Tourism Satellite Account in Peru and the Statistical Framework for Measuring the Sustainability of Tourism

Alberto Enrique Espinola Mariños
Ministry of Foreign Trade and Tourism - Peru
Calle Uno Oeste, N° 050, Urb. Corpac, San Isidro - Lima, Perú
aespinola@mincetur.gob.pe

Summary

Tourism has become a pillar for the economic development of the countries, and in Peru it constitutes one of the main foundations for the development of the national economy, generating a positive impact on the added value, consumption, employment, investment, among other tourist aggregates. In this context, in 2003, the first Tourism Satellite Account was prepared and published in the country with the objective of knowing and measuring the contribution of the tourism sector to the national economy, as well as allowing comparability with other sectors and countries, methodologically framed in the System of National Accounts (SNA), in the Recommendations on the General Framework for the Tourism Satellite Account (TSA) and in the International Recommendations for Tourism Statistics, the latter two provided by the World Tourism Organization (UNWTO).

One of the objectives of this work is to analyze the performance in the last six (6) years of the main indicators that come from the Tourism Satellite Account, at the level of Peru and the countries that make up the Pacific Alliance.

On the other hand, in recognition of the importance of the preservation of the environment, efforts to measure the impact that economic activities have on the environment are evidenced through the Environmental Accounts, which are methodologically framed in the System of Environmental and Economic Accounting (SEEA).

With regard to the Statistical Framework for Measuring the Sustainability of Tourism, this work aims to develop a series of indicators that help to understand tourism development under a sustainability approach by incorporating variables of economic, social, environmental and institutional dimension, to measure tourism in Peru. For this purpose, two (2) general frameworks are used, aimed for measuring the sustainability of tourism at the national level, where the problem is identified and analyzed, information needs, among other variables and, in this respect, a proposal of indicators is prepared for measuring the sustainability of tourism, according to the different available sources, within the dimensions of sustainability indicated, and also elaborating the technical data sheets for each indicator, where elements such as the name, type according to the general framework are detailed and according to dimension, definition, method of calculation, among others.
The indicators obtained will serve as a basis for the subsequent elaboration of composite indicators that link and integrate the economic, social, environmental and institutional dimensions, which will be relevant for the creation of a statistical framework for Measuring the Sustainability of Tourism in Peru.

**Keywords** tourism; economic, social, environmental and institutional dimensions; tourism satellite account, measuring the sustainability of tourism.

## Introduction

The Tourism Satellite Account (TSA) and the Statistical Framework for Measuring the Sustainability of Tourism (MST) are support in the National Statistical System and methodologically are framed in the System of National Accounts by the National Institute of Statistics and Informatics.

At the international level both topics are based on the Recommendations on the General Framework for the Tourism Satellite Account (TSA) 2008 and on the International Recommendations for Tourism Statistics 2008 of the World Tourism Organization (UNWTO); as well as in the Environmental Accounts that are framed in the System of Environmental and Economic Accounting (SEEA).

This document consists of three parts, the same as detailed below.

In the first part, the importance of tourism in the world and in the countries of the Pacific Alliance is detailed, through the use of indicators such as the arrival of international tourists, income from foreign currency generated by receptive tourism, tourist employment, flow of trips by internal tourism, spending and the average stay of foreign tourists.

In the second part, the importance of the Tourism Satellite Account and the main indicators obtained in Peru and in the countries of the Pacific Alliance are mentioned.

In the third part, the Statistical Framework for Measuring the Sustainability of Tourism is exposed, where the conceptual aspects and the advances that are being made in Peru are mentioned to implement the statistical framework and its respective analysis.

Finally, the conclusions, recommendations and the bibliography are detailed.
I. Importance of Tourism

In the world, during the years 2012 - 2017, the arrival of international tourists to the countries registered an average annual growth of 4.9%; while, the incomes of foreign currency generated by receptive tourism\(^1\) reached an average growth of 3.2%.

In the year 2017, the arrival of international tourists to the countries registered a growth of 6.9% and reached 1 thousand 326 million, which constituted an increase of 86 million tourists with respect to the previous year. In the same year, the entrance of foreign currency by incoming tourism amounted to US $ 1 thousand 340 million, increasing by 7.6%.

In this context, the countries of the Pacific Alliance also reached positive levels in the tourism sector, highlighting the preferences for visiting Machupicchu, Cusco, Puno, Arequipa, Lambayeque and Lima in Peru; Bogotá, Cartagena de Indias, La Isla de Providencia and Santander in Colombia; Riviera Maya, Cancún, Acapulco and Mexico City in Mexico; and Valparaíso, Easter Island and Santiago in Chile.

In Peru, during the years 2012-2017, the arrival of international tourists\(^2\) recorded an average annual growth of 7.2%. Likewise, in the same period the income of foreign currency generated by incoming tourism reached an average growth of 8.3%.

In 2017, the arrival of 4 million 032 thousand international tourists was registered, showing an increase of 7.7%, which meant 287 thousand 878 more tourists than in the previous year. On the other hand, the income of foreign currency generated by incoming tourism amounted to US $ 4 thousand 573 million and grew by 6.3%. It is worth mentioning that, tourism in Peru is the third largest generator of foreign exchange with respect to the export sector.

On the other hand, during the period 2012-2017, tourist employment registered an average annual growth of 1.9%. Likewise, in 2017, it reached a total of 1 million 325 thousand jobs, registering a growth of 3.1% compared to 2016, that is, 40 thousand new jobs were generated in response to the demand for tourism goods and services by part of the visitors, whose growing affluence in these years gave dynamism to the sector.

During the period 2012-2017, the flow of trips by domestic tourism recorded an average annual growth of 4.5%. In the year 2017, it amounted to 43 million 500 thousand trips and grew 4.6%. Likewise, Lima was the main issuer of internal tourists, representing 45.2% of the total trips made, followed by La Libertad (5.4%) and Arequipa (5.2%).

In 2017, the average expenditure of foreign tourist during their average stay in Peru (10 nights), reached US $ 946. This expenditure refers to the purchase of goods and services for consumption

\(^1\) The incomes of foreign currency by receptive tourism (trips) do not include the income generated by the international passenger services contracted by the companies located outside the country of reference of the travelers, since these are registered in a separate category (passenger transport).

\(^2\) Total, International tourists = Foreign tourists + Peruvian tourists living abroad.
In **Colombia**, during the years 2012-2017, the arrival of international tourists recorded an average annual growth of 13,1%. In the same period the income of foreign currency generated by incoming tourism reached an average growth of 6,9%.

In 2017, the arrival of 4 million 027 thousand international tourists was registered, showing an increase of 21,4%, which meant 709 thousand 578 more tourists than in the previous year. In addition, the income of foreign currency for incoming tourism amounted to US $ 4 thousand 821 million and grew by 6,6%, which was an increase of 299 million more than the previous year.

On the other hand, during the period 2012-2016, tourist employment registered an average annual growth of 2,4%. In 2016, it reached a total of 2 million 585 thousand jobs, registering a decrease of 2,2% with respect to 2015.

Between 2012-2016, the flow of trips by domestic tourism recorded an average annual growth of 1,4%. In 2016, it amounted to 40 million 600 thousand trips and grew 9,5%.

In 2016, the average expenditure of foreign tourist during their average stay in Colombia (17 nights), reached US $ 3 051. This expenditure refers to the purchase of goods and services for consumption.

In **Mexico**, during the years 2012-2017, the arrival of international tourists registered an average annual growth of 10,9%. In the same period, the entrance of foreign currency by receptive tourism reached an average growth of 10,9%.

In 2017 the arrival of 39 million 291 thousand international tourists was recorded, showing an increase of 12%, which meant 4 million 212 thousand more tourists than the previous year. In addition, in 2017, the income of foreign currency generated by incoming tourism amounted to US $ 21336 million and grew by 8,6%, which represented an increase of US $ 1686 million in relation to the previous year.

On the other hand, during the 2012-2016 period, tourism employment increased progressively in the main activities related to the tourism sector, which recorded an average annual growth of 1,6%. In 2016, it reached a total of 2 million 271 thousand jobs, registering a growth of 1,9% compared to 2015, that is, it generated 41 thousand new jobs in response to the demand for tourism goods and services by the visitors.

In 2017, the average expenditure of foreign tourist during their average stay in Mexico reached US $ 488.1. This expenditure refers to the purchase of goods and services for their consumption.
In Chile, during the years 2012-2017, the arrival of international tourists recorded an average annual growth of 12.7%. The income of foreign currency generated by incoming tourism reached an average growth of 11.1%.

In 2017, the arrival of 6 million 450 thousand international tourists was registered, showing an increase of 14.3%, which meant 809 thousand more tourists than in the previous year. In addition, in 2017, the income of foreign currency generated by incoming tourism amounted to US $ 3 thousand 634 million and grew by 36.4%, which was an increase of US $ 969 million more than in the previous year.

On the other hand, during the period 2013-2017, tourism employment increased in the main activities related to the tourism sector, which recorded an average annual growth of 4.2%. Also, in 2017, it reached a total of 347 thousand jobs, which meant a 1.8% growth compared to 2016, that is, generated 6 thousand new jobs in response to the demand for tourism goods and services by the visitors.

In Chile, in 2016, the flow of trips by domestic tourism totaled 22 million, while in 2012 it was 21 million.

In 2017, the average expenditure of foreign tourist during their average stay in Chile (10 nights) in Chile, reached US $ 567. This expenditure refers to the purchase of goods and services for their consumption.

II. Tourism Satellite Account

The World Tourism Organization (UNWTO) promotes the Tourism Satellite Account (TSA), allowing to know the incidence of tourism in the national economy with reliable and comparable data, making it possible to determine the volume and value of economic transactions of tourist activities.

The Tourism Satellite Account is an instrument for the economic measuring of tourism, developed on the basis of a statistical information system within the framework of the National Accounts, which contributes to the decision making of the sector, which is prepared and published by the Ministry of Foreign Trade and Tourism, and is designed to evaluate in detail the economic contribution of tourism-related activities (touristic GDP, touristic consumption and touristic employment, among others) in accordance with the regulations, classifications, definitions and recommendations of the World Tourism Organization. Tourism, thus allowing to establish valid comparisons with other activities and between countries.

Also, its particular characteristics differentiate it from conventional accounts, facilitating a thorough analysis of the tourist production of goods and services from the point of view of the offer and consumption of goods and services by visitors from the point of view of the tourist demand.
Peru has a cultural tradition, important consolidated tourism products, a variety of tourist destinations, tourist resources, museums, protected natural areas and a large production of crafts that keeps alive the tradition and identity of local communities, which are important as an engine of development and tool to reduce poverty, generating a multiplier effect on employment and investments. In 2003, the Ministry of Foreign Trade and Tourism of Peru decided to prepare the Tourism Satellite Account.

On September 16th, 2009, through Law No 29408, the 'General Tourism Law' was published, in which Article 14 states that 'It is the responsibility of the Ministry of Foreign Trade and Tourism to prepare and periodically update the Tourism Satellite Account, with the participation of public and private institutions linked to tourism' The National Institute of Statistics and Informatics facilitates the work of the Ministry of Foreign Trade and Tourism required for the preparation of the Tourism Satellite Account.

Since 2003, five (5) Tourism Satellite Accounts have been drawn up in Peru. These accounts have allowed us to identify the strengths and weaknesses of tourism statistics.

- The Tourism Satellite Account, evaluation year 2001 (published in September 2005), resulted in a contribution of 3.3% of touristic GDP with respect to total GDP.

- The Tourism Satellite Account, evaluation year 2002 (published in June 2010), resulted in a contribution of 3.6% of touristic GDP with respect to total GDP.

- The Tourism Satellite Account, evaluation year 2007 (published in July 2011) resulted in a contribution of 3.7% of touristic GDP with respect to total GDP.

- The Tourism Satellite Account, evaluation year 2011 (published in May 2017) resulted in a contribution of 3.6% of touristic GDP with respect to total GDP.

- The Tourism Satellite Account, evaluation year 2015, is in the process of being elaborated and it is expected to reach a contribution of 3.9% of the touristic GDP with respect to the total GDP.

Also, the contribution of tourism GDP with respect to the total GDP of the countries of the Pacific Alliance are:

- In 2017, in Peru the contribution of the Touristic Gross Domestic Product with respect to the total GDP represented 3.9%, while for the year 2018, it is expected to reach 4%.

- In 2016, in Colombia the contribution of the Touristic Gross Domestic Product with respect to total GDP represented 1.8%.

- In 2016, in Mexico the contribution of the Touristic Gross Domestic Product with respect to the total GDP represented 8.7%.

- In 2012, in Chile the contribution of the Touristic Gross Domestic Product with respect to total GDP represented 3.5%.
III. Statistical Framework for Measuring the Sustainability of Tourism

Peru is a megadiverse country, with great tourist potential where the main types of tourism are cultural tourism, nature tourism and adventure tourism, sun and beach.

Sustainable tourism will reduce poverty and due to the multiplying effect on employment and economic activities is that the Ministry of Foreign Trade and Tourism has been developing actions to implement the Statistical Framework for Measuring the Sustainability Tourism

Therefore, Peru recognizes that the sustainability of tourism implies an adequate balance of environmental, economic, social and cultural aspects; in other words, tourism seeks the economic development of a community without affecting negatively its social values or its environment, avoiding for example cases of species depredation, inadequate management of solid waste, deterioration due to misuse of cultural heritage or lack of respect for the customs of existing communities.

Also, the World Tourism Organization (UNWTO) has expressed that Sustainability of Tourism has an important position in its list of priorities and has recognized that tourism contributes to the three dimensions of sustainable development, through the creation of employment, income generation, education, poverty reduction and environmental sustainability.

Despite the long-standing interest and debate on sustainability of tourism and advances in tourism statistics, there is still no standardized basis for the collection of information, either nationally or departmentally. This is a significant gap, which limits the potential for the development of policies aimed at promoting sustainability of tourism in Peru. In this regard, to fill this statistical gap, the World Tourism Organization has begun the work "Towards a statistical framework for measuring the sustainability of tourism", based on the Recommendations for Tourism Statistics (RTS) 2008, the latter recommends granting priority to linking tourism and sustainability.

The purpose of this research is to develop a statistical framework that supports measuring the sustainability of tourism in its economic, social, and environmental dimensions; and at the national and departmental levels. The statistical framework will provide a common language and organizational structure to exploit the wealth of data already available and to identify additional data that may be necessary. The initial basis of the statistical framework is to integrate the economic and environmental dimensions of sustainable tourism through two existing United Nations statistical standards: The Tourism Satellite Account and the System of Environmental and Economic Accounting (SEEA), both of which determine the links between tourism and the environment at the level of the national economy.

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Environmental Measuring in the Statistical Framework for Measuring the Sustainability of Tourism in Peru

In Peru there are several institutions that have been working on environmental issues, such as:

The Ministry of the Environment is in charge of measuring the effects that are exerted on the environment, and to promote the preparation of National Environmental Accounts, is supported by the Inventories of Natural Resources by the Forest and Wildlife Service to achieve an economic valuation of them. In March 2016, through this mechanism, a pilot called "The Experimental Account of the Ecosystems in the San Martín Region" was produced, in coordination with the organization named Conservation International.

Another important institution is the National Integrated System of Environmental Indicators (SINIA), where they collect and publish fifty-eight (58) indicators related to the environmental activity.

The Forest and Wildlife Service in 2016, developed the second edition of the Methodological Framework of the National Forestry and Wildlife Inventory in Peru, for the measuring, analysis and management articulated with the regional governments of forest resources and wildlife in a social, environmental and economic context. Another relevant document for this work has been the Red Book of the Endangered Wildlife of Peru.

The National Service of Protected Areas by the government has among its functions: (1) To assure the coordination among the entities of the national government, the regional governments and the local governments that act, intervene or participate, directly or indirectly, in the management of Protected Natural Areas. (2) Approve the standards and establish the technical and administrative criteria, as well as the procedures for the establishment and management of the Protected Natural Areas.

The National Water Authority in 2016, initiated the process of preparation and systematization of the Environmental and Economic Accounts of Water in Peru, which enables the analysis of the interaction between water and the economic system.

The National Institute of Statistics and Informatics in 2016, created the Interinstitutional Committee on Statistics and Environmental Accounts, which meets thirty (30) public institutions that generate statistical information, with whom it has been coordinating and establishing lines of action to strengthen environmental statistics, and start the implementation of the environmental accounts.

The Ministry of Foreign Trade and Tourism in June 2015, created the Directorate of Tourism Environmental Affairs whose main functions are: (1) Formulate and implement legal instruments and devices related to environmental management for the protection of the environment. (2) Evaluate the environmental management instruments of the investment projects for tourism and handicraft purposes foreseen in the National System of Environmental Impact Assessment, in matters of competition of the sector. (3) Keep the list of environmental certifications updated.
Indicators for the Measuring the Sustainability of Tourism

General Framework according to the Dimensions of Sustainable Development

One of the oldest documents on sustainable development is the report of the Club of Rome\(^4\) in 1972, where the question was posed if there are limits to growth, showing that economic growth must be in harmony with the environment and with the development of people so that it is not unbalanced and can be sustained over time.

Then, in the 1987 the Brundtland Report, this idea was consolidated and the dimensions around which sustainable development should harmoniously turn became more marked. At present, Economic Commission for Latin America and the Caribbean (ECLAC)\(^5\) refers to the fact that most general frameworks pose Sustainable Development as a concept based on economic, social, environmental and institutional pillars.

Starting from the literature reviewed and mentioned in previous points, we have chosen to take as a first general framework the classification through the four (4) indicated dimensions, since they cover the topics of interest with regard to sustainable tourism.

Economic indicators

They show the information related to the economic, productive and financial activities that occur in the study space.

This dimension seeks to evaluate the development and behavior of the tourism market by observing it both from the side of supply and from demand, through components such as consumption, investment, production, the potential public, among others.

Social indicators

It shows not only social services (health, education, among others) but also the relationships and beliefs that different human groups have.

This dimension seeks to evaluate the development and behavior of the resident human component, which participates directly and indirectly in the tourist activity, understanding that the socio-cultural factor impacts on tourism and at the same time affects the quality of life itself.

Environmental indicators

These indicators present the status and anthropic pressures on natural resources and environmental quality.

This dimension seeks to evaluate the effects generated by tourism activity in the environment and makes it explicit that it not only functions as a passive entity, but is a fundamental part of the tourist resource.

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\(^4\) The limits of growth report to the Club of Rome on the predicament of Humanity, 1972

\(^5\) Methodological Guide Design of composite indicators of sustainable development Pg. 24, Andrés Humberto Soto, Economic Commission for Latin America and the Caribbean (ECLAC) - United Nations 2009
Institutional indicators

It brings together national structures, laws and power structures. In this dimension, the support and impulse provided by the public apparatus to tourism activity is evaluated, as well as the level of planning and territorial organization for the development of tourism.

General Framework according to Pressure, Status, Impact and Response

The second general framework is the PSIR Matrix, which defines and classifies the indicators into four types: Pressure, Status, Impact and Response. This general framework is used in the Global Environment Outlook (GEO) reports that promote the United Nations Environment Programme.

The PSIR matrix seeks to establish a logical link between its components to guide the evaluation of the status within the dimension analyzed; from the factors that exert pressure (which can be understood as the 'causes’ of its current status), to the responses that are produced to face the problems that are linked to tourism.

Therefore, the indicators are defined as follows:

Pressure Indicators

Pressures are called forces that affect within a certain dimension, such as population growth, consumption or poverty, among others. From the political point of view, the pressures constitute the starting point to face the problems originated by the tourist activity.

Status Indicators

The status refers to the condition in which the evaluated dimension is found, as a result of the pressures. For example, land or deforestation. It is very important that the people responsible for decision-making and the general public know the status of the environment in which they interact and their indirect effects, since public policies are formulated based on these indicators to face the problems detected.

Impact Indicators

It is called impact to the effect produced by the status of the dimension analyzed on aspects such as the quality of life and human health, ecosystems, urban vulnerability and on the political-institutional level, among others.
Response Indicators

The response is the component that corresponds to collective or individual actions that mitigate or prevent negative impacts, correct the damage caused within the dimension of interest, conserve natural resources or contribute to improve the quality of life of the local population. Answers may include actions that regulate environmental or research expenditures, public opinion and consumer preference, changes in management strategies and supply. In addition, these indicators allow the evaluation of measures for improvement, protection, limitation, ordering or regulation, taken by the local government, civil society entities, companies or individuals to face the problems detected.

Analysis of the Indicators for Measuring the Sustainability of Tourism

The document proposes 61 indicators of which 14 economic, 22 social, 16 environmental and 9 institutional. A horizontal analysis we have 11 indicators of pressure, 19 of status, 16 of impact and 15 of response.

Peru: Indicators for Measuring the Sustainability of Tourism

<table>
<thead>
<tr>
<th>General framework</th>
<th>Dimension</th>
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<td><strong>16</strong></td>
<td><strong>9</strong></td>
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</table>

Elaboration: Ministry of Foreign Trade and Tourism, Peru

In this case, information was gathered from 21 institutions involved in the collection of information and in some cases the construction of indicators in the economic, social, environmental and institutional ambits.

Indicators in the economic ambit

Elements that exert pressure

Among the economic elements that exert pressure on tourism, the increase in the arrival of international tourists to Peru was observed; in that sense, in 2017 the proportion of international tourists with respect to the population resident in the country was 12.7%, higher than the previous year by 6.5%, this represents an increase in the pressure of tourism demand from the perspective of receptive tourism. In addition, it is observed in the same year that, 99.2% of them arrived by air and land and this is a feature in arrivals to Peru that remains almost constant over time, where the rate of change is 0.03% with respect to the previous year and in general the figure is similar during the last five (5) years.
Condition or current status
The most outstanding indicator in this aspect is the contribution of Touristic GDP to the total GDP, which in the year 2017 reached 3.9%. On the other hand, analyzing the consumption characteristic of foreign tourists visiting Peru, in the same year, we found that their average spending was US $ 946 during their average stay in the country (10 nights). Another important component is the growth of consumption of domestic tourism, mainly explained by the greater flow of travel, which makes the touristic GDP remain at the same levels. It is worth mentioning that the foreign currency generated by receptive tourism, with respect to the foreign currency generated by exports, had a participation of 10.1% in 2017.

Impacts on Tourism
The aspects mentioned above generates an impact on tourism development and before it is relevant to know the loyalty of foreign tourists to Peru as a tourist destination. For the year 2016, 45% of foreign tourists who entered Peru, indicated that they came more than once, increasing to 46% for the following year, this figure also shows an almost marked trend over time bordering 50% in the last five (5) years. Also, it can be observed that the domestic tourist consumption with respect to national private consumption was 10.7%, a figure that did not have a significant increase with respect to the previous year.

Response of the agents involved
The Status in its role as promoter of private investment, invested in 2016, S/ 159 million in infrastructure, equipment and promotion for tourism, which represented 0.6% of national public investment, a proportion that did not vary with respect to 2015.

Indicators in the social ambit
Elements that exert pressure
The development of a society directly influences tourism activity. A community with greater access to basic services and security, will be more attractive for tourism. Analyzing these characteristics in the population, it was observed that in the year 2017 89.4% of the Peruvian population had access to water from the public network, a figure that has been increasing at constant rates for the last four (4) years, that with respect to 2013, the figure increased by 3.3%. Complementary to this, in 2017, 72.8% of the population had access to public sewer network services. A worrying figure at the national level in 2017 is that, for every 625 thousand habitants, there is a level III hospital, a condition that has been maintained for the last three (3) years.

Condition or current status
Tourism generates on average 7.9% (year 2017) of jobs nationwide. The relevance of this indicator is that it shows tourism in its role as a generator of employment and as an instrument to reduce poverty. Analyzing the quality of the generated employment, information was taken from the national survey of companies in 2014, prepared by the National Institute of Statistics and Informatics, where it was identified that 41% of the company’s characteristic of tourism trained their workers. With regard to access to

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* It includes health institutions equipped with high complexity to care for health problems that require more technology and more equipment.
technologies, we can indicate that by 2018, 84.3% of population centers have mobile network coverage, which means better conditions for communications compared to previous years.

**Impacts on Tourism**
One of the most relevant effects to highlight at this point is the level of satisfaction that tourists show regarding tourism services in the country. In 2017, tourists expressed a general satisfaction with tourism services of 77.5%.

**Response of the agents involved**
As a social response, through a mapping conducted for the year 2015, it was obtained that, for every 100 thousand habitants, 137 were enrolled in higher education in tourism, a career that has been emerging in recent years in Peru. On the other hand, in the public sector, for 2017, for every 100 thousand habitants there were 407.87 police officers, which increased by 6% with respect to the previous year, and maintaining an average rate of growth of 5% from the 2012. On the side of the health sector, medical care capacity was analyzed, where it was obtained that by the year 2016 there were 2.25 doctors per 1000 habitants, a figure that over time has not had a significant increase; since, in 2013 there were 2.14 doctors per 1000 habitants.

**Indicators in the environmental ambit**

**Elements that exert pressure**
The main indicator observed in this aspect is the per capita ecological footprint in Peru, which is defined as 'The area of ecologically productive territory (crops, pastures, forests or aquatic ecosystem) necessary to produce the resources used and to assimilate the waste produced by a defined population with a specific standard of living indefinitely, wherever this area is located'. For 2016 in Peru, 2.06 global hectares per person were reached, 0.06 hectares more required than the previous year, and year after year it has been growing almost to the same proportion, this undoubtedly means a greater pressure on the environment by human activity.

**Condition or current status**

Given the pressures that are increasing in the environment it is observed that Peru has large natural areas, whose purpose is the conservation of nature. We know the existence of a total of 76 protected natural areas, of which 44 are for tourist use, and 16 of them register visitor flows. In 2017, there were 1 million 177 thousand visitors to these areas, which meant 10% more arrivals compared to the previous year, and the trend over time is the increase in these arrivals. What this figure puts us in attention is the carrying capacity of these places and that they must have adequate management plans and tourist use.

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7 Teaching at a technical and university level.
8 William Rees y Mathis Wackernagel
Impacts on Tourism
In the year 2017, 211.2 million tons of greenhouse gases were emitted in the ozone layer. With respect to 2016, this figure increased by 2.3%, observing a growing trend of emissions of these gases in the 2011-2017 period. On the other hand, the loss in the surface of the forests in 2016 was 29 611 hectares, and every year the loss of forests in the country increases by an average of 4.05 hectares. In spite of the Protected Natural Areas, there is still an arduous work to preserve the ecosystems and the biological diversity, the figures show that Peru has 8 315 species of fauna and flora endemic to the date, that is to say species that can only be found in Peru, and these in turn represent 35% of the total of fauna and flora species existing in the national territory.

Response of the agents involved
As one of the efforts to reduce the degradation of the environment, this document proposes to measure reforestation annually, which was observed was a decrease in the number of hectares reforested annually over time. For 2016, 401 hectares were reforested, 63 hectares more than the previous year, however, in 2010, 2 267 hectares of forest were reforested, and in the analysis, if we compare the figure with the annual loss of forest hectares, we observe a wide gap, since the annual loss of hectares of forest tends to increase year by year and is also much higher than what is annually reforested.

In the year 2017, public environmental spending represented 1.9% with respect to total public expenditure. This behavior remained constant during the last eight (8) years.

Indicators in the institutional ambit

Elements that exert pressure
The increase in operating licenses for the development of tourism activities means an increase in tourist pressure. In the 2016, 20 222 operating licenses were granted by the municipalities for the development of tourism activities, which meant an increase of 11% with respect to the previous year.

Condition or current status
The Status in its role as promoter of tourism activity has to date with 42 guidance offices and free advice to tourists nationwide. In addition, in 2016 there were 428 municipalities that have tourism offices.

Impacts on tourism planning
In order to promote the best social, economic and environmental conditions for tourism development, in 2017 it was recorded that 84 municipalities have Territorial Conditioning Plans at the provincial level.
Response at the institutional level
In 2015, there were 11 master plans that govern the development of the activity in the Protected Natural Areas. In 2017, 15% of the total lodging establishments had classification and categorization, whose objective is to demonstrate the need to formalize them. A greater number of categorized hotels allows us to improve the statistics of the accommodation activity.

Sources of Information
The main sources of information are the following:

- Ministry of Foreign Trade and Tourism,
- Ministry of the Environment - National System of Environmental Information,
- Ministry of Culture,
- Ministry of Economy and Finance,
- Ministry of Labor and Employment Promotion,
- Ministry of Health,
- Ministry of Education,
- National Institute of Statistics and Informatics,
- Central Reserve Bank of Peru,
- Commission for the Promotion of Peru for Exports and Tourism,
- National Superintendence of Migrations,
- National Service of Protected Natural Areas,
- National Forest and Wildlife Service,
- National Superintendence of Sanitation Services,
- Superintendency of Banking, Insurance and AFP,
- National Superintendence of Health,
- National Police of Peru,
- Supervisory Organization of Private Investment in Telecommunications,
- National Superintendence of University Higher Education,
<table>
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<th>Economic</th>
<th>Social</th>
<th>Environmental</th>
<th>Institutional</th>
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</thead>
<tbody>
<tr>
<td><strong>Pressure</strong></td>
<td>Percentage of arrival of international tourists with respect to the population resident in the country.</td>
<td>Percentage of households that are supplied with water through a public network.</td>
<td>Number of wastewater treatment plants.</td>
<td>Number of operating licenses granted by the municipalities for the development of tourism activities.</td>
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<td></td>
<td>Percentage of arrival of international tourists by air and land with respect to the total arrival of international tourists to the country.</td>
<td>Percentage of households that have a public sewage network.</td>
<td>Ecological environmental footprint per capita.</td>
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<td></td>
<td>Number of new bed places offered by lodging establishments.</td>
<td>Percentage of households that have electric lighting by public network.</td>
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<tr>
<td><strong>Status</strong></td>
<td>Contribution of the tourist GDP to the total GDP.</td>
<td>Participation of the female workforce both respect to the male workforce.</td>
<td>Percentage of tourists that provide training to their workers with respect to the total number of tourism companies.</td>
<td>Number of tourist offices.</td>
</tr>
<tr>
<td></td>
<td>Foreign currency income generated by receptive tourism with respect to total exports.</td>
<td>Percentage of tourists companies that provide training to their workers with respect to the total number of tourism companies.</td>
<td>Number of visitors to the Protected Natural Areas.</td>
<td>Number of municipalities that have a tourism office.</td>
</tr>
<tr>
<td></td>
<td>Average expenditure of foreign tourists.</td>
<td>Reporting rate for the crime of homicide per 100 thousand habitants.</td>
<td>Percentage of the area of the territory to be reforested.</td>
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<tr>
<td></td>
<td>Net occupancy rate of bed places in lodging establishments.</td>
<td>Reporting rate for theft crime per 100 thousand habitants.</td>
<td></td>
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<tr>
<td><strong>Impact</strong></td>
<td>Percentage of foreign tourists who visit the country, more than once.</td>
<td>Overall satisfaction of the tourist services received in the country.</td>
<td>Emissions of carbon dioxide equivalent per capita.</td>
<td>Number of municipalities that have territorial improvement plans.</td>
</tr>
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<td></td>
<td>Domestic tourism consumption with respect to household consumption autonomously.</td>
<td>Number of complaints for theft to tourists.</td>
<td>Projection of greenhouse gas emissions.</td>
<td></td>
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<td></td>
<td>Number of ATMs per 100 thousand habitants.</td>
<td>Number of traffic accidents in the country</td>
<td>Number of active socio-environmental conflicts.</td>
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<td>Number of reports of HIV cases per 10 thousand habitants.</td>
<td>Loss of forest area.</td>
<td></td>
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<td></td>
<td>Number of malaria cases per 100 thousand habitants.</td>
<td>Number of endemic fauna and flora species.</td>
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<td></td>
<td>Average monthly remuneration in the activities characteristic of tourism</td>
<td>Number of threatened wildlife species.</td>
<td></td>
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<tr>
<td><strong>Response</strong></td>
<td>Number of public investment projects in the tourism sector.</td>
<td>Rate of registration in tourism higher education per 100 thousand habitants.</td>
<td>Area reforested annually.</td>
<td>Number of regions that have a Regional Strategic Plan for Tourism (RSPT) approved.</td>
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<td></td>
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<td>Number of doctors per 1000 habitants.</td>
<td>Percentage of the environmental public budget with respect to the total public budget.</td>
<td>Number of master plans.</td>
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<td>Number of police officers per 100 thousand habitants.</td>
<td>Percentage of public environmental spending compared to national public expenditure.</td>
<td>Number of hotel use plans.</td>
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**Elaboration:** Ministry of Foreign Trade and Tourism, Peru
Conclusions

- The Tourism Satellite Account (TSA) is an instrument of economic measuring of tourism, developed on the basis of a statistical information system has allowed to know the importance of tourism in the Peruvian economy through touristic GDP, touristic consumption, touristic added value and direct touristic employment, among other indicators.

- Measuring the Sustainability of Tourism (MST) in Peru that requires the participation of all economic agents, has evidenced limitations of sources of information and the data that are available refer to mainly environmental issues.

- The indicators worked for measuring the sustainability of tourism in this first stage, have allowed to have a better panorama of the tourist activity within its economic, social, environmental and institutional dimensions. These indicators are still general, because they measure the situation only at the national level, and the main objective is to elaborate indicators at departmental level.

Recommendations

- The Tourism Satellite Account (TSA), due to its effectiveness in the economic measuring of tourism, in the multiplying effect of employment and in touristic consumption, must count on the support of the authorities to continue with the information improvement and methodologies to elaborate the next satellite accounts.

- To establish interinstitutional mechanisms through the National Statistical System to develop specific indicators for each type of destination. To achieve this goal, we must look for ways to integrate statistics at the national and departmental levels.

- To develop a methodology that articulates and synthesizes the indicators obtained at the level of each dimension: economic, social, environmental and institutional; in such a way that it is evidenced how they interact with each other. These actions will seek to achieve the cohesion of the Tourism Satellite Account (TSA) with the System of Environmental and Economic Accounting (SEEA).

- To create a Multisector Commission in charge of the Tourism Satellite Account (TSA) and Measuring the Sustainability of Tourism (MST) that is attached to the Ministry of Foreign Trade and Tourism in order to establish guidelines, define procedures, provide advices and approve methodologies for the preparation of the Tourism Satellite Account and Measuring the Sustainability of Tourism, because they are instruments of economic measuring of tourism and important for the fulfillment of the Sustainable Development Goals within the framework of the recommendations of the World Tourism Organization. Measuring the Sustainability of Tourism will begin with the implementation of the guidelines of the statistical framework and the progress made by the World Tourism Organization (UNWTO).
Bibliography