the stakeholders are involved and at the same time, they themselves decide the weight of each stakeholder in the participation process for issues relating to the sustainability of the destination. In this way, our study merges the classical views of stakeholder management (whereby power is considered and certain stakeholder groups may be favoured over others) with the normative moral approach developed by Donaldson and Preston 1995.

Fourthly, the analysis of the results for the dimensions of the synthetic indicators confirms some of the premises of sustainability (Torres et al, 2015, Blanca, 2010, Othman et al. 2012). Costa del Sol is a mature tourist destination, with a high environmental impact but with significant economic benefits. We have seen that sustainability, viewed from the perspective of the stakeholders in the destination, presents a lower degree of sustainability for the environmental and financial dimensions than it does for the social and economic dimensions.

Lastly, the results show that use of the multicriteria method is the correct tool for considering the contradictions that are implicit to the very concept of sustainability (Ruiz et al., 2011, Pérez et al, 2017, Schianetz et al., 2007).

In summary, the proposed method makes significant process in the evaluation of sustainability.

## 5. CONCLUSIONS

The purpose of this study is to contribute a method that measures the degree of sustainability of the tourist destination, viewed from the perspective of the different stakeholders.

The proposed method makes significant progress in the evaluation of sustainability. This is entirely due to the fact that the method makes it possible to discover the reality of a tourism destination and to obtain a different view of it. In tourism literature, there are no studies focused on measuring the real sustainability of a tourism destination through the opinions of the stakeholders as a means of supporting the decision making process of the managers. Furthermore, the results obtained fulfil several functions. They enable a diagnosis per dimension, thus making it possible to identify priority agreed actions needed to improve sustainability, this turns it into an important tool for the management of the territory. It not only makes it possible to see the overall sustainability level perceived by the stakeholders, but rather, it also enables the classification of municipalities, which can encourage the managers to improve their municipalities. The proposed method, aims to provide the manager of the territory with a tool that helps them to make decisions. In addition, it is shown to be a low cost tool that can be used by the managers in order to improve the planning and management of their territories.

Besides, the method is operational because it helps to understand sustainability as a measurable or evaluable concept and offers relevant information for decision making. In addition to all this, it has another characteristic, which is flexibility. This is due to the fact that it has aspects that can be controlled by the managers such as determining the thresholds and expanding the number of stakeholders in the participation process.

A limitation of this study was the establishment of the aspiration and reservation levels of the indicators, which as carried out for the municipalities of the Andalusia coastline and not specifically for those of the Costa del Sol. There was also a lack of data about indicators that could have been included in the analysis.

As future lines of research, it is proposed that measurements should be carried out during different periods. This would make it possible to evaluate the evolution over time and identify trends in sustainability levels, broaden the participative approach in order to

determine the reference and weighting levels, and get the stakeholders to judge the importance of each dimension in the calculation to measure the overall sustainability.

## REFERENCES


Aas, C., Ladkin, A., and Fletcher, J. 2005. "Stakeholder collaboration and heritage management". Annals of Tourism Research, 32(1), 28-48.

Ayres, H., Burns, P., Church, T., Davis, S. and Swaffield, S., 2010. "Development of a Conceptual Framework for Sustainability Indicators used in Structure Planning. Land Environment and People Research Report", 13. Lincoln University, New Zealand.

Angelkovaa T., Koteskia C., Jakovleva Z. and Mitrevskaa E. 2012. "Sustainability and competitiveness of tourism", Social and Behavioral Sciences 44, 221 – 227.

Baggio R., Scott R. and Cooper C., 2010, "Improving tourism destination governance: a complexity science approach", Tourism Review, Vol. 65 (4) pp. 51 – 60.

Beaumont, N.;and Dredge, D. 2010. "Local tourism governance: A comparison of three network approaches". Journal of Sustainable Tourism, 18, 7–28.

Beritelli, P., Bieger, T., and Laesser, C. 2007. "Destination governance: Using corporate governance theories as a foundation for effective destination management". Journal of Travel Research, 46, 96–107.

Blancas, F.J., González, M., Lozano-Oyola, M.and Pérez, F. 2010. "The assessment of sustainable tourism: Application to Spanish Coastal Destinations." Ecological Indicators. 10: 484-492.

Bramwell, B. and Lane B. 2011, "Critical research on the governance of tourism and sustainability", Journal of Sustainable Tourism, 19:4-5, 411-421

Bramwell, B. and Sharman, A. 1999. "Collaboration in local tourism policymaking". Annals of Tourism Research, 26 (2), 392-415.

Byrd, E. T. 2007. "Stakeholders in sustainable tourism development and their role: applying stakeholder theory to sustainable development". Tourism Review, 62(2), 6-13.

Byrd, E. T .and Gustke, L. 2007. "Using decision trees to identify tourism stakeholders: the case of two Eastern North Carolina counties". Tourism & Hospitality Research, v. 7, n. 3/4, p. 176-193.

Buhalis, Dimitrios, 1999. "Limits of tourism development in peripheral destinations: problems and challenges". Tourism Management, 20 183-185.

Cabello J.M., Navarro E., Prieto F., Rodríguez B., and Ruiz F, 2014. "Multicriteria development of synthetic indicators of the environmental profile of the Spanish regions", Ecological Indicators, Volume 39, Pages 10-23.

Caffyn A. and Jobbins G. 2003. "Governance Capacity and Stakeholder Interactions in the Development and Management of Coastal Tourism: Examples from Morocco and Tunisia", Journal of Sustainable Tourism, 11:2-3, 224-245.

Castro, J.M., 2004. Urban Sustainable Development Indicators. An Application for Andalusia". Andalusian Statistics Institute, Department of Economy and Public Finance, Seville (in Spanish).

Cooper, C., Scott, N., and Baggio, R. 2009. "Network position and perceptions of destination stakeholder importance". An International Journal of Tourism and Hospitality Research, 20(1), 33-45.

Cucculelli M. and Goffi G. 2016. "Does sustainability enhance tourism destination competitiveness? Evidence from Italian Destinations of Excellence", Journal of Cleaner Production, Volume 111, Part B, 370-382.

Dahl, A. L., 2012. "Achievements and gaps in indicators for sustainability". Ecological Indicators 17, 14–19.

Dinica V. 2009. "Governance for sustainable tourism: a comparison of international and Dutch visions", Journal of Sustainable Tourism, 17:5, 583-603.

Donaldson, T. and Preston, L. 1995. "The stakeholder theory of the corporation: concepts, evidence, and implications", The Academy of Management Review, 20 (1), pp.65–91.

Fraser, E.D.G., Dougill, A.J., Mabee, W.E., Reed, M. and McAlpine, P. 2006. "Bottom up and top down: analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management". Journal of Environmental Management, 78, 114-127.

Friedman, A. L., and Miles, S. 2006. "Stakeholders: Theory and practice". Oxford: Oxford University Press.

Getz, D., and Timur, S. 2005. "Stakeholder involvement in sustainable tourism: balancing the voices". In W. Theobald (Ed.), Global tourism (3rd ed.). 230 -247, Oxford: Butterworth Heinmann.

Gill, M.A., and Willian, W.P. 2011. "Rethinking resort growth: Understanding evolving governance strategies in Whistler British Columbia". Journal of Sustainable Tourism, 19(4-5), 629–648.

Ginevicius, R. and Podvezko, V. 2009. "Evaluating the Changes in Economic and Social Development of Lithuanian Counties by Multiple Criteria Methods". Technological and Economic Development of Economy, 15(3), 418-436.

Go, F.; and Govers, R. 2000. "Integrated quality management for tourist destinations: A European perspective on achieving competitiveness". Tourism Management 2000, 21, 116–126.

Hardy, A., Beeton, R., and Pearson, L. 2002. "Sustainable tourism: an overview of the concept and its position in relation to conceptualisations of tourism". Journal of Sustainable Tourism, 10(6), 475-496.

Hatipoglu1 B., Alvarez M: B. and Ertuna B. 2016. "Barriers to stakeholder involvement in the planning of sustainable tourism: the case of the Thrace region in Turkey". Journal of Cleaner Production Volume 111, Part B, 306–317.

Hubacek K., Prell C., Reed M., Dan B, Aletta B. & Chris D. 2006. "Using stakeholder and social network analysis to support participatory processes". International Journal of Biodiversity Science & Management, 2:3, 249-252.

Informe Turismo y Planificación Costa del Sol https://www.costadelsolmalaga.org/5768/informes, January, 2018.

Jacobs, M. 1997. "La economía verde: medio ambiente, desarrollo sostenible y la política del futuro". Barcelona, Icaria.

Ko, T.G. 2005. "Development of a tourism sustainability assessment procedure: a conceptual approach", Tourism Management, 26, pp. 431-445.

Kotler, P., Bowen, J. and Makens, J. 2003, "Marketing for Hospitality and Tourism", 3rd ed. Prentice-Hall, Upper Saddle River, NJ.

Ladkin, A., and Bertramini, A. M. 2002. "Collaborative tourism planning: a case study of Cusco, Peru". Current Issues in Tourism, 5(2), 71-93.

Linares, P. and Romero, C. 2002. "Aggregation of preferences in an environmental economics context: A Goal-Programming approach". Omega, 30, 89-95.

Markwick, M. C. 2000. "Golf tourism development, stakeholders, differing discourses and alternative agendas". Tourism Management, 21(5), 515-524.

Medeiros de Araujo, L. and Bramwell, B. 1999. "Stakeholder assessment and collaborative tourism planning: the case of Brazil's Costa Dourada project". Journal of Sustainable Tourism, 7, 356-378.

Mikulic, J, Kožic, I and Krešic, D. 2015. "Weighting indicators of tourism sustainability: A critical note". Ecological Indicators 48, 312–314

Moscardo, G. 2011. "Exploring social representations of tourism planning: issues for governance". Journal of Sustainable Tourism, 19(4/5), 423–436.

Munda, G. 2004. "Social multi-criteria evaluation: methodological foundations and operational consequences." European Journal of Operational Research 158 (3), 662–677.

Murray N., Lynch P. and Foley A. 2016. "Unlocking the magic in successful tourism destination marketing: the role of sensing capability". Journal of Marketing Management, 32:9-10, 877-899.

Othman N., Mohamed S. and Khairi F. 2012. "Tourism Activities and its Impact on Environmental Sustainability in Coastal Areas". International Business Management, 6: 629-633.

Navarro Jurado, E. 2014. "Costa del Sol, más que un destino turístico. 20 años de crecimiento y diversificación". En García Sánchez, A. (Coordinador) 20 años de la actividad turística en España. Edt. Síntesis, 197-214.

Pain, R. 2004. "Social geography: participatory research". Progress in Human Geography. 28, 5, 652-663

Pérez VE, Santoyo AH, Guerrero F, León MA, da Silva CL and Caballero R. 2017. "Measuring the sustainability of Cuban tourism destinations considering stakeholders' perceptions". Int J Tourism Res.;19: 318–328.

Pulido, M.C. and Pulido, J.I. 2016. "Implementing Governance in Tourism Destinations: A Methodological Proposal". International Journal of Tourism Policy, 6, 273–298.

Ramírez, R. 1999. "Stakeholder analysis and conflict management". In D. Buckles (ed.) Cultivating peace: Conflict and collaboration in natural resource management. Ottawa, Canada: International Development Research Centre.

Reed, M.S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C.H., and Stringer, L.C. 2009. "Who's in and why? A typology of stakeholder analysis methods for natural resource management". Journal of Environmental Management, 90, 1933-1949.

Ritchie J.R.B., Crouch G.I., 2003 "The Competitive Destination, a Sustainable Tourism Perspective", Cabi Publishing, Cambridge.

Rosenström, U. and Kyllönen, S. 2007. "Impacts of a participatory approach to developing national level sustainable development indicators in Finland". Journal of Environmental Management, 84, 282-298.

Ruiz, F., Cabello J.M. and Luque, M. 2011. "An application of reference point techniques to the calculation of synthetic sustainability indicators". Journal of the Operational Research Society, 62: 189-197.

Saarinen, J. 2006. "Traditions of sustainability in tourism studies". Annals of Tourism Research, 33(4), 1121-1140.

Schianetz, K., Jones, T., Kavanagh, L., Walker, P.A., Lockington, D., and Wood, D. 2009. "The Practicalities of a Learning Tourism Destination: a Case Study of the Ningaloo Coast". International Journal of Tourism Research, 11(6), 567-581.

Schianetz, K., Kavanagh, L, and Lockington, D. 2007. "Concepts and Tools for Comprehensive Sustainability for Tourism Destinations: A Comparative Review". Journal of Sustainable Tourism, Vol 15, No 3, 148-223

Singh, R., Murty, H., Gupta, S., and Dikshit, A., 2009) "An overview of sustainability assessment methodologies". Ecological Indicators 9, 189-212.

Timur, S, and Getz, D. 2009. "Sustainable Tourism Development: How Do Destination Stakeholders Perceive Sustainable Urban Tourism? ". Sustainable Development, vol. 17, issue 4, 220-232

Wanga, J., Hayombe, P., Agong, S., and Mossberg, L. 2014. "Stakeholder Involvement in Tourism Destination Development: A Case of Dunga Beach and Wetland, Kisumu County, Kenya". Journal of Arts and Humanities, 3(8), 13-27.

Waligo V., Clarke J. and Hawkins R. 2015. "Embedding stakeholders in sustainable tourism strategies", Annals of Tourism Research 55 90–93.

Wierzbicki, A. P. 1980. "The use of reference objectives in multiobjective optimization". In G. Fandel and T. Gal, editors, Lecture Notes in Economics and Mathematical Systems, vol. 177, pages 468{486, Berlin. Springer-Verlag.

Table 1. Weak, strong and overall sustainability

| | Weak indicator | | | | Strong indicator | | | | Global indicator | |
|---|---|---|---|---|---|---|---|---|---|---|
| Town | Environmental | Economic | Finance | Social | Environmental | Economic | Finance | Social | Weak | Strong |
| Manilva | 0,573 | 0,679 | 0,592 | 0,587 | -0,744 | 0,459 | -0,949 | -0,383 | 0,608 | -0,949 |
| Casares | 0,717 | 0,602 | 0,307 | 0,683 | -0,744 | 0,459 | -1 | -0,383 | 0,577 | -1 |
| Estepona | 0,455 | 0,624 | 0,646 | 0,759 | -0,597 | 0,309 | -1 | -0,409 | 0,621 | -1 |
| Marbella | 0,297 | 0,848 | 0,11 | 0,926 | -1 | 0,402 | -1 | -0,342 | 0,545 | -1 |
| Mijas | 0,493 | 0,611 | 0,599 | 0,81 | -0,653 | 0,454 | -0,372 | -0,444 | 0,628 | -0,653 |
| Fuengirola | 0,217 | 0,756 | 0,412 | 0,946 | -0,744 | 0,411 | -0,487 | -0,325 | 0,583 | -0,744 |
| Benalmádena | 0,401 | 0,66 | 0,145 | 0,956 | -0,667 | 0,421 | -0,92 | -0,444 | 0,54 | -0,92 |
| Torremolinos | 0,286 | 0,502 | 0,151 | 1,002 | -0,744 | 0,398 | -1 | -0,397 | 0,559 | -1 |
| Málaga | 0,137 | 0,552 | 0,584 | 0,931 | -1 | 0,192 | -0,836 | -0,352 | 0,551 | -1 |
| Rincón de la Victoria | 0,265 | 0,406 | 0,501 | 1,037 | -0,667 | 0,406 | -0,378 | -0,414 | 0,552 | -0,667 |
| Vélez-Málaga | 0,58 | 0,592 | 0,831 | 0,663 | -0,667 | 0,28 | -0,165 | -0,256 | 0,603 | -0,667 |
| Algarrobo | 0,136 | 0,325 | 0,498 | 0,555 | -1 | 0,435 | -0,66 | -0,444 | 0,378 | -1 |
| Torrox | 0,326 | 0,44 | 0,201 | 0,761 | -0,667 | 0,381 | -1 | -0,444 | 0,422 | -1 |
| Nerja | 0,996 | 0,613 | 0,134 | 0,926 | -0,574 | 0,158 | -1 | -0,24 | 0,667 | -1 |

Figure 1. Location of the study area. Costa del Sol (Spain)

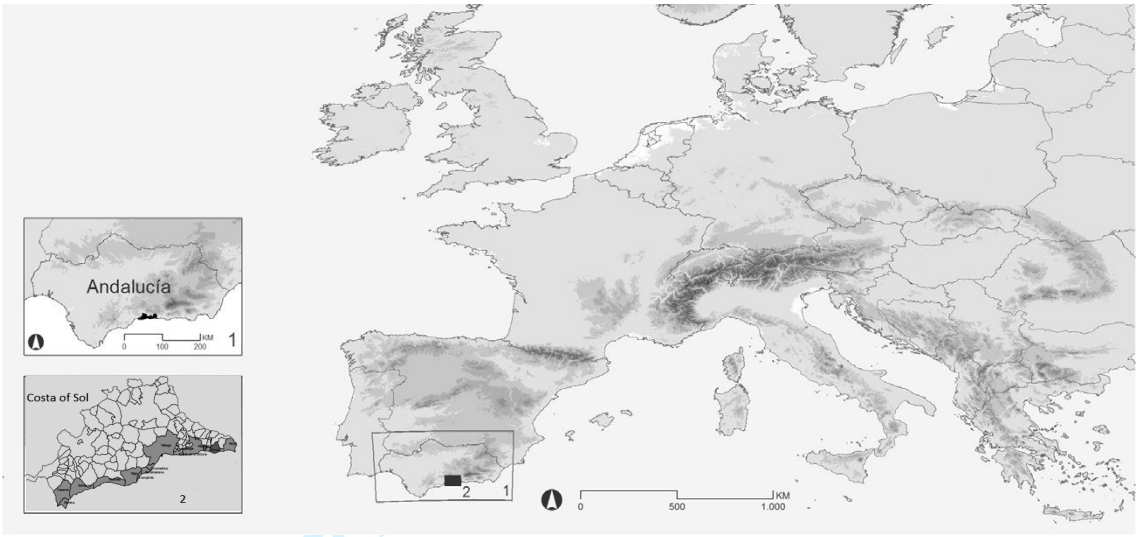


**Figure 2**. Scheme of the methodology

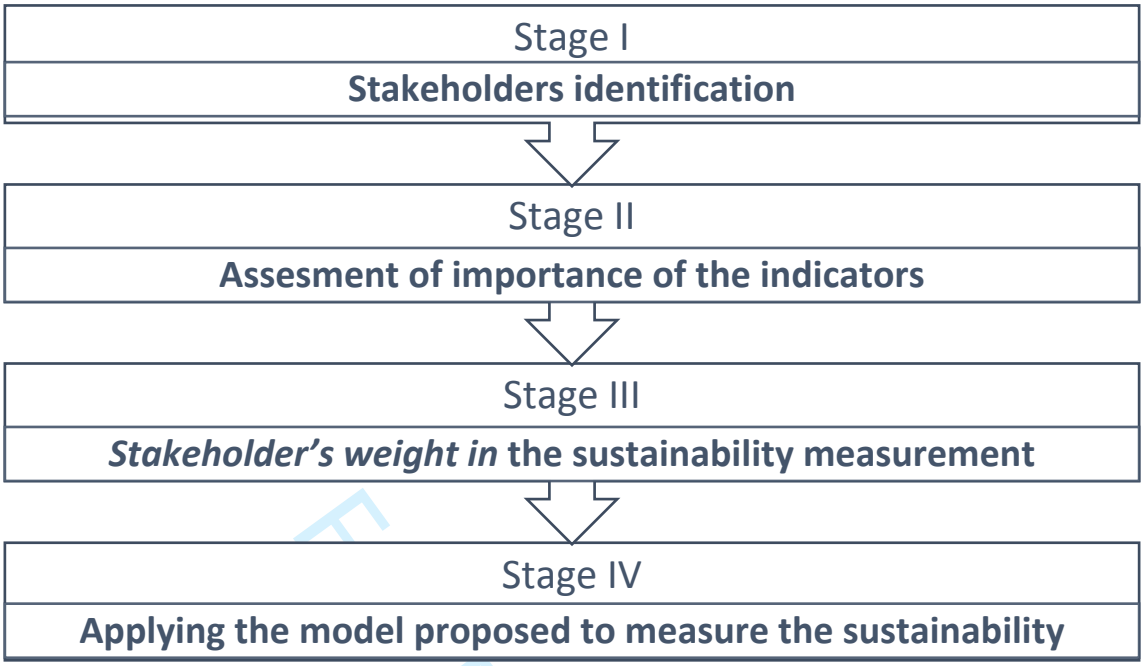
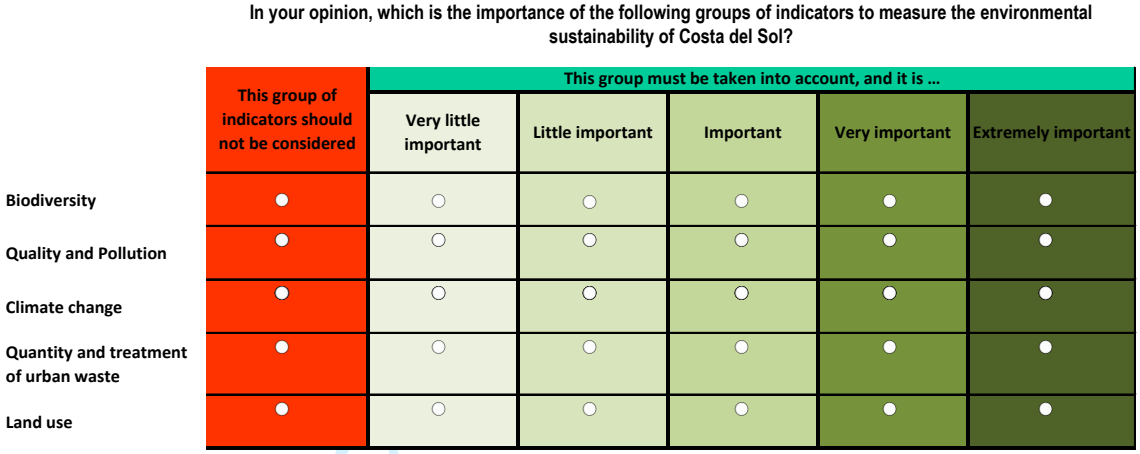


Figure 3. Questionnaire for the Stakeholders. Assessment of the importance of the groups of indicators considered in the study.



In your opinion, which is the importance of the following groups of indicators to measure the environmental sustainability of Costa del Sol?

| | This group of indicators should not be considered | This group must be taken into account, and it is ... | | | | |
|---|---|---|---|---|---|---|
| | | Very little important | Little important | Important | Very important | Extremely important |
| Biodiversity | ○ | ○ | ○ | ○ | ○ | ○ |
| Quality and Pollution | ○ | ○ | ○ | ○ | ○ | ○ |
| Climate change | ○ | ○ | ○ | ○ | ○ | ○ |
| Quantity and treatment of urban waste | ○ | ○ | ○ | ○ | ○ | ○ |
| Land use | ○ | ○ | ○ | ○ | ○ | ○ |

Figure 4. Weight of the stakeholders in the process

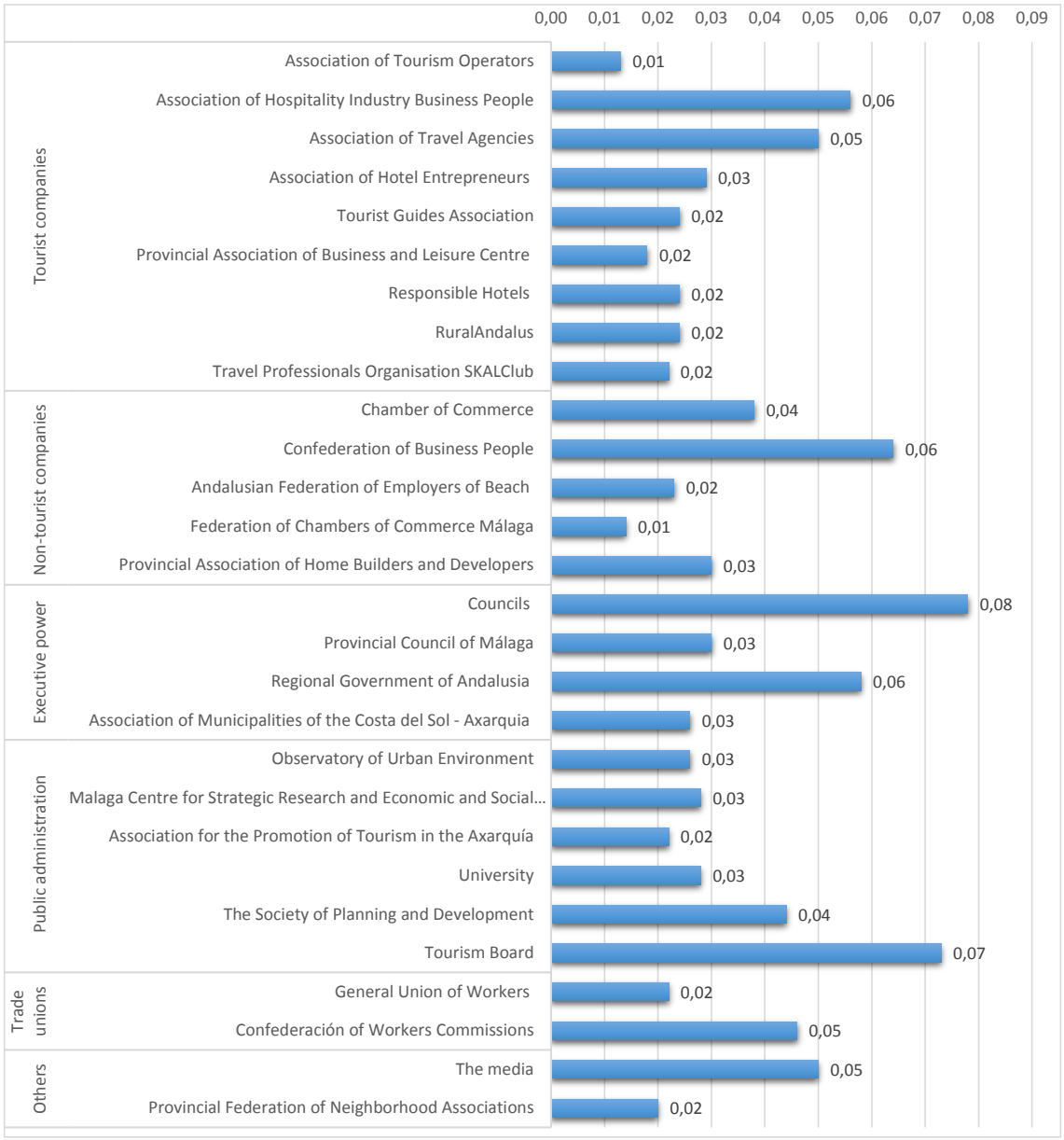


Figure 5. Ranking according to the compensation degree