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Standardized Reading of Sustainable Tourism Indicators for Ultraperipheral Regions

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Abstract: Sustainable development raises various challenges in terms of UPR for putting public policies into effect, and the concept, namely about the definition of metrics, is adapted to small parcels of territory. The objective of the present study is to introduce an alphanumeric reading scale for the tourism sustainability indicators in UPR, to be precise, Madeira and the Azores to allow a better interpretation and understanding. A total of 25 indicators were compared in the last 5 years and with the COVID-19 pandemic, although there are positive performances, a lack of data was observed for some indicators, and some lack of information in the last 2 years or more. During the last 5 years, the pillar of environmental sustainability has maintained its ideal form, but in comparison with the last 2 years, it has moved to critical status, which is in part a consequence of the lack of recorded data. There are indicators that are not registered on the UPR and some data from Turismo de Portugal refer only to the mainland zone. The major implication is raised in terms of the existing indicator systems, which are not all provided periodically, influencing the interpretation of the indicators of Portuguese UPR. Consequently, assertive, sustainable decisions are difficult to be taken based on non-existent or insufficient data.

Keywords: Azores; Madeira; resilience; risk; UPR; sustainability; tourism

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1. Introduction

Being aware of the limited natural resources, as well as of the hygiene issues and diseases deriving from the significant increase in the pressure on ecosystems, resulting in pollution, climate changes, and other natural risks, around half a century ago, various scientists and activists issued a global alert about the need to change the paradigm for economic and social development. In this way, a growing awareness about sustainability was formed diachronically.

In actual fact, the debate about sustainability indicators was triggered 50 years ago, the upshot of the chapter "Is growth obsolete?" published in 1972 [1]. A few years later in 1987, the term sustainability was actually institutionalized in the UNO Brundtland Report, as being the development model, which meets the needs of the present without compromising the capacity of future generations to cater to their own needs [2].

Hence, the concept of sustainability is complex, and it includes a broad set of variables that are interdependent, but integrate environmentally, social, economic, and financial issues which allow us to measure the environment and put forward suitable responses regarding the relationship between man and nature, namely, in regards to environmental and energy issues. In turn, the latter directly impacts economic growth and the quality of life of people.

These aspects are particularly important on the islands because they are territories that are vulnerable and dependent on continental platforms and revenue from tourism, which offset the isolation and afford the well-being and quality of life to local communities.

A research gap was identified in the lack of clarity when reading and analysing sustainable tourism indicators used by tourism destinations. Indicators are displayed with their respective measuring units without relating to levels of acceptance or giving alerts to unsustainable practices. Hence, the standardization of alphanumeric scales can provide a more user-friendly interpretation and view to assessing sustainable tourism development.

Bearing in mind the past and sustainable development, the objective of this work is to introduce an alphanumeric scale for a better understanding of the sustainable tourism indicators developed for the Portuguese Ultraperipheral Regions (UPR). In this way, it is intended to carry out a diagnosis, to be precise, to know what exists and what is their status to be regarded as measurable indicators in the Autonomous Regions of the Azores and Madeira. In fact, obtaining this type of knowledge and developing systems capable of attributing risk scales, which can act as prevention instruments for tourist destinations, is deemed to be extremely useful.

This work is structured into six sections, with the first being the introduction which contextualises the relevance of this study and sets out the proposed aims. The second section affords a review of the specific literature on UPR, the indicators systems found in UPR, safety indicators, what there are, and how they are being applied. The third section looks at a qualitative methodology for meeting the proposed objectives, in particular for the Autonomous Regions of the Azores and Madeira (RAA and RAM). The fourth section provides the results of the investigation and a comparison between the various indicators. The fifth section concludes the investigation with a presentation of the strengths of the indicators' analysis, indicating the practical implications of the study and the limitations encountered when carrying out the work. The final section refers to some future lines of work based on this study.

2. Review of the Literature

Sustainable development indicators emerged for the first time in 1995 at the initiative of the Commission on Sustainable Development, with the creation of the Work on Indicators of Sustainable Development programme. These indicators are an important appraisal tool for pointing towards unsustainable realities and they are useful both for the planning and monitoring of public policies which seek to achieve sustainable development [3].

The sustainability indicators may be regarded as variables of an operational nature of a certain attribute with regard to quality, characteristics, and property. There are various models for evaluating sustainability through indicators, at different levels, global, national, regional, or local, as well as in the appraisal of production systems. At the municipal level, some examples of methodological tools for measuring sustainability can be referred to: the Pressure-State-Response model, the Ecological Footprint, the Sustainability Barometer, Sustainable Development Indicators Brazil, the Municipal Sustainable Development Index or, for example, the *European Tourism Indicators System* (ETIS), developed for the sustainable management of tourist destinations.

For years scientists have been warning us about environmental issues, deriving from actions by human beings, highlighting the dangers to the planet and, consequently, to people's lives. In this regard, on 25 September 2015, 193 UNO Member States mobilised for the approval of an agenda: Agenda 2030 for Sustainable Development. It is a plan which seeks to attain prosperity in harmony with the planet, comprising 17 Sustainable

Development Goals (SDG) which, in turn, are divided into 169 aims that must be complied with by 2030.

However, there is still a long way to go in a wide range of activities, particularly in tourism where there are diverse sustainability challenges and, as if this were not enough, they are still very difficult to measure, notwithstanding the various attempts to do so. There are bibliometric studies that set out the importance of studying sustainable tourism concepts and their respective planning. It is a very vast field of knowledge, but many works are identified related to the creation of indicators that measure the performance of tourism [4,5].

A major loophole was identified in the implementation of management models which could integrate sustainable island tourist destinations, indicating the cause of the lack of precision of the management models for sustainable tourist destinations and the evident linearity of existing models, such as Tourism Area Life Cycle (TALC). In response, the authors put forward a Multifunctional Interactive Process Cycle (MIPC) based on the optimisation theory. In summary, the model identifies the main tourism indicators for island tourism and divides them into four areas of factors. The insular tourism development stages were carried out based on the indicators' parameters during the course of each of the four factors [6].

The general results show that the concept of an optimisation process was acceptable as a useful destination management model and that the policy and market niches were regarded as the main drivers for change. However, the results also showed that the indicators and the monitoring process needed more resources and development.

Managing tourism on the sustainability axes has its challenges and there is a need to analyse tourism locally with appropriate indicators. The benefit of using indicators used internationally is highlighted [7–9]. In many cases, carrying capacity indicators are used to create alert systems in tourist operations [10]. For example, on the island of Madeira, a Portuguese UPR, carrying capacity studies were carried out to create an information base capable of assisting decision-making processes pertaining to tourism pressure in the Laurel Forest, one of the most important natural resources for life on the island [11].

Measuring the progress of tourist destinations in the sustainability area has become, at present, one of the major challenges for the action of political decision-makers. In actual fact, if we analyse carefully, the authors believe that what may be measured is not "sustainability", but rather "progress towards sustainability", bearing in mind that this is not an ideal target bound to a fixed state of harmony, but a dynamic, continuous process of adjustment and reorientation of the development of tourism, on the way towards the balance between its multiple constituent dimensions [12].

In turn, sustainability is currently evaluated using the evaluation method based on objective data. However, this raises comparison issues, particularly owing to the major differences between the countries in terms of the methods for surveying the monitoring of ecological and environmental components, in addition to the statistical socioeconomic data methods, which renders the data results incomparable between each other [13].

Accordingly, the above authors propose an evaluation of the sustainability of ecotourism, from the perspective of the stakeholders, as a way of achieving the consistency of the data acquisition sources, acting in such a way as to complete the comparative analysis between countries and regions (ibidem). In addition, the relationship between the perception of stakeholders and the sustainability of ecotourism is conceptualised and quantified (ibidem).

Hence, generally speaking, the research into aspects of tourism and sustainability demonstrates a growing concern that the principles of sustainable tourism are difficult to implement in developing countries. Against this backdrop, there is an equally growing phenomenon of the recourse to the identification, selection, and evaluation of sustainability indicators for the speedy evaluation of tourism development, especially in more remote, sensitive destinations of the world, such as the islands and ultraperipheral regions.

For example, [14] analysed the Andaman and Nicobar Islands in India. The author brought together a series of indicators and research projects into development structures of rapid economic indicators which are developed and assessed mainly for developed countries, and he evaluated a viable top-down approach which is mainly based on local knowledge for sustainable tourism initiatives on less developed islands.

Hence, in the context of the islands, in particular, to select useful indicators for investigating the issue of sustainable tourism, it is important to understand which sustainability challenges face the Island Regions. In actual fact, each island is unique, and the uniqueness must not be called into question by a commitment to mass tourism, but rather through sustainable tourism. In this regard, authors [15] refer to a study [16] to propose six possible classifications which are essential for decision-makers to choose which sustainable tourism strategies must be deployed on islands, namely:

1. Climate;
2. Size and proximity to the mainland;
3. Isolated or part of the archipelago;
4. Regional governance endowed with political autonomy or part of the system of a mainland government;
5. Resident population ratio growing or falling;
6. Sociocultural homogeneity of the inhabitants and vulnerability to tourism.

Actually, in accordance with these authors, only by analysing the specific characteristics of each island can a search for sustainability strategy be defined subsequently in view of the fact that the challenges that island regions face are always different, both from an economic, environmental, and sociocultural perspective.

In conclusion, there are some perspectives on the analysis of island tourism sustainability based on the most diverse factors, resources, activities, or even on the people themselves. However, only more recently have studies begun to be developed that are based on measurement indicators, with a view to measuring the effects of government strategies, the actions of private individuals, and tourism activity as a whole. Finally, sustainable tourism also mobilises places and tourists for the preservation of biodiversity, the natural environment, and historical and cultural heritage, based on a strategy of the authorities and tourism industry activities. It is on this trendline, between a gap and an opportunity, that the present study on the systematisation of indicators and the application of a measurement scale has emerged, with a view to assessing the sustainability of RAA and RAM.

3. Methodology

Figure 1 gives an overview of the methodology followed for this research. The literature review was based on the records found in the Web of Science and on 10.05.2021, the filter "*Destination indicators (all fields) and Tourism (all fields) and Sustainability (all fields) and Island (all fields)*" was deployed. Using the selection criterion "articles or Proceedings papers", 41 works published between 2008–2022 were found for analysis which was subsequently extracted to an Excel file containing the author, title, source, and summary of each piece of evidence.

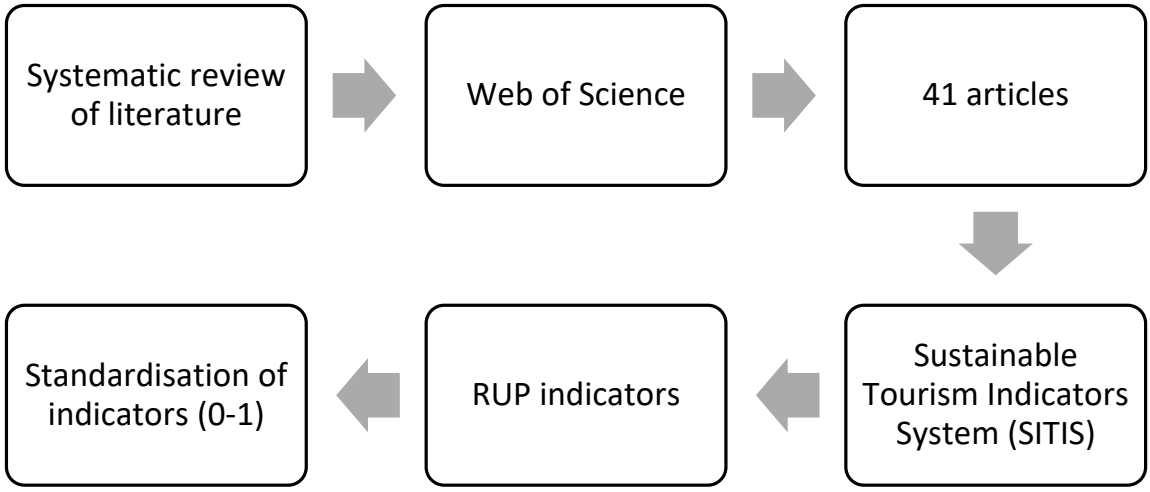

Figure 1. Organogram of the adopted methodology.

It used the tourist destinations sustainability Indicators available at Turismo de Portugal, which are based on the European project entitled *European Tourism Indicators System for sustainable destination management*. They constitute a management tool, and they support the decision-making process at tourist destinations focused on measuring their sustainability. They are deemed to be a monitoring system because based on the formulation of each indicator, it is possible to monitor their performance periodically. ETIS is also an information tool that serves the interests of tourism stakeholders [17].

Out of a total of 43 main indicators and 33 supplementary ones, Turismo de Portugal uses 25 indicators to monitor the sustainability of the Portugal Tourist Destination which includes the UPR of RAM and RAA [18]. The introduction of the data is credited to the Instituto Nacional de Estatística (National Statistics Office) and to Turismo de Portugal and the temporary selection criterion was adopted to calculate the indicators between 2016–2021, comparing their evolution over the last two years.

Each indicator was assigned a positive or negative impact level in accordance with its surroundings in the sustainability area. In other words, if it increases, it may be regarded as good in the context of its sustainable dimension or considered in a contrary fashion. The indicators were standardized to allow operations with different measurement units, and they fall between 0 and 1 in accordance with the following formulas [19], p. 239:

- Positive relationship: $f(x) = \frac{x-m}{M-m}$
- Negative relationship $f(x) = \frac{x-M}{m-M}$

(x) represents the value of the variable, or the indicator to be measured in a given period;
(m) represents the minimum value of the variable, or indicator in a given period;
(M) represents the maximum value of the variable, or the indicator in a given period.

This calculation also allows each indicator to be positioned on the colour scale which relates to the different sustainability levels. It should be noted that for the final calculation, the arithmetic mean of each dimension [20] was used to graphically project the sustainability values of each UPR.

3.1. The Autonomous Region of the Azores

The Azores are an autonomous region that although it is dependent on the government of the Portuguese Republic, has the political freedom to govern the nine inhabited islands of the Archipelago located in the North Atlantic, consisting of the islands of Corvo and Flores in the western group, the islands of Graciosa, Terceira, São Jorge, Faial and Pico in the central group and the islands of São Miguel and Santa Maria in the eastern group. The archipelago is shown in Figure 2 and is regarded as the westernmost point of Europe, and it is a distance of around 1500 km from Lisbon [21].

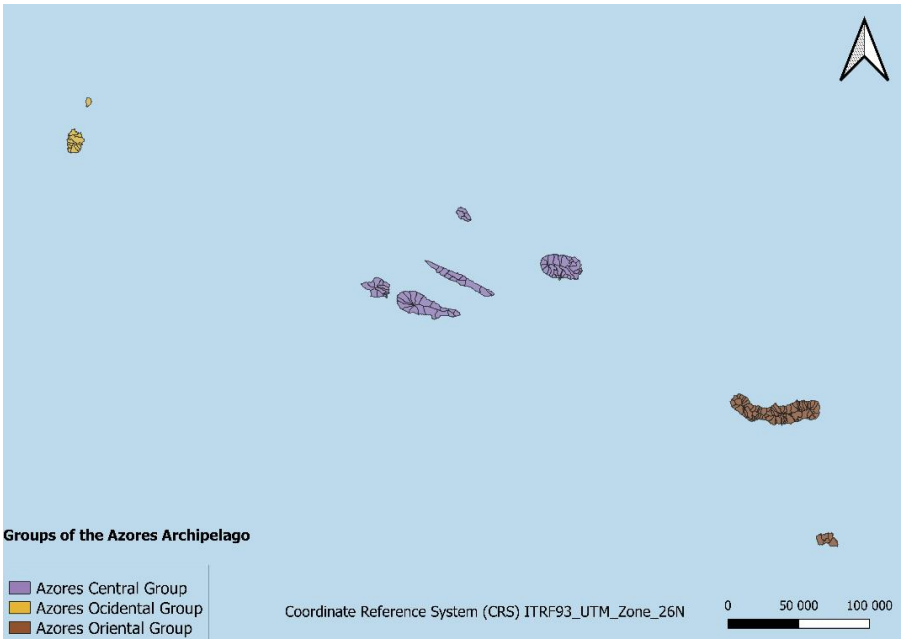

Figure 2. The Autonomous Region of Azores. (Source: Authors by ESRI ArcGIS, 2020).

Throughout the archipelago, cetaceans can be observed, going on nature walks, going up to volcanoes, and scuba diving to observe manta rays and sharks in the immensity of the Atlantic Ocean, with these being the most popular tourist activities [22,23].

The RAA has an area of around 2322 km^2 and it is of volcanic origin, endowed with cones lined in vegetal covering associated with native forests, which on some islands are Laurel. The islands are endowed with rocky contours comprising small bays which serve as a port of refuge for fishing and recreational activities, and, in some cases, waterfalls can be observed on the coastline [23]. These UPR boast a wide variety of sea birds protected by the Birds Directive, species characteristic of lagoon systems, and coastal talus-platforms (*fajãs*). As it is an insular, very remote area, it contains protected terrestrial areas, inland waterways with seawater, endowed with extremely rare ecosystems, and of great ecological value. Other natural occurrences stand out for their rarity, ecological, or landscaping value, and scientific, cultural, and social importance.

During the last 20 years, the average temperature varied between 14.0 °C (Pico) and 15.4 °C (Ponta Delgada), with a minimum temperature of 7.1 °C (Graciosa) and a maximum temperature of 19.9 °C (Pico and S. Jorge). The air communication routes are run by the companies Ryanair, TAP, SATA AIR Açores, AZORES Airlines, and the maritime communications consist of cargo and cruise ships.

Tourism has proven to be highly valuable for the development of the archipelago and according to tourism statistics, the RAA received a total of 491.7 K visitors in 2021, with 332.7 K from the domestic market (67%). The main foreign markets are Germany (22.5 K), France (21.8 K), Spain (17.8 K), and the USA (14.8 K) [24].

3.2. The Autonomous Region of Madeira

The Autonomous Region of Madeira is shown in Figure 3, and comprises four islands with populations on the islands of Madeira and Porto Santo, whilst the Desertas and Selvagens islands are uninhabited. It is located southwest of Mainland Portugal and is around 970 km from Lisbon, characterised by its great importance for tourism.

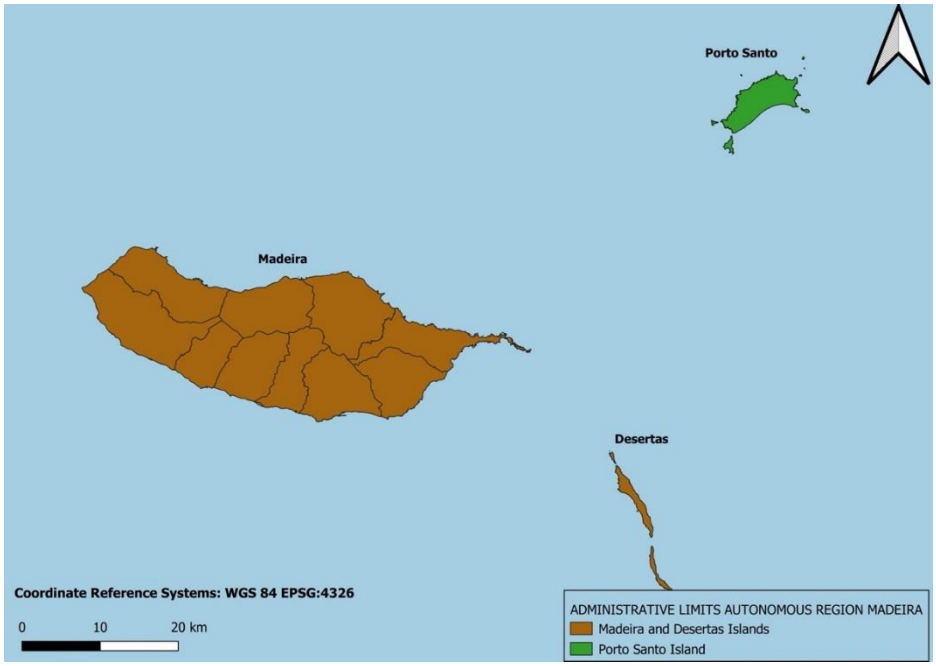

Figure 3. Archipelago of Madeira. (Source: Authors by ESRI ArcGIS, 2020).

The island of Madeira is the densest populated and it is characterised by dramatic scenarios with vertiginous slopes and sparkling roads. The most representative tourism type is nature tourism, and you can visit the Laurel Forest areas or go whale watching, opt for wine tourism, gastronomic tourism, and nautical tourism. Hence, the five most popular tourist activities are walking in the Laurel Forest of Madeira, Canyoning, Mountain bike, whale watching, and sightseeing.

The highest point is on the island of Madeira, Pico Ruivo which has an altitude of 1862 metres. The dominant habitat is Alpine volcanic combined with a desert in some geographic areas. In terms of biodiversity, there are many protected species listed on the Natura 2000 network. The temperature varies between 0 °C at the high points and 32 °C in the hottest areas.

The communication routes with RAM are guaranteed by air by Iberia, Austrian Airline, SATA Azores, Binter Canárias, British Airways, brussels airline, Condor, Easyjet, ederweiss, Eurowings, Finnair, Jet2.com, Lufthansa, Luxair, SAS Scandinavian, Ryanair, TAP Airportugal, Transavia France, and Tui. Via the maritime route, there is a ferry transport between the islands, but not between RAM and the Mainland. Land transport on the islands can be carried out by bus, taxi, or shuttle bus.

According to the 2019 census, RAM has 253,945 residents and according to Madeira, it has a density of 300 inhab/km^2. In terms of tourism, RAM received in 2021 a total of 931.3 K guests, with the international markets being the most representative, the United Kingdom (148.9 K), Germany (113.2 K), France (65.1 K), and Poland (45.8 K). The national market represents 36.4% of total guests in RAM [24]. The mean stay is 5.7 days.

4. Results

4.1. Tourism Sustainability Levels in RAA

The results are based on a comparison of the various indicators, and they contribute a value of a uniformised scale reflecting the sustainability level as well as its arithmetic mean for each dimension. Hence, based on Annex I (Supplementary Materials), Table 1 was constructed which assesses each sustainability dimension over a 5-year period (I5), indicating the pre-COVID-19 records and appraising performance in the last 2 years of records (I2); in other words, during the COVID-19 pandemic period and after the end of the respective restrictions.

Table 1. Classification of sustainability levels.

Index	Colouring	Sustainability Level
0.000–0.250		critical
0.251–0.500		alert
0.501–0.750		acceptable
0.751–1.000		ideal

Source: Martins and Cândido (2012) [20].

The interpretation of the 25 sustainability indicators listed at Turismo de Portugal [18] indicates that there is a lack of temporary data in some indicators. In other words, in regards to the information available, there are not always data for 2016–2021. For example, the social sustainability indicator lacks some data with regard to time series aspects. To calculate this dimension, the "tourist density" was considered to have a positive relationship with its environment, though the greater the density, the greater the likelihood of noting the congestion of tourist spaces, amenities, and attractions, both by the local population and by visitors.

The indicators after standardization [25] are situated at between 0.000 and 1.000 on the sustainability scale, bestowing a mean index of 0.443 during the last 5 years and 0.000 in the last 2 years of records, indicating a state of "alert" and "critical", respectively, for the social side.

The economic sustainability indicator [26] related to tourism employment figures only has information for 2021. In this way, the sustainability level was only calculated for this year, and it pertains to the 5-year period, though its evolution during the last two years cannot be evaluated properly.

On the dashboard of Turismo de Portugal [18], the indicators related to the "average stay", "tourist revenue", "number of tourists", "mean revenue per overnight stay" and "tourist revenue in GDP" only show data nationwide which does not allow their evolution to be evaluated for RAA. Even so, with the exception of the seasonality rate, the indicators were considered as having a positive relationship with their environment. The sustainability levels on the economic side are positioned as "acceptable". The seasonality rate also recorded 0.000, being regarded as "critical". On average, the sustainability value of the economic dimension is 0.699 (acceptable) in the last 5 years and 0.714 in the last 2 years of records.

It should be noted that owing to the lack of information about RAA, some indicators cannot be calculated, which ends up favouring the arithmetic mean of this dimension.

The environmental dimension considers the indicators "Energy Consumption and CO_2 Emissions in Tourism" and "Urban Waste Generated by Tourism" to have a negative relationship with their environment owing to the fact that it considers the consumption of natural resources with the consequent emission of CO_2 into the atmosphere. As far as urban waste is concerned, as there is production, this entails the use of resources, technical resources, and equipment to manage the waste management process. Then, the management of time, people, and public funds has an impact. For RAA, there are no data pertaining to the first indicator looked at and with regard to waste, though the fact that the value is 0.715 indicates that the quotient ratios are positive and with little differences, indicating an "acceptable" level.

With an aim of summarising the sustainability levels and understanding the value that each contributes, Table 2 shows the index of each dimension, comparing the 5 years of data with the last two years of the COVID-19 period (2020–2021).

Table 2. Summary of sustainability levels in RAA.

Dimension	Index (01)	Sustainability Level	I5	%I5	I2	%I2
Social	0.000–0.250	Critical	0	0%	4	100%
	0.251–0.500	Alert	2	50%	0	0%
	0.501–0.750	Acceptable	2	50%	0	0%
	0.751–1.000	Ideal	0	0%	0	0%
			4	100%	4	100%
	Index (01)	**Sustainability Level**	**I5**	**%I5**	**I2**	**%I2**
Economic	0.000–0.250	Critical	6	50%	7	58%
	0.251–0.500	Alert	0	0%	0	0%
	0.501–0.750	Acceptable	1	8%	0	0%
	0.751–1.000	Ideal	5	42%	5	42%
			12	100%	12	100%
	Index (01)	**Sustainability Level**	**I5**	**%I5**	**I2**	**%I2**
Environmental	0.000–0.250	Critical	1	11%	2	22%
	0.251–0.500	Alert	0	0%	0	0%
	0.501–0.750	Acceptable	2	22%	0	0%
	0.751–1.000	Ideal	6	67%	7	78%
			9	100%	9	100%

According to the social dimension record, the indicators in the last 5 years can be divided between the "alert" and "acceptable" levels, attaining 0.443 (see Figures 4 and 5). However, in the last 2 years, the levels are "critical" (0.000), undoubtedly because there are no records in 2021.

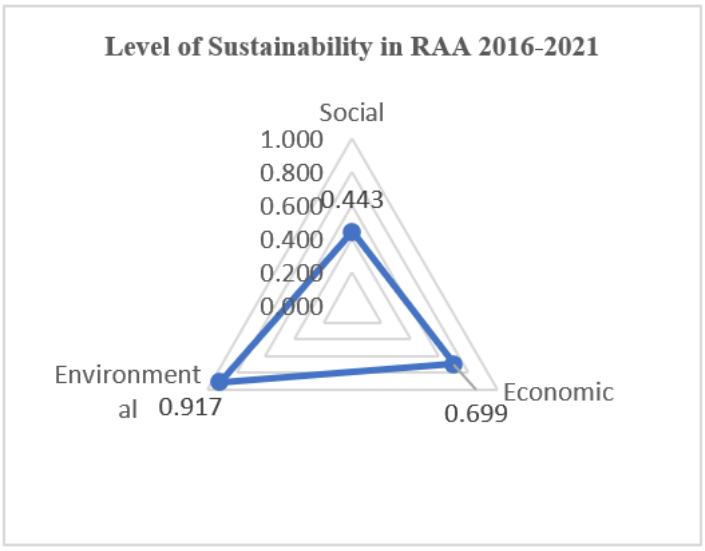

Figure 4. Comparison of sustainability levels values in RAA 2016–2021.

The economic dimension is the most extensive regarding the number of indicators, but of the 12 presented, only 7 of them have been included in the accounts owing to the absence of data for the others. Even so, their performance positions the indicator at 0.699 values and it could be said that it is an "acceptable" level. However, half of the indicators are "critical" or non-existent. In the last 2 years, the indicators recorded the maximum of the scale, being "ideal", but this can be put down to the fact that until 2020 there were no records, so the evolution was positive.

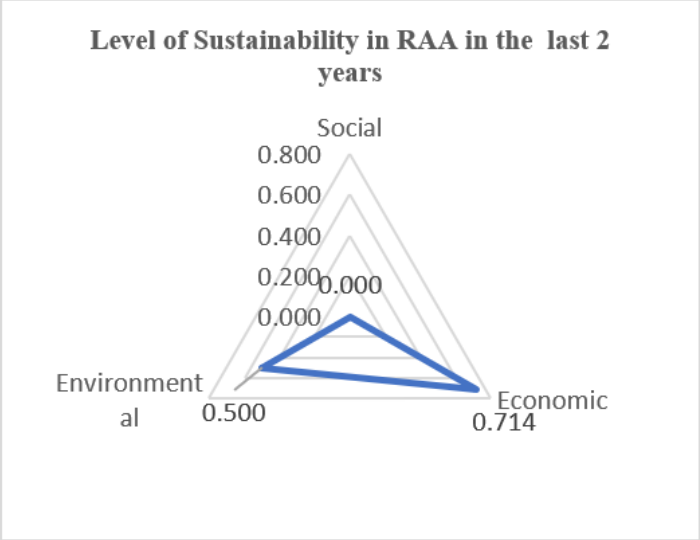

Figure 5. Comparison of sustainability levels values in RAA in the last 2 years.

The environmental dimension is the one that has the best sustainability level, being in line with that which characterises RAA, nature. Of the nine indicators, only four indicators have been recorded until 2020, one is non-existent, and four were recorded until 2019. Even so, the evolution over 5 years positions the "ideal" dimension with 0.917 values. By contrast, in recent years, only one indicator was recorded, and the performance of the dimension moved to "alert" status, with 0.500 values having two "critical" indicators and two "Ideal" indicators.

4.2. Tourism Sustainability Levels in RAM

Based on Annex II (Supplementary Materials), Table 3 shows the evolution of the 25 sustainability indicators of Turismo de Portugal [18] in the time series 2016–2021 and also in the last 2 years to analyse the effect of the COVID-19 pandemic and compare with both the UPR (the Azores and Madeira) for the same parameters. Hence, the social dimension also contains the records of all its indicators only until 2020 at the sustainability levels of "alert" and "critical", with I5 = 0.326 e I2 = 0.000 values on the scale presented.

Table 3. Summary of sustainability levels in RAM.

Dimension	Index (01)	Sustainability Level	I5	%I5	I2	%I2
Social	0.000–0.250	Critical	1	25%	4	100%
	0.251–0.500	Alert	2	50%	0	0%
	0.501–0.750	Acceptable	1	25%	0	0%
	0.751–1.000	Ideal	0	0%	0	0%
			4	100%	4	100%
	Index (01)	**Sustainability Level**	**I5**	**%I5**	**I2**	**%I2**
Economic	0.000–0.250	Critical	7	58%	8	67%
	0.251–0.500	Alert	1	8%	0	0%
	0.501–0.750	Acceptable	1	8%	0	0%
	0.751–1.000	Ideal	3	25%	4	33%
			12	100%	12	100%
	Index (01)	**Sustainability Level**	**I5**	**%I5**	**I2**	**%I2**
Environmental	0.000–0.250	Critical	1	11%	8	89%
	0.251–0.500	Alert	0	0%	0	0%
	0.501–0.750	Acceptable	2	22%	0	0%
	0.751–1.000	Ideal	6	67%	1	11%
			9	100%	9	100%

Economic dimension with "acceptable" values for both periods, but even so, in 12 indicators, 5 of them are not measured, as the data are non-existent. As with RAA, in RAM, i.e., one of the zones with the highest tourist flows in Portugal [24], the seasonality rate indicator is regarded as critical. Employment in tourism by age bracket, gender, and educational level is an indicator that reflects the economy of RAM, attaining the maximum value on the scale, followed by the number of establishments open all year round and the average expense per tourist.

The environmental dimension is also considered to be the one which features most prominently on the sustainability scale, attaining an "ideal" level with 0.900 values in the assessment for the last 5 years, but falling sharply to an "alert" level when we compare its evolution over the last 2 years. For this last analysis period, this dimension is measured with three indicators, as four indicators were not recorded in 2019 and 2020, making it impossible to calculate the sustainability level more accurately.

In summary, Table 3 sets out the sustainability levels with the partial percentage of indicators positioned at each level. The four indicators of the social dimension are divided by the scale to calculate I5 but focus on the "critical" level when we analyse I2.

In the economic dimension and the environmental dimension, the indicators cover the different levels of the scale when I5 is calculated, but in the last 2 years, only those aspects of the scale which accommodate the indicators are, in particular, at the lowest level.

The environmental dimension has the majority of the I5 indicators positioned at the positive end of the scale, in other words, "acceptable" and "ideal", but reversing the situation when evaluating I2 which contains eight indicators at the "critical" level owing to the fact that there was no record during this time period.

It can be observed in Figures 6 and 7 how the sustainability pillars are different, and during the greatest data logging period, the environmental aspect attains 0.900 values and the economic one remains at "acceptable" with 0.619 values. The figures indicate that greater attention needs to be paid to the social pillar because 0.326 values are an "alert" status. Regarding the last 2 years, the sustainability levels are very different, with the social pillar falling to the value of 0.000 and noting a huge fall in the environmental pillar, positioned at 0.333 values. The economy pilar maintains values close to 0.667.

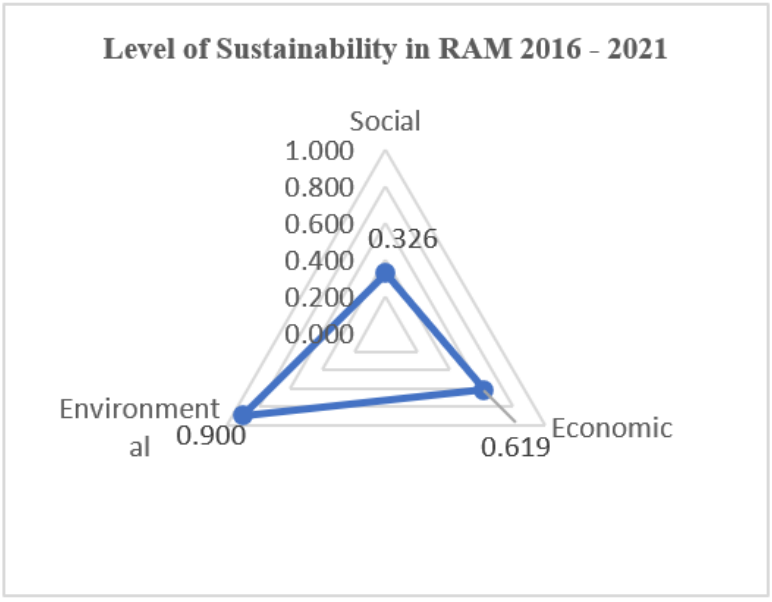

Figure 6. Comparison of sustainability levels values in RAA 2016–2021.

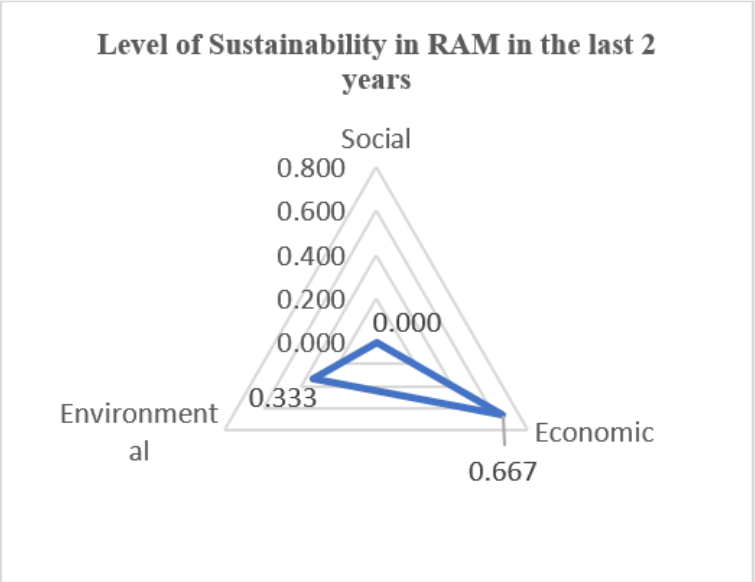

Figure 7. Comparison of sustainability levels values in RAA in the last 2 years.

5. Conclusions

Tourism is undoubtedly an activity that is very important for the economy, and it plays a relevant role in contemporary society [27]. There are benefits in ascertaining the state of the resources to be found in the territory and the behaviours of the economy in line with sustainable local development. In this regard, indicators are developed that, when applied, monitor the sustainable development of tourism in UPR, bearing in mind their geographic context and the setting of targets [28]. The competitiveness of tourist destinations is also measured using indicators systems and it allows for the observation of different perspectives between negotiations related to tourism and competitive advantages [29,30].

In pursuing the objective of this study, the existence of an indicators system was identified and managed by Turismo de Portugal, supplied by the local and national statistics' agencies. This ETIS-based system [17] is characterised by monitoring a series of indicators associated with the performance of tourist destinations of RRA and RAM. It should be stressed that the indicators are aligned with the 17 Sustainable Development Goals, developed by the UNO, insofar as they look at the monitoring of the metrics associated with decent work and the economic growth of the RUPs under analysis. The indicators also show parameters related to the protection of marine life, considering the water quality in bathing areas and safety [31]. These indicators complement studies carried out on islands of the Mediterranean and through international development and cooperation programmes, bioindicators used such as seaweed to monitor the impacts generated by the production of waste deriving from tourism [32].

Ecological diversity ends up serving as an indicator of a healthy ecosystem which may be a fundamental resource for the carrying out of tourist activities. Great store is set by the local community which must be given an explanation regarding the value of the resources supporting said activity. Hence, encouraging the sites and main actors of tourism is a step towards protecting the environment and increasing the satisfaction levels of tourists [11,33,34].

In actual fact, in isolated tourist destinations, such as UPR, all tourist assets are to be preserved, monitoring the impact of anthropogenic activities in such a way as to guarantee and preserve resources for future generations [2,11]. One example is the forms of generating alternative energy for heating water or photovoltaic energy [35], or even the use of water in hotels set up at tourist destinations [36].

In this way, these indicators became useful operational management tools, used in such a way as to mitigate the risks of losing the sustainability of tourism, the main activity

in UPR, in Madeira more than in the Azores. Just like carrying capacity indicators focused on the sustainable use of tourist attractions [34,37,38], indicators are capable of assisting the process to create new policies and the decision-making process for the sustainable development of UPR [3].

Although the indicators system is deemed to be very complete, there are indicators that lack a lot of information. Despite the fact that, over a longer time interval, this shortcoming is diluted, it still has a major impact in shorter periods, such as that analysed for the pandemic period. This type of shortcoming had already been suggested [6], in terms of the accuracy of the tourist destination management model. This is an important factor for measuring the performance of sustainability; or, by contrast, if the model per se constitutes a risk to the sustainable management of the tourist activity and the destination itself.

In actual fact, the systematic management of the set of indicators presented is a linear form for observing the impact that tourism has in UPRs [12], now indicated as the standardization of the scale which is easy to interpret. In practice, the values of each indicator and respective measurement units guarantee not only a technical meaning to support the academics, or those who know the unit, being concurrently perceptible to the general public. It is simply a metric presented.

In other words, the positioning of each dimension and/or indicator on a standardized scale with status designation makes the interpretation and perception of the indicators easier to understand and to use as knowledge in the management of the UPRs and to support the political decision-makers. In the same way, an explanation is provided to the population and tourists regarding the status of each indicator in the sustainable tourism system of each UPR.

In this way, the scales allow a greater degree of interpretation, and they may be used to explain the phenomena of the current tourism status and the potential for any excesses created by the activity. Tourism, when planned and operated with considerations within the sustainability triangle, may be a form of local development, but when associated with an indicators system, it helps to mitigate local problematic issues associated with tourism [39].

6. Limitations of the Study

The unlikelihood of approaching all the perspectives contained in the 25 indicators used by Turismo de Portugal was noted. For example, the lack of data verified for certain indicators leads to a redundant interpretation of sustainability levels, associated with the inaccuracy of measurements, and affects the ability to maintain or support tourism development over time.

Another aspect concerns the delineation of typical indicators in the analysis of sustainability, limiting information related to public health, or safety in the tourist destination. It is crucial to update data and indicators to suggest current needs and to be in line with the new ways of managing tourism.

7. Future Work

This work has not resolved the issue of updating the information of all the indicators, which will allow comparison with this study and also an ascertainment as to whether the policies adopted have been the most appropriate ones with an aim of sustainability or not. The compilation of data will not only strengthen the importance of each indicator, but it also supports the decision-making process and the development of sustainable policies to benefit the UPR.

In addition to this group of indicators, safety indicators should accrue which are directly related to tourism, as well as short descriptive notes of the rapid interpretation of the scale.

Finally, each citizen, by becoming more enlightened, may exercise his/her critical, vigilant citizenship about the sustainability goals [40], increasing the power to intervene of civil society in the monitoring of public policies and the behaviours of tourism stakeholders.

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