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Programa de doctorado en Educación

**NUEVAS ESTRATEGIAS PARA EL DESARROLLO DEL TURISMO
COMUNITARIO EN PUERTO RICO TRAS EL IMPACTO DEL
HURACÁN MARÍA: UN ESTUDIO DE CASO EN LOS ÁMBITOS
SOCIOEDUCATIVO, CULTURAL Y ECONÓMICO**

**NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY
TOURISM IN PUERTO RICO AFTER THE IMPACT OF HURRICANE
MARIA: A CASE STUDY IN THE SOCIO-EDUCATIONAL, CULTURAL,
AND ECONOMIC SPHERES**

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July 2023

Universidad de Almería



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Almeria, July 2023

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CERTIFY:

That the doctoral thesis presented by Ms. OLGA A. FIGUEROA MIRANDA entitled:

**NUEVAS ESTRATEGIAS PARA EL DESARROLLO DEL TURISMO
COMUNITARIO EN PUERTO RICO TRAS EL IMPACTO DEL HURACÁN MARÍA:
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It has been carried out under our direction, and we consider that it meets the requirements and scientific quality necessary to be defended and judged by the corresponding thesis tribunal, to qualify for the degree of Doctor by the University of Almeria.

And for the record, in compliance with the provisions in force, I hereby issue and sign this certificate in Almería on May 25, 2023.

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**NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY TOURISM IN
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DEDICATION

*To Laura and Daniel,
Life is not unfair; humans are....
Do not allow the unfairness to defeat you.
Life gives you countless of doors...
Don't let fear stand in the way of opening them.
If at the moment you haven't obtained the best harvest,
That doesn't mean you will.
Keep going; you are the only one who
determines your boundaries.*

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To the prestigious University of Almeria, my thanks for welcoming me and allowing me to be part of its excellent research community.

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CONFLICT OF INTEREST STATEMENT

Both the doctoral student and the thesis director declare that they have no conflict or interest derived from third parties as a consequence of the development of this study.

NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY TOURISM IN PUERTO RICO AFTER THE IMPACT OF HURRICANE MARIA: A CASE STUDY IN THE SOCIO-EDUCATIONAL, CULTURAL, AND ECONOMIC SPHERES

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RESUMEN.

NUEVAS ESTRATEGIAS PARA EL DESARROLLO DEL TURISMO COMUNITARIO EN PUERTO RICO TRAS EL IMPACTO DEL HURACÁN MARÍA: UN ESTUDIO DE CASO EN LOS ÁMBITOS SOCIOEDUCATIVO, CULTURAL Y ECONÓMICO.

El objetivo principal de esta investigación es determinar la importancia del desarrollo del turismo comunitario y sus estrategias para mejorar globalmente el Municipio de Cataño (Puerto Rico) como atractivo turístico en el área metropolitana de San Juan. En particular, dentro del contexto del turismo, se considerará el turismo cultural y educativo. La investigación, a través de una metodología descriptiva y mixta, apoyada esencialmente en el análisis documental y técnicas de encuesta, analiza el desarrollo local a través de cuatro dimensiones: social, ecológica, económica y específicamente turística, especialmente en los aspectos educativos destacados. El propósito no es sólo incrementar los beneficios sociales y económicos del turismo y seguir mejorando la valoración de Cataño como lugar para visitar, vivir, trabajar e invertir, sino también contribuir al progreso del nivel cultural y educativo tanto de los visitantes como de los ciudadanos locales. En base a los datos e información obtenidos del trabajo de campo realizado, se presentan estrategias de turismo comunitario destacando los atractivos naturales y culturales de Cataño. Los principales resultados del estudio demuestran el potencial del turismo en la zona dentro de las diferentes y complementarias dimensiones analizadas y la necesidad de un desarrollo ambiental, socioeducativo, cultural y económico sostenible para los ciudadanos.

Palabras Clave.

Turismo comunitario; turismo cultural; formación; educación; desarrollo local; desarrollo sostenible; atracción turística; cultura; medio ambiente.

ABSTRACT.

NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY TOURISM IN PUERTO RICO AFTER THE IMPACT OF HURRICANE MARIA: A CASE STUDY IN THE SOCIO-EDUCATIONAL, CULTURAL, AND ECONOMIC SPHERES.

The main objective of this research is to determine the importance of the development of community tourism and its strategies to globally improve the Municipality of Cataño (Puerto Rico) as a tourist attraction in the metropolitan area of San Juan. In particular, within the context of tourism, cultural and educational tourism will be considered. The research, through a descriptive and mixed methodology, supported essentially by documentary analysis and survey techniques, analyzes local development through four dimensions: social, ecological, economic, and specifically tourism, especially in the educational aspects highlighted. The purpose is not only to increase the social and economic benefits of tourism and to continue improving the appreciation of Cataño as a place to visit, live, work and invest, but also to contribute to the progress of the cultural and educational level of both visitors and local citizens. Based on the data and information obtained from the performed field work, community tourism strategies are presented highlighting the natural and cultural attractions of Cataño. The main results of the study demonstrate the potential of tourism in the area within the different and complementary dimensions analyzed and the need for sustainable environmental, socio-educational, cultural, and economic development for the citizens.

Keywords.

Community tourism; cultural tourism; training; education; local development; sustainable development; tourist attraction; culture; environment.

INTRODUCTION

This research on "NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY TOURISM IN PUERTO RICO AFTER THE IMPACT OF HURRICANE MARIA: A CASE STUDY IN THE SOCIO-EDUCATIONAL, CULTURAL, AND ECONOMIC SPHERES", comprises five chapters, which are detailed with their respective contents below:

CHAPTER I

Research Problem: this chapter describes the research problem, its justification and the educational intentions of the study, investigating and analyzing the intervention area from an educational-community perspective. For this purpose, it specifically analyzes what community tourism is and its link with education and training. It also contains the justification of the problem and the general and specific objectives of the research.

CHAPTER II

Methodology: this chapter presents the methodological scenario and shows the description of the approach that will be provided within the subject of the study.

CHAPTER III

Theoretical Framework: this chapter presents the approaches used in the case study on which the research is based to obtain adequate strategies for the study in question. On the other hand, it also contains other research and the scientific foundations to support the basis of the work.

CHAPTER IV

Results: an analysis and interpretation of all the results obtained from the results of the surveys prepared and performed.

CHAPTER V

Conclusion and Recommendations: conclusions and recommendations are presented based on the research process and the results obtained from this research work.

CHAPTER I

NEW STRATEGIES FOR THE DEVELOPMENT OF COMMUNITY TOURISM IN PUERTO RICO AFTER THE IMPACT OF HURRICANE MARÍA: A CASE STUDY IN THE SOCIO-EDUCATIONAL, CULTURAL AND ECONOMIC SPHERES.

RESEARCH PROBLEM

Context and scientific basis

Tourism is defined by the United Nations World Tourism Organization (2015) as an activity carried out by people during their trips and stays in places other than their usual environment, for a consecutive period of time of less than one year, for entertainment, pleasure, business or other reasons, as long as these are not for developing an economic activity. Tourism is one of the most dynamic economic sectors in the world due to the generation of employment, economic movement and its contribution to the development of the region or country. According to Torres (2015), tourism has usually been related from a rebalancing perspective, since it contemplates tourism activity as an opportunity to break with poverty within a region or country.

In 2016, around 760 million international tourist arrivals were counted worldwide, according to calculations by Aguilera-Díaz, Bernal-Mattos and Quintero-Puentes (2015). The continuous growth of tourism is being accompanied in recent decades by profound changes that cause constant transformations to occur in the tourism offer to adapt it to the new tastes, yearnings and requests of consumers. It is evident that these changes imply reformulating strategies, processes of development of the tourist offer and destinations (Cooper, Fletcher, Fyall, Gilbert and Wanhill,

2007; Pritchard, Morgan and Ateljjevic, 2011; Giaoutzi, 2017; Vargas-Sánchez, A. and Moutinho, 2018).

Currently, according to new UNWTO data, more than 900 million tourists made international trips in 2022, twice as many as in 2021, All regions of the world recorded notable increases in international tourist numbers (UNWTO, 2023). It should be noted that 2020 was rated as the worst year in tourism history, with one billion fewer international tourist arrivals (UNWTO, 2023). According to the scenarios analyzed by the UNWTO itself for 2023, arrivals could be between 80% and 95% of pre-pandemic levels this year, although significant risks remain, especially economic and geopolitical (UNWTO, 2023).

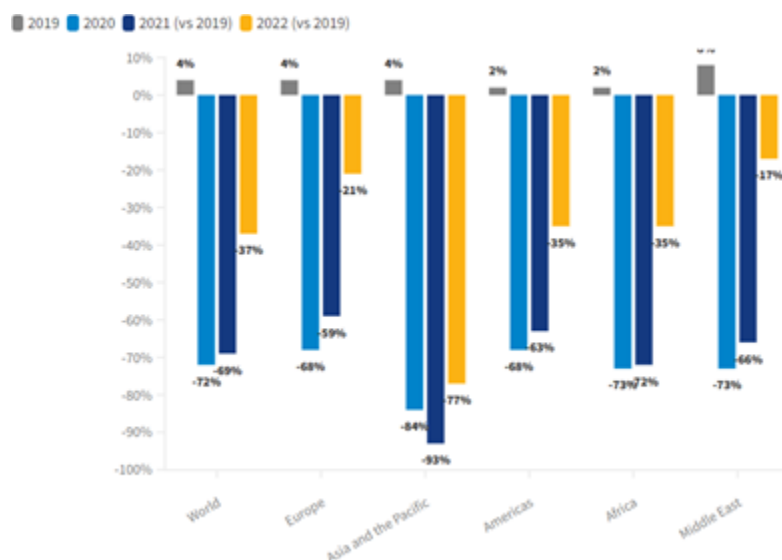


Figure 1- Evolution from 2019 to 2022 of international tourist arrivals, from the world and by region. Source: UNWTO <https://www.unwto.org/es/node/13495>

Today's tourists go beyond resort experiences or tours passing through a place. They are increasingly moving towards the field of cultural experience and local identity in a more individualized way. Tourist destinations are the center of reference for developing strategies and offerings for tourists (Ramírez-Ruiz, 2022). The following activities are involved in this

development directly related to tourism activity and a series of positioning strategies to influence the motivation of visitors to travel to a certain place (Marujo, 2012). Tourism destinations are a sector exposed to a high susceptibility to both internal and external factors. An example of this is the economic crisis facing Puerto Rico.

Despite being part of the United States, it maintains its Spanish heritage, not only with its main language, which is Spanish, but also in the construction of towns, customs and the closeness that Puerto Ricans maintain to Spain, considering it their mother country. In addition to its cultural and historical heritage, Puerto Rico continues to maintain its great natural wealth as a tropical island, which is why it can be considered a first-class tourist destination. It has extraordinary natural landscapes of great beauty, with beaches of crystalline turquoise waters with a variety of sand -white even black sand beaches, forested mountains with a diversity of shades, valleys, tropical and dry forests, and countless natural wonders. Puerto Rico, in addition to having such attractive natural spaces, has very loving, warm and friendly people, which make it a great tourist destination privileged and impregnated with a pleasant tropical climate -which is extremely attractive for people living in cold countries-, its cultural, musical and gastronomic offer.

For Orchiston and Highman (2016), a preferred tourist destination must offer the supply and conditions that Puerto Rico has. They also consider it in the context of the context of the challenges faced by managers of tourism destinations affected by major natural disasters, such as Hurricane Maria was for Puerto Rico. What is critical during the response and recovery phases, are the changes in the site seen of the tourism destination or is affected.

This was the situation experienced by Puerto Rico after the passage of Hurricane Maria. On September 20, 2017, it was subjected to the most devastating hurricane of the last century.

Hurricane Maria made landfall with maximum winds of 270 km per hour, devastating the island and proving more catastrophic than hurricanes Hugo and George. After its passage, after a few hours, the island was plunged into complete darkness, without basic services of electricity and drinking water, without any communication. All power lines were down, bridges were destroyed, roads collapsed. A total devastation that left the 3.3 million Puerto Ricans totally desolate, with devastated homes, without food, and desperate to be able to communicate with family members to simply find out if they were still alive. One of the municipalities impacted by Hurricane María is Cataño.

Cataño (Figure 2) is one of the municipalities that make up the San Juan Metropolitan Region in Puerto Rico. It is the smallest municipality in this area with only 18.23 square kilometers, however, it has an advantageous location, as it is located right in front of the San Juan Bay and the main historic and tourist area of Old San Juan. In 2016, the U.S. Census of Population and Housing, approximately 49.1% of Cataño's population lived below the poverty level, with an average age of 37.8 and a median household income of \$18,562. Nearly 30% (28.0%) of families in this area survive on less than \$10,000 / year. The estimated population for 2017 was 24,374, reflecting a downward trend since 2010 (-13.4%), according to the 2017 U.S. Census Estimate of Population.



Figure 2- Aerial Photograph 2003, Geographic Area of the Municipality of Cataño. Source: Las Cucharillas Marsh Restoration and Co-management Project 2005.

As with the rest of Puerto Rico, Cataño was devastated by the impact of Hurricane Maria, the subsequent storm surge and massive flooding that affected 80% of the territory, leaving 60% of the population homeless and temporarily housed in local shelters. According to the information submitted to the Federal Emergency Management Agency (February 2018), approximately 7,720 housing units were affected by the impact of Hurricane Maria's winds and flooding. Likewise, in October 2017, damages were reported in the total cost of the preliminary damages to the municipal infrastructure amounted to \$6,754,354. The entire island was declared a loss (Figure 3).

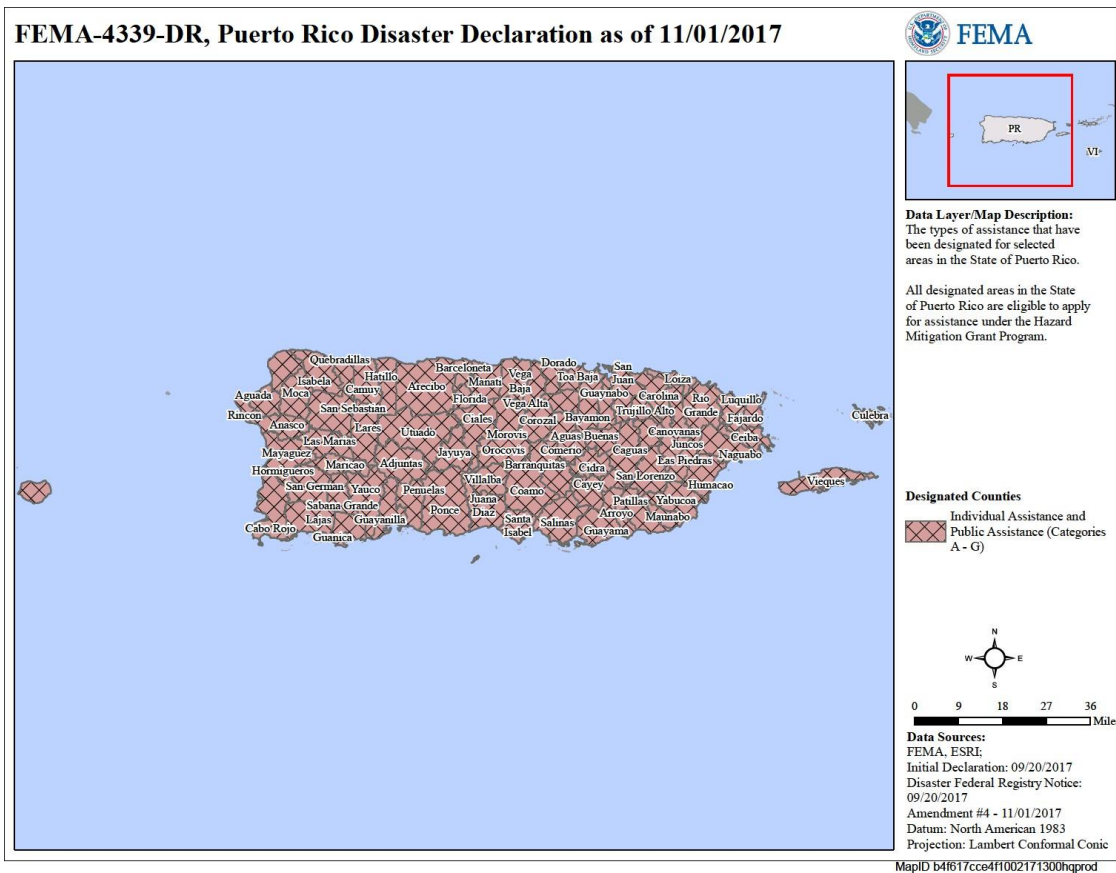


Figure 3- Disaster declaration map of Puerto Rico. Source: Emergency Management Agency (FEMA).

In the economic sector, Hurricane Maria caused a paralysis in the six aggregate industrial sectors in Puerto Rico, bringing devastation to the economy as reflected in data for the first quarter of fiscal year 2018 (Puerto Rico Planning Board, 2018). In the case of the municipality of Cataño, compared to other municipalities on the island, the impact was greater, as its economy is largely dependent on four of Puerto Rico's six industrial sectors. According to Q3 2017 data, Cataño's industrial sector is primarily comprised of jobs related to transportation and warehousing (2,344); wholesale Trade (1,749), and manufacturing (814). Because of the direct impact of the hurricane, 25% of the municipality's economy declined in 2017 and proposed changes in tax policies put 80% of municipal revenues at risk.

Currently, the government reports that most of the island's economic sectors suffered significant losses.

Considering Cataño's prime location on San Juan Bay, and that it is a 10-minute ferry ride across Old San Juan (a major tourist stop and cruise line port), high levels of tourism are expected. However, even with easy ferry access and its established waterfront, Cataño does not benefit significantly from the 1,401,866 tourists who come on cruise ships to San Juan. This is not to imply that tourists do not visit the city. Cataño is home to the world-famous Bacardi Corporation. About 100,000 tourists a year take the ferry or local ground transportation to tour the Bacardi Corporation Visitor Center in Cataño and go directly to the Bacardi Center and return to their hotels in San Juan or the cruise ships docked in the bay in Old San Juan. This is due to the lack of a community-based strategic tourism plan and the inadequate infrastructure and local attractions that can create the synergy to promote tourism and further economic development in the area. On the other hand, even with the decline of tourists during the months after the impact of Hurricane Maria, tourism continues to be a viable and necessary sector to develop. Cataño's location presents many opportunities for the development of options for the local, national and international community tourism-related businesses.

The development of a strategic community tourism plan seeks to establish an economic resilience initiative that responds to the current situation Cataño is facing. Before Hurricane Maria's hit, economic indicators pointed to a slowdown, also seen in other areas of the island. Hurricane Maria and its subsequent devastation exacerbated the situation. This responsive economic resilience initiative seeks to integrate community-based tourism as a means of development through which the social, environmental and economic needs of local

communities are met by offering a tourism product that serves as a component of an economic development of the municipality of Cataño.

This project will establish responsive initiatives, such as the development of a strategic plan that will guide future projects in the municipality and increase its resilience, a board that will maintain a communication network among key project stakeholders, short, intermediate and registry development. Long-term actions to promote Cataño's boardwalk as community-based tourism activities based on arts and science. In addition, identify renovations and development of structures that respond to the realities of waterfront projects (e.g., "kiosks" that can be stored and use solar energy).

It is for this reason, according to Faulkner (2001), that a specific approach should be used, adjusting the tourism sector to natural disasters and considering that the effects of these are extremely damaging to the image of the destination and the communities, regardless of their size. The author insists (Faulkner, 2001) that no place is immune to any natural disaster, therefore the experiences of destinations that have suffered these catastrophes are of vital importance for the creation of strategies applicable at different stages of the development of the event.

Tourism undoubtedly has an educational aspect. This can be cultural and experiential training (Figuerola, Gómez Galán and López Meneses, 2022). Approximately forty years ago, tourism first appeared as an area of study, specifically in sectors such as hotel operations and restaurants and its component activities, such as entertainment and recreation. In the 1960s, important changes occurred in tourism, in higher education and in society in general. This resulted in tourism emerging as an area of study and research (Airey et al., 2006). The changes brought about by the 1960s laid the groundwork for the study of a new topic and attracted scholars to it. As a result of these important changes, there has been an increase in

the rate of higher education students interested in studying careers in tourism. Students are keen to explore the origins of tourism as a subject of study and to analyze and explain the ways in which it has developed. In addition, institutions and practitioners are aligned to research and study tourism, and it has become a subject of study at many levels of education, from technical studies to doctoral degrees.

Amoah and Baum (1997) state that tourism studies should go hand in hand with administrations and businesses, since these are the connecting agents of any kind of tourism, whether educational, recreational, environmental, cultural, among others. Tourism is a reflection of economic development and companies should keep this in mind, since they could create countless economic development initiatives based on tourism, such as Interpretation Centers, Cultural and Environmental Itineraries. These types of initiatives generate important changes in the educational, cultural and economic development of a region or country. According to the World Tourism Organization (2018), tourism shows a constant growth, not only in economic development, but also in the activity. It demonstrates an increase in the expansion of companies and organizations related to meeting the needs of tourists, from airlines, hotels, restaurants and tour operators. This worldwide growth, combined with the increase in academic requirements by employers, has helped to drive higher education institutions to meet the demands and job opportunities created by tourism administrations and companies with academic offerings. The growth of tourism has brought with it a series of situations, from major economic developments to social and environmental problems. The problems brought about tourism have generated interest among academics and researchers at the higher education level in understanding and explaining this global phenomenon (Jafari, 1990).

The annual growth of international tourists worldwide and a number of other factors such as advances in communications and social media have been essential elements in this remarkable increase in tourism. In addition, students today are enrolling in higher education programs, especially in innovative programs that develop them in a career context. This issue has been on the academic agenda for several years, to develop students in professional careers that in turn have the possibility of continuing studies in the same discipline. Students are conscious when choosing the branch to study because today they look at the purchasing power to complete their career or employment opportunity in the professional world. They no longer study to have a profession, to study the academic offering of their interest, but their impulse is the opportunity in the professional world and therefore the salary. The professional world has changed and continues to change constantly due to the influences of globalization, governments and communications and students are much more aware of the potential for employment when choosing a course of study.

In this context, we must not forget Puerto Rico's privileged geographic location, its natural and cultural wealth and, as a whole, its historical evolution, which today is undoubtedly the best destination in the Caribbean. The island was discovered by Christopher Columbus on his second voyage in 1493. Columbus named it San Juan Bautista. The Spanish established a permanent presence in 1508, making Juan Ponce de León the first governor of the island. The colony grew rapidly and was one of the bases of support for the advance of the Spanish empire on the mainland. After being a Spanish colony for four (4) centuries, it was given to the United States as war booty and since 1898 it has been an unincorporated territory of the United States. Despite being part of the United States, it maintains its Spanish heritage, not only with its main language, which is Spanish, but also in the construction of the towns and in the love of Puerto Ricans for the mother country, Spain. Puerto Rico remains a

wonderful and interesting tropical island to explore. Here you will find exotic hidden treasures with unparalleled and beautiful natural landscapes, beaches of crystal clear turquoise waters with a variety of sand, from white, snail and even black, forested mountains with a diversity of shades of green, valleys, tropical and dry forests, and countless natural wonders. Puerto Rico, in addition to its natural beauties, has very loving, warm and friendly people.

Puerto Rico is a great tourist destination, not only for its natural offer and tropical climate, but also for its cultural, musical and gastronomic offers. As mentioned by Orchiston and Highman (2015), the country that has the tourist offer or the country where the tourists come from has to have those conditions and Puerto Rico has them. In addition, they mention that managers of tourism destinations affected by major natural disasters, as was Hurricane Maria for Puerto Rico, face significant challenges during the response and recovery phases, as the image of the tourism destination changes or is affected (Figuerola and Gómez Galán, 2018). This situation, clearly, is seen in Puerto Rico after the passage of Hurricane Maria. On September 20, 2017, the most devastating hurricane hit the island in the past ninety years. Hurricane Maria made landfall with maximum winds of 270 km per hour, devastating the island and proving more catastrophic than Hurricanes Hugo and George. After hours, the island was completely in darkness, without basic services of electricity and drinking water, without any communication. All power lines were down, bridges destroyed, roads collapsed. A total devastation leaving the 3.3 million Puerto Ricans totally desolate, with devastated homes, without food, desperate to be able to communicate with family members to simply know if they were alive. An island, known as the Island of Enchantment, with abundant vegetation, was destroyed. This is why, according to Faulkner (2001), a specific approach should be used to adjust the tourism sector to natural disasters, and it should be considered

that the effects of these natural disasters are extremely damaging to the image of the destination and that this applies equally to destinations and communities regardless of their size. According to Faulkner (2001), no place is immune to any natural disaster, so the experiences of destinations that have suffered natural catastrophes are of vital importance for the creation of strategies applicable at different stages of the development of the event.

On the other hand, Orchiston (2015), presents a more entrepreneurial approach, especially dedicated to small communities that live off tourism and the internal strategies applied by local businesses for their survival in the market. Strategies related to price, services and their image, as they may be affected by a natural disaster (Figuerola et al., 2020). Following the thinking of Orchiston (2015), the work developed by local tour operators from the natural disaster should be evaluated. The contributions of Ritchie (2004), support that public and private servers work together through strategic alliances to mitigate the negative effects on destinations that have suffered a natural disaster. Avraham (2016) proposes a way to create a tool to evaluate the immediate impacts of natural disasters through a model in order to help a tourist destination recover its image. This model considers various characteristics related to the crisis after the natural disaster, the type of tourist and the tourist destination. Based on these characteristics, a tool is developed for the collection of information, which will be applied in the affected country or region. Natural disasters occurring in tourist destinations can determine the outlook of the country's socioeconomic activity. As we know, the negative risks of the country's socioeconomic panorama affect the operation of a tourist destination and lead it to a long-term crisis situation that reaches beyond the one brought by the disaster, since it directly affects the results of the elements that make up the tourism system (Rodríguez and Álvarez, 2013).

Justification of the Research Problem

In accordance with the previous discursive line, it leads us to defend the need to develop a strategic plan in which the strategy to be followed is limited and which is appropriate for the municipality of Cataño in the face of natural disasters. With a strategic plan, the tourism sector can be reactivated after a natural disaster. Quickly reactivating the tourism sector of a municipality after a disaster should be considered a primordial element for its recovery, since the multiplier effect has a direct or indirect beneficial impact on its educational, social, cultural and economic growth. This should be considered in Cataño, which due to its geographic location is exposed to flooding problems and extreme wave events and high tides.

This growth must come from various sectors, whether governmental and/or private. To generate a rapid reaction to the recovery of the tourist destination, the following are needed must consider the process known as resilience, as Mendoza, Brida and Garrido (2012) state. They argue that to execute a contingency management plan for the tourist destination, the factors at the time of a catastrophe must be analyzed immediately, highlighting among them:

1. Magnitude of the same.
2. Perception of security generated by news coverage.
3. Characterization of the tourist profile of the place where the event took place.

Resilience in the tourism field refers to the extent to which destinations will be able to withstand the alterations that the environment exerts on them, which would allow them to organize themselves in such a way that they can be organized in a way that they can withstand the changes that the environment exerts on them. This is necessary because of the

pillars of the structure that supports its tourism development (Gutiérrez Vega, Sancho, Szmulewicz and Cabrera 2014).

After analyzing the resilience capacity, Aires and Nicolau (2010) insist that strategic market and tourism promotion efforts should be directed towards the public that visits the destination. It is imperative to strengthen the image of the destination, considering the satisfaction and quality, perceived by the tourist, of tangible and intangible elements (Millet, 2011). The way in which confidence can be generated to motivate travel to destinations that have been affected, in addition to rehabilitating infrastructure and tourist services, is directly determined by promotional strategies focused on strengthening the image of the offer, including cultural elements, gastronomy, music, that is, fundamentally those that have not undergone changes.

Cataño, despite the situation in which it finds itself after the passage of Hurricane Maria, has the necessary infrastructure, perfectly maintains its extraordinary natural resources, a great musical and gastronomic richness, cultural heritage, archaeological sites, in short, key elements of tourism offerings worldwide.

Cataño has a great ecological diversity, including: Las Cucharillas Marsh. The Cucharillas Marsh is the largest wetland remaining in the metropolitan area of San Juan and is a protected area preserved in perpetuity. In it coexist many biodiversity of natural systems and native, exotic, endemic and endangered species of flora and fauna. Pursuant to Law No. 150 of August 4, 1988, known as Under the Natural Heritage Program Act, it is important to recognize the value of nature and the species that make up the genetic diversity, aesthetic and recreational value.

In addition to its natural resources and the majestic view of the San Juan Bay, Cataño has several architectural jewels of the German master architect Henry Klumb. Some of his

legacies in the municipality of Cataño are the Martín de Porres Sanctuary and the Virgen del Carmen Church. All of these are examples that are not limited to nature tourism, hiking, adventure, photography, among others, but are also educational offerings. Cataño has the ideal characteristics to train biologists, botanists, entomologists, ecologists, etc., from theory to practice using Las Cucharillas Marsh as a training laboratory. In this sense, the use of the most current augmented and virtual reality technologies could also be promoted, providing Cataño with cultural, artistic and scientific tourism infrastructures at the forefront of the use of these new techniques. This could involve the realization of immersive experiences (Gómez Galán, 2014) that allow for virtual space and time travel that would provide greater impact and quality to the organized visits to the rich natural, cultural and artistic heritage of the municipality.

In conclusion, Cataño meets the basic characteristics of any first class tourist destination: heritage, nature and culture (Gómez Galán, 2008). There is no doubt that there are new perspectives for tourism on the island, especially after the catastrophe that struck the island. It should be kept in mind that tourism is one of the most dynamic economic sectors in the world as it generates employment, economic growth and contributes to the overall development, including educational and cultural, of the municipality. The municipality is currently at a crucial moment of great potential for the development of a tourism development plan. The community leads to a priceless transformation in terms of tourism and with the wonderful natural offerings and artistic heritage. All this would contribute to a quality tourist offer that would have an extension in the field of education that few countries could offer.



Figure 4- Diagram of problems. Source: Own creation 2022.

Objectives

General Objective

The general objectives of this research are:

- G.O.1.** • Analyze the infrastructure that supports community tourism development in the Municipality of Cataño, Puerto Rico, after the impact of Hurricane Maria.
- G.O.2.** • Establish development strategies that facilitate community tourism from the socio-educational, cultural and economic spheres.

Specific objectives

Specifically, the main specific objectives of the research are listed below:

- S.O.1.** Evaluate the cultural, patrimonial and natural potential of the Municipality of Cataño to facilitate or promote community tourism activities.

- S.O.2. Determine possible tourism development typologies and their suitability for community and educational tourism.
- S.O.3. Design development strategies (convergent or complementary) to promote community tourism after the impact of Hurricane Maria.
- S.O.4. To value community initiatives that can serve as strategies for community and socio-educational tourism development.
- S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.

CHAPTER II

METHODOLOGICAL FRAMEWORK

Materials and methods

The research, based on a descriptive methodology, will use a mixed approach (quantitative and qualitative, two paradigms that complement each other in the knowledge, explanation and understanding of social and educational reality) to achieve the objectives pursued. The descriptive method is a non-experimental research design that involves data collection through surveys, interviews and/or observations (Martínez Mediano & Galán, 2014). Openly multidisciplinary in nature, a structure typical of mixed designs will be used, resorting to the most effective techniques and instruments for data collection (Ponce, 2022). Special priority will be given to interview and survey techniques (and the consequent statistical analyzes derived from the data obtained) adapted to the particularities of the contexts and subjects of the field of inquiry in such a way as to allow the best understanding of the complexity of the object of study.

For the theoretical framework of the study and the review of the scientific literature, documentary analysis will be used as the main technique. It consists of the systematic review and analysis of documents to extract relevant information and knowledge (Bowen, 2009; Casasempere, & Vercher, 2020). It is a technique commonly used in social science research to review scientific literature and analyze the content of various types of documents, such as academic articles, reports, political documents, various educational materials and media sources. The process of document analysis usually consists of several steps, such as selecting

the documents to be analyzed, reading and reviewing the documents to identify key themes and issues, coding and categorizing the data, and interpreting the findings (Tight, 2019). The analysis can be carried out using various methods, such as content analysis, discourse analysis and narrative analysis, depending on the research question and the type of data being analyzed (Sulzbach, Zanievicz, Vogt, & Cardona, 2021). In general, we are talking about a valuable tool for researchers as it allows them to better understand the social, educational, cultural, political and economic factors that shape human behavior and social phenomena. It offers a rigorous and systematic approach to research that provides valuable insights into complex social issues and phenomena. Because of the nature of the research performed in our case, we will use in the theoretical framework basically content analysis, in the context of documentary analysis, in those documents that are used as sources.

Above all, through the use of these qualitative methods of theoretical analysis, at the service of the gnoseological function that makes possible the interpretation of the data found, we will fundamentally perform a description of the current connections between education and tourism for its development in the field of community tourism. The main objective thus seeks to establish the most adequate theoretical bases for training in this important modality of tourism. The method, in short, will be analytical-synthetic, studying this issue starting from the decomposition of the object of study in each of its parts to examine them individually, through analysis, to then integrate them holistically and integrally through synthesis (Bernal, 2010).

As for fieldwork, within the descriptive methodology we have chosen for this research, we will rely mainly on survey techniques. These techniques involve the collection of information from a number of subjects through the use of questionnaires, surveys or interviews (Jessen, 1978; Martín, 2010). The aim is to describe a population and provide

information on their preferences, behaviors or experiences. It can also make it possible to identify patterns and trends. An important advantage of surveys is that they can be distributed through online platforms, email or social networks and, as they are standardized questionnaires, they can be sent simultaneously to large samples of participants in different locations.

The use of structured questionnaires allows researchers to obtain consistent information on the research variables, which facilitates their analysis and interpretation (Phellas, Bloch & Seale, 2011; Jiménez, 2020). Its standardization offers a more objective and systematic data collection, which increases the robustness of the research results. In addition, it can provide information on hidden and intangible aspects of the research population, such as attitudes, beliefs and opinions (Cohen, Manion & Morrison, 2017). In the context of community tourism and educational tourism, the information of the main axes of our research is of great relevance. We will focus precisely on the perception that the inhabitants of Cataño have about the development of tourism in their community. Only through them can an innovative tourism proposal such as the one we intend to analyze be carried out; this information can be the basis of the knowledge of the current situation and future possibilities.

Designing an effective survey for research of these characteristics involves several steps (Balnaves & Caputi, 2001; Somekh & Lewin, 2005; Walliman, 2021). First, the question and objectives, which will guide the development of the survey questions, must be defined. Second, the target population and the sampling method, which will determine the representativeness of the sample, must be identified. Third, the survey questions will be developed and should be clear, concise and relevant to the research question. Fourth, the survey should be pre-tested to ensure that the questions are understandable and feasible to

administer. Fifth, the survey will need to be administered, which can be done online or in person, depending on the target population and the research question. Finally, the survey data must be analyzed using appropriate statistical methods, which will allow you to draw conclusions and make recommendations based on the results. In general, designing an effective survey, as in any research process, requires careful planning and attention to detail (Ponce, Pagán & Gómez-Galán, 2020). In turn, to ensure the validity and reliability of the survey results, appropriate research methods and sampling techniques must be used, clear and relevant questions must be formulated, and it must be ensured that the survey is administered in a consistent and standardized manner. Before starting fieldwork, the questionnaire should be tested on a small population group. This pilot test must guarantee the same performance conditions as the actual fieldwork (Corral, 2009). To evaluate the reliability or homogeneity of the questions or issues, Cronbach's alpha coefficient is usually used for polychotomous response alternatives, such as Likert scales.

In our study, the validity and reliability of the instrument used was guaranteed since we used the questionnaire designed and applied by García Martínez et al. (2015) in a case study similar to ours used in the municipality of San Pedro Tultepec, Mexico. The objectives of this research were similar, as they also sought to determine the perception of the community of the municipality on the promotion of tourism in their locality, around the same dimensions studied by us (social, ecological, economic, and tourism). In this study, 389 valid questionnaires were analyzed, compared to 440 in our study.

This valid and reliable questionnaire presents high robustness as it was based on previous research conducted by Mason & Cheyne (2000); Gursoy & Rutherford (2005); Ambrož (2008); Faulkner & Tideswell (2010); Mendoza, Rodriguez and Enciso (2013); Monterrubio, Mendoza and Huitrón (2013), among others. In our case, we carried out an

analysis and adjustment of the questionnaire for our case study, in the municipality of Cataño, Puerto Rico, expanding the first dimension from social to socio-educational. To ensure the rigor of the final instrument, we applied a pilot test to 47 people, and consulted various experts in survey techniques and quantitative research, all of them university professors and lecturers, on the final characteristics of the instrument in order to detect any inconsistencies or shortcomings and accept their suggestions and recommendations. The questionnaire was applied to the population of Cataño using an online telematic system. A total of 497 residents responded to the questionnaire, and after the individual review process of each of them, 440 were established as valid, which represented the representative sample for our study. Cataño had a population of 23,698 inhabitants in 2020, according to data from the United States Census Bureau (United States Census Bureau, n.d.).

The questionnaire and its items are shown in Annex 1. The items were presented on a Likert scale in the form of statements, with a scale of 1 to 5: (1: strongly disagree; 2: disagree; 3: neither disagree nor agree; 4: agree and 5: strongly agree). Subsequently, once all the information had been obtained through the instrument, the sample was analyzed with statistical techniques, according to the objectives of the analysis and the relevant variables. In general, and depending on the variables, in the questionnaires applied in the field of social sciences, it is possible to perform frequency analysis (for categorical variables, the absolute and relative frequencies of each category can be calculated); correlation analysis (for numerical variables, the correlation coefficient between them can be calculated to see if there is a relationship between the variables); regression analysis (for numerical variables, a regression model can be fitted to predict the value of one variable from another) or analysis of variance (for categorical and numerical variables, the mean of a variable can be compared

between different groups to see if there are significant differences) (Hidalgo, 2019; Ramirez & Polack, 2020; Abu-Bader, 2021).

Particularly important in our case was the application of the chi-square test, a statistical tool used to analyze the relationship between two categorical variables and determine whether the observed values are different from the expected values (Holt, Scott, & Ewings, 1980; Onchiri, 2013; Kowsalya, 2020). It is used to test the null hypothesis that there is no relationship between variables. It is performed in five steps: (1) the null hypothesis and the alternative hypothesis are established; (2) the significance level is selected and the critical value of chi-square is calculated; (3) the data are collected and organized in a contingency table; (4) the observed value of chi-square is calculated and compared with the critical value; and (5) the result is interpreted and the null hypothesis is accepted or rejected. There are different types of chi-square tests, such as the goodness-of-fit test, the test of independence and the test of homogeneity. In our case we were particularly interested in the homogeneity test, in order to compare the distribution of two or more groups. For the entire statistical process, we used IBM SPSS (*Statistical Package for the Social Sciences*) 18.0 for Windows. Once the statistical tests have been performed, the results must be interpreted and the key questions defined in the first step must be answered. It is important to take into account the limitations of the analysis and possible sources of error. In our research you can see in the results section, in a detailed way, what was obtained from the analysis of the data according to the statistical tests used. In the following, we present the general description of the methodological procedure developed as a whole, explaining in relation to the objectives both the theoretical part and the practical part, based on the field work, carried out in the process of elaboration of the thesis.

Description of the methodological procedure

Phases	Process	Activities	Relation to objectives
I	Establish criteria for the selection of scientific literature	<ul style="list-style-type: none"> To point out criteria for community tourism development for the Municipality of Cataño, Puerto Rico identified in the literature review. To choose criteria that apply to community tourism developments in Cataño, Puerto Rico. Specifically describe each criterion. 	<p>S.O.1. Evaluate the cultural, patrimonial and natural potential of the Municipality of Cataño to facilitate or promote community tourism activities.</p> <p>S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.</p>
II	Review previous research and literature search	<ul style="list-style-type: none"> Identify scientific data sources for the development of community-based tourism strategies. Collect data. 	<p>S.O.1. Evaluate the cultural, patrimonial and natural potential of the Municipality of Cataño to facilitate or promote community tourism activities.</p> <p>S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.</p>
III	Elaborate the proposal for community tourism	<ul style="list-style-type: none"> Design the matrix with variables to be analyzed for strategy development. 	<p>S.O.2. Determine possible tourism development typologies and their suitability for community and educational tourism.</p>

	development strategies.	<ul style="list-style-type: none"> • Validate variables. 	S.O.4. To value community initiatives that can serve as strategies for community and socio-educational tourism development.
IV	Conduct a survey of community leaders, residents and tourists.	<ul style="list-style-type: none"> • Identify personnel in charge of tourism offices. • Contact personnel and availability for interview. • Conduct an interview. • Document interview. 	<p>S.O.3. Design development strategies (convergent or complementary) to promote community tourism after the impact of Hurricane Maria.</p> <p>S.O.4. To value community initiatives that can serve as strategies for community and socio-educational tourism development.</p>
V	Analyze the data	<ul style="list-style-type: none"> • Complete data matrix of program variables (documentary review and interviews). • Perform content analysis. 	<p>To design development strategies (convergent or complementary) for community tourism and training for the Municipality of Cataño.</p> <p>S.O.4. To value community initiatives that can serve as strategies for community and socio-educational tourism development.</p> <p>S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.</p>
VI	Elaborate the proposal for community	<ul style="list-style-type: none"> • Design a draft proposal for a community tourism 	S.O.1. Evaluate the cultural, patrimonial and natural potential of the

	tourism development strategies.	development strategy plan. • Develop proposal.	Municipality of Cataño to facilitate or promote community tourism activities. S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.
VII	Writing the thesis	• Final drafting of the thesis.	S.O.1. – S.O.2. – S.O.3. – S.O.4. – S.O.5.

Table 1- Description of the methodological procedure. Source: Own creation 2020.

Strategies and sources in the methodological process

S.O.1. Evaluate the cultural, patrimonial and natural potential of the Municipality of Cataño to facilitate or promote community tourism activities.

- a. Inventory of existing infrastructures based on Geographic Information System data.
- b. Review of territorial plans and ordinances.

S.O.2. Determine possible tourism development typologies and their suitability for community and educational tourism.

- a. Identify tourist typologies through an inventory of attractions (cultural, historical, natural, gastronomic).

S.O.3. Design development strategies (convergent or complementary) to promote community tourism after Hurricane Maria.

- a. Analyze existing strategies and how they can be used in the municipality of Cataño after Hurricane Maria. One of the strategies observed is the Sausalito model in San

Francisco, California, currently focused on art and science. Cataño has an iconic structure called the Pyramid that can be developed to serve as a hub for community tourism development focused on art, science and the environment.

- b. Create a strategic community tourism plan based on the use of arts and science to enhance and improve the potential of Cataño's waterfront to expand tourism-related economic development, stimulate a segment of the local economy, create a space to stimulate local arts, and (Cataño is home to the Ciénaga Las Cucharillas Nature Reserve, with 1,253 acres of protected land). The key components of the project are divided into two parallel phases.
- c. Create a conceptual plan to be part of the process of developing a community-based tourism strategy. This is to increase the social and economic benefits of tourism and the visitor economy, and to continue to improve the appreciation of Cataño as a place to visit, live, work and invest. The conceptual plan will provide the opportunity for the community to and stakeholders working together to identify tourism activities to readapt the city's waterfront from a residential area to an active tourism destination with great public access, economically viable, environmentally and historically sensitive, culturally, operationally, and educationally critical space. Sustainable for residents and visitors alike.
- d. The objective of the conceptual plan is to unify the environmental restoration and socio-economic rehabilitation efforts that are currently related separately, under a comprehensive community-based tourism concept to grow tourism activities and the visitor economy sector in a coherent manner, thereby increasing their contribution to the livelihoods and quality of life of residents. The most important element of a structure to develop Cataño's visitor economy is to develop a

"Destination First" mentality among stakeholders. This requires an understanding of the benefits and commitment to collaborative work. This will be achieved by working in partnership with tourism and visitor economy businesses, transporters and the government to increase the sector's contribution to Cataño's economy.

- e. Develop citizen participation activities using the arts and science as an engine for the development of specific actions that enrich the community tourism initiatives of the conceptual plan. For the development of this phase, we will explore the creation of alliances and collaborations with universities, the Museo de Arte Contemporáneo de Puerto Rico and local community organizations, such as Comunidades Unidas Contra la Contaminación (CUCCo), Junta de Residentes Parcelas William Fuertes, Comité Organizado de Cucharillas Community Leaders. The objective of this phase as part of the conceptual plan is that community tourism planning should be built from knowledge of community values and organizational needs to guide more locally appropriate tourism development that fits community needs, initiatives and opportunities. This brings the otherwise established principles of strategic planning and community development to tourism planning practices so that stakeholders (residents, operators, government) can together guide a more sustainable and consistent tourism industry for communities, not at the expense of local communities and ecosystems.

S.O.4. To value community initiatives that can serve as strategies for community and socio-educational tourism development.

- a. Development of community focus groups.

- b. Analysis of local development initiatives on aspects related to education, culture, environmental care, art, gastronomy, etc., and tourism in general.
- c. Comparison of these initiatives with others carried out both nationally and internationally.

S.O.5. To present the advantages of community-based tourism in the context of training and education, as cultural enrichment and environmental values.

- a. Development of an innovative tourism education model for Puerto Rico and, specifically, for the municipality of Cataño.
- b. Analysis of tourism education models based on their curricula, program offerings, teaching curriculum and teaching-learning environment.
- c. Defense that any sustainable management model for community-based tourism in the context studied must first consider that this type of tourism is part of both rural and urban tourism, and that it is part of an integrated model of tourism development.
- d. Analysis of community tourism, integrated and participatory, as an excellent means of strengthening education: environmental, cultural, historical, artistic, etc.
- e. Presentation of new forms of tourism education through the use of emerging technologies. They are first-rate resources for the development of global tourism and, in particular, community-based tourism.
- f. Analysis of tourist destinations also as educational destinations. They should not only be presented as a destination primarily for leisure but also for the personal enrichment of culture and values. And, going a step further, as destinations for students of all educational levels: exchanges for children and young people and university education for young and older adults, as well as professionals.

Timeline for the development of the research

Phases	Process	Dates					
		2020	2020	2021	2021	2022	2022
Phase 1	Review of scientific literature						
Phase 2	Foundation of the Theoretical Conceptual Framework						
Phase 3	Methodological Procedure						
Phase 4	Field work (data collection)						
Phase 5	Analysis of results						
Phase 6	Thesis writing						

Table 2-Timeline of the research process. Source: Own creation 2020.

CHAPTER III

THEORETICAL FRAMEWORK

Approaches to development

According to Diaz (2017), development in the 1950s was conceived as economic growth, since the population increases over time. Moreover, it was thought that to increase income per capita, it was necessary to generate economic growth greater than that of the population. This thinking began to be discussed in later years, considering that development could not be reduced solely based on an increase in per person income. On the other hand, the measure of development was imperfect because income in the population is not evenly distributed. For this reason, the transformation from economic development to human development began in the early 1990s. In this transformation of development, says the author Torres (2015), which is divided into national development and tourism as a regional and local development in which a number of various development opportunities are increased.

The economic perspective on development has also changed over the last three decades in terms of geography. Development went from being conceived as a macroeconomic process to a territorial process. In this sense, development went from being seen as only produced by big business, to being considered based on local resources and being executed by small business, Di Pietro (2014). Thus, during the last three decades, development theory has incorporated the concept of economic development into the concept of development. This is understood as a process of economic growth and structural change that improves the level of well-being of a locality or region.

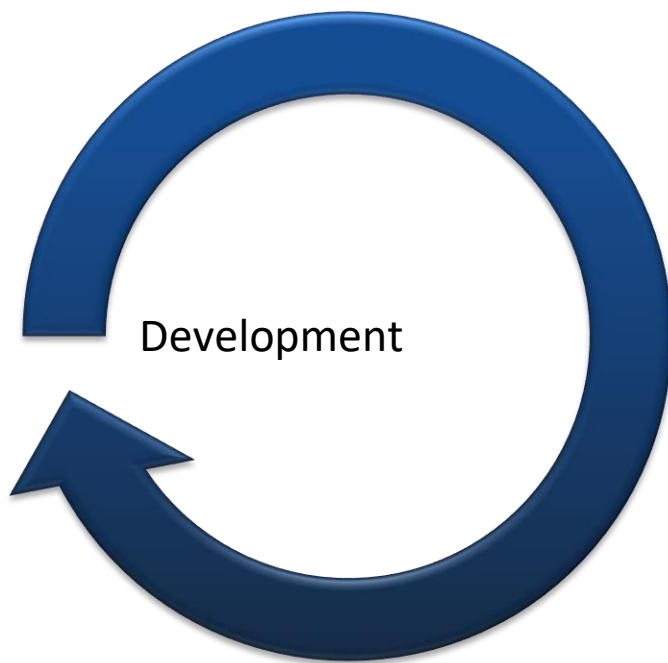
The World Bank (2018) defines local economic development as a process in which various sectors of society work together to improve conditions for economic growth and employment generation. Local economic development is a collaborative process that drives agreement between government and private sector actors, with the purpose of stimulating productive activity and generating employment, according to Di Pietro (2014). A simple definition, but of broad meaning, is the one used by the Local Government Association in the United States of America for which development means improvement in the quality of life, Pike, Rodriguez and Tomaney (2011).

The local economic development of a territory is a process that comprises several aspects, the main ones being:



Figure 5-Diagram of the aspects of local economic development. Own creation 2020.

Local economic development includes, in addition to economic development, human, social and environmental development. The following chart illustrates the various aspects contained in each type of development:



- Human
 - Access to health and education
 - Decent employment
 - Strengthen the woman role
- Social
 - Promotion of civil society
 - Strengthen the local government
 - Create local networks
 - Foster community participation
- Environmental
 - Environmental education
 - Foster renewable energy
 - Foster ecological production
 - Value for environment
- Economic
 - Create infrastructure
 - Business development services
 - Business promotion
 - Productive diversification

Figure 6- Dimensions of local development. Source: Own creation based on Di Pietro (2014).

An important aspect to be clarified is that local economic development is not only at the municipal level, it can also be at the departmental or regional level. In some cases, it is preferred to speak of territorial development because a territory is broader, it can include several communities, municipalities or geographical areas of departments or regions. The extent of the territory is determined by social and cultural rather than geographical aspects. The main objectives of local economic development are employment generation and improvement of the quality of life of the population, Di Pietro (2014). These general objectives are achieved from the following specific objectives:

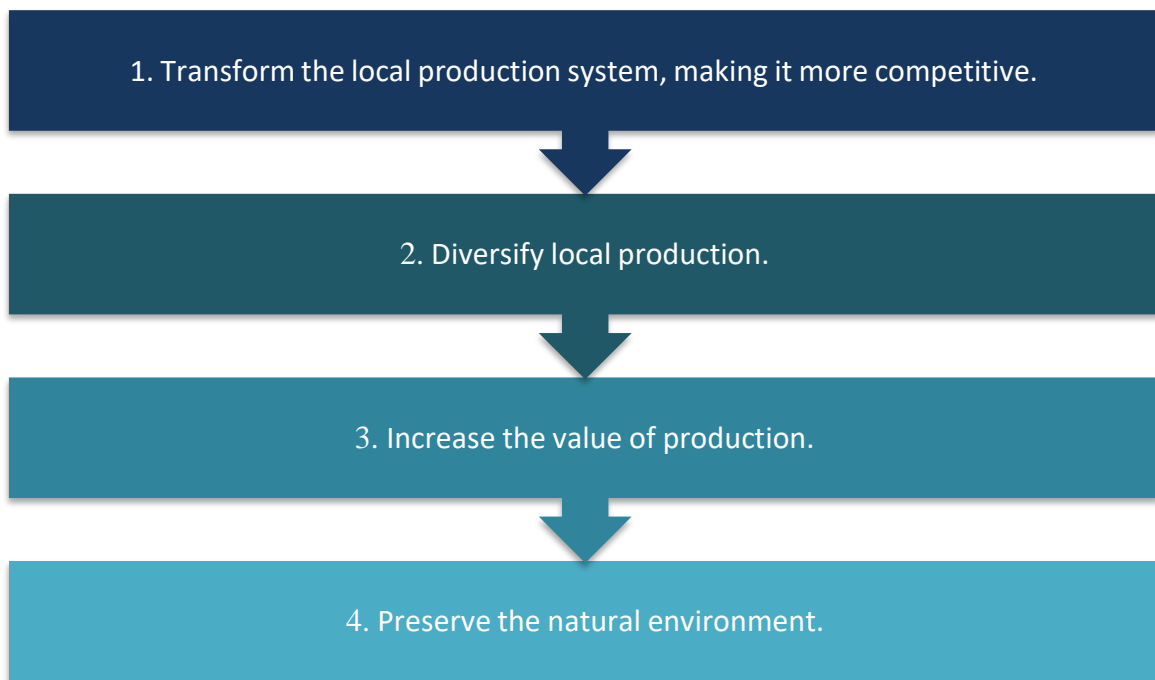


Figure 7- Diagram of the main objectives of local economic development. Source: Own elaboration 2020.

Employment generation is a fundamental objective in local development initiatives, since it is one of the main problems faced by the population in communities, municipalities or territories. With the generation of employment, the population obtains income that allows them to improve their standard of living. The productive transformation to gain competitiveness seeks to preserve jobs, while the diversification of local production seeks to generate new jobs through new productive activities and the increase in added value so that workers can obtain higher salaries. All of the above is intended to be achieved harmonizing with nature, with the purpose of achieving sustainable local development. As in the case of the economic development of countries, there are multiple theories of local economic development. Some give priority to geographical or locational factors, others to institutional or organizational factors. One of the main ones is the so-called regional economic base theory. According to this theory, local development depends on basic sectors whose

production is sent outside the geographical area where it is produced or territory. It can be said to be equivalent to the export promotion model, in the sense that territories export products to other territories. These products depend on geographical conditions and factor endowments. Another theory is that of transportation costs, according to which productive activities are located close to where raw materials are found to reduce transportation costs. At this point, the theory of economies of scale and agglomeration arose. According to this theory, the location of several companies in a geographical area helps to reduce costs and provide skilled labor, which favors the development of that area. The new economic geography is one of the most recent theories that affirms not only influences. The endowment of productive factors, but also consumption, costs and the relationship between the different productive sectors in a locality or territory, Tello (2006).

Human development and local economic development have in common the idea of improving the quality of life of the population. Changes in the poverty indicator are considered useful for measuring improvements in quality of life. The poverty level of the study municipality, Cataño in Puerto Rico, is 49.1%, according to the U.S. Census (2010). Tourism translates into poverty reduction, increased education, business development, and environmental conservation. The development experience transcends from the local to the territorial, driven by the community tourism development agency for the municipality of Cataño, which will promote productive diversification.

Sustainable tourism

Sustainable tourism emphasizes the adequate and balanced management of natural resources, the preservation of cultural heritage and traditions of the communities, making it possible to enrich the quality of life of the local population, Linares (2014). Local

communities must become protagonists in the programming and management of tourist destinations, establishing their own management and planning models, balancing the inherent needs of tourism development itself and minimizing the negative effects that may be caused by them. An activity that has profound repercussions on three aspects of the destinations: economic, sociocultural and environmental, and in which the concept of sustainability, and above all its real application to tourism development, is no longer a more or less abstract question but a fundamental part of the future of tourist destinations.

On the other hand, development theory has incorporated, during the last decades, the concept of local economic development. The concept of local economic development, according to Cuervo (2017), is about "a state of mind in which, instead of waiting in favor of external agents, one works with the valorization of own resources and the creation of synergies of economic growth and welfare". With this thought, we work with the available local resources and with the community in general to achieve a local human development integrated with sustainable tourism. On the other hand, in turn, a process of economic growth and structural change emerges that improves the level of well-being of a municipality or region. When the community leads the process of structural change, it is an internal local development and a healthy development. For such reason, the projects that arise, and the developments will be better viewed and accepted by the community. The World Bank (2018) defines local economic development as a process in which various sectors of society work together to improve conditions for economic growth and employment generation. Local economic development is a collaborative process where the community is driven to lead processes with the public (government) and private sector, with the purpose of stimulating economic activity and generating domestic jobs, Cuervo (2017). A simple definition, but of broad meaning, is the one used by the Local Government Association in the United States of

America-for which development means improvement in the quality of life, Pike, Rodriguez and Tomaney (2011). An example of this type of activity is where the greatest reduction in the level of poverty due to projects such as this one has been in Sausalito in California, United States. In Sausalito, compared to other municipalities, there was an economic spillover produced by recreational tourism. It shows local development through tourism and the transformation of a poor region into one of great economic, local and cultural development, which consequently translates into a reduction of poverty, an increase in the level of education, development of local businesses and environmental conservation. The development experience transcends from the local to the territorial level, driven by the development agency that promotes productive diversification. At the territorial and local level, tourism is more important than at the national level. According to statistics from the aforementioned municipality, each year it receives an average of almost \$240 million in income from tourism.

Community-based tourism, the concept of which we will fully develop later, must assume a new conception of territory in which socio-productive management is exercised at the level of one or several communities, in which, in addition to the productive aspect, the networks and social relations of that space are strengthened. That is, not simply a vision of production and economic development, but also a vision that considers an adequate and healthy management of natural resources, and that is environmentally friendly and responsible with the social environment, Linares & Morales (2014). Community-based tourism is a new approach to the development of a municipality or region, where local and natural resources can be managed in a sustainable and collective manner, since through the communities it is possible to exercise better control over their use and protection. With this new perspective, the impacted communities feel a sense of belonging to their surroundings,

not only environmentally, but also socially and culturally. However, the challenge of making the community more efficient in the management of the community tourism development process must be assumed with great responsibility, which translates into greater efficiency and effectiveness in decision making, greater responsibility at the moment of executing what is planned, and in a constant follow-up with a periodic evaluation of the work carried out based on the established plan. With this in mind, community-based tourism should be able to promote integral development for the communities, mitigating poverty through the generation of local jobs while improving the economy, avoiding the migration of its inhabitants, promoting a fair distribution of income and contributing to the conservation of the environment.

Tourist models

A Tourism Model is understood as "the generalized way of resolving both tourism behavior and the supply that accompanies it in a given destination or region. The repetitive presence of similar offers, as well as the evidence of similar behaviors of numerous tourists, leads to the suggestion that a pattern or model is present, Hiernaux-Nicolás et al. (2002).

Segregated model

In the case of tourism, basically two models can be identified that are totally opposed to each other. The first one corresponds to a segregated model, also known as "enclave" tourism, derived from other productive experiences, such as banana and coffee crops, among others, basically associated with mass tourism, which finds its clearest expression in the so-called "sun and beach tourism". In this model the local population becomes a low-skilled labor force, with minimum wages, occupying the lowest hierarchical positions. The large

hotel infrastructure is predominantly in foreign hands, and it is the large national company that stands out. The tourist experience is not linked to the environment and even less to the local population, Hiernaux-Nicolas and others (2002).

Integrated model

Integrated Model, which is generally associated with small and medium-sized enterprises. The existence of a strong social capital, understood as the social relations that exist in a given territory, which is generally associated with small and medium-sized companies. The existence of a strong social capital, understood as the social relations that social relationships that occur in a given territory, in tourism management. On the other hand, there are also the contributions for a model of sustainable community tourism management that combines attitudes of trust with reciprocity and cooperation behaviors, Durston (2001). These qualities are elements that favor the development of this new form of business. There is also a link between the tourism experience and the environment and the local population, where the community participates in the planning and management of the tourism offer. The populations not only enter as wage earners but also as bearers of certain tourism ideas expressed in different initiatives.

Relatively integrated model

An intermediate model corresponds to the Relatively Integrated Model, which includes elements of the two previous models. It combines large national and foreign companies with small national and foreign companies. According to Hiernaux-Nicolas, et al. (2002) most Central American and Latin American experiences correspond to this type of model. It can be said, then, that in Community Tourism the *Fordist* model does not fit, since community tourism demands a more exclusive tourism experience, less massive and focused

on new and innovative destinations, seeking a limited number of offers in the territory. In addition, in mass tourism (generally sun and beach) the tourist seeks "escape", while in community tourism the tourist seeks "integration", for which direct, genuine and sincere contact between the tourist and the local inhabitant and his people are fundamental. This presupposes a certain sensitivity for the visitor to the culture and way of life of the host communities.

Community-based tourism

The concept of community-based tourism appears for the first time in the work of Murphy (1985), which analyzes aspects related to tourism and rural areas in the poorest countries, and in those of Richards & Hall (2000), in which tourism as a tool for reducing poverty is proposed. Also, noteworthy are the studies by Palomo (2005), Gascón (2009) and Navarro and Nello Andreu (2010) focused on international cooperation applied to tourism development in developing countries and its contribution to alleviating poverty.

The objective of community-based tourism is to preserve ethnic identity, valuing and transmitting cultural heritage in all its forms, since indigenous cultures are bearers of values, history and identity (Maldonado, 2005). An essential element for the success of community-based tourism is the role to be adopted by the local community in the planning and management of tourism activities, as it serves to adapt to changes, opens their mentality, and they are an essential part of the tourism product (López- Guzmán, and Sánchez Cañizares, 2009). Similarly, the main objective of community-based tourism is to improve the standard of living of the inhabitants of native communities and guarantee the permanence of traditional ways of life in the region (Casas, Soler and Pastor, 2012).

Likewise, Community Tourism is an integrated model of development, but considering not only community participation but rather community control in the planning and management of tourism initiatives. In addition, the community is constituted as the owner of the established tourism businesses. As presented by author Coriolano (2017) and I quote, "tourism is not a cause of development, but a complementary and dependent factor of the overall development of a country". The first key element to achieve this development is to recognize the poverty in the community and the lack of resources. We cannot ignore the reality in which the communities live; their infrastructure must be improved, since the tourist must be offered a quality tourist offer. The second element to consider is that a culture of protection and reasonable use of natural and cultural resources must be created. The author Inostroza (2018) says that only people and communities that identify and value the resources they possess will be able to develop this activity with future possibilities, since one of the main attributes that the visitor wants to know is a well-preserved natural environment in a unique and different cultural context. In this sense, when the community leads this process of structural change in a supportive way and allowing active participation and proper management of cultural heritage, community-based tourism emerges, Garcia Martinez (2016).

Articulation and coordination between the different actors in a territory

Local Economic Development requires trust among the actors so that they can jointly commit to a common and consensual vision of development. This requires the coordination and articulation of the different institutions in the public, private, community and society sectors that have to do with the tourism development of a territory, where each one has a role and a way of doing things that is necessary for the success of this type of tourism development. It is important that whoever leads the process does not have to be the

government; it can be the private sector or community organizations. However, it is the public sector that must first promote the processes of tourism development and then provide spaces for coordinated work between entities, always taking into account the development laws established by the government. This network of organizations for the development of Community Tourism is imperative, not only to work on aspects of tourism, local business development and training, but also to facilitate local development processes. It is important that the coordination space that is generated, such as a "Community Tourism Board", be visible in the technical and political-institutional spheres and that there be political recognition. It is also important that its functioning acquire formality, for which it should have a work plan, identify its members, establish a directive that represents it politically and institutionally, an internal regulation and an operation that organizes meetings, designs the action plan and develops proposals that promote tourism development in the area. It is extremely important that concrete decisions be made in this space in favor of the territory's tourism development, and that all sectors participate in decision-making. Community organizations should take advantage of these coordination spaces to establish relationships with institutions that are well positioned, such as municipalities, tourism offices, and commerce, since, according to Durston (2001), this activates social capital. Likewise, it should not be overlooked that the process of empowerment of the organizations should also be developed within the community itself, revalidating the role of women, the elderly and youth in community participation and decision-making bodies. This leads to a healthy and sustainable community development.



Figure 8-Main actors in the development of community-based tourism in the municipality of Cataño, Puerto Rico. Source: Own creation 2020.

Community participation

In this way, community participation in the coordination spaces will be integral and representative of the sectors. To activate the development processes in the communities, it is essential to employ people from the same community environment. The community is considered an essential element of the tourism system, and it is imperative to rescue its importance in tourism planning and management, as mentioned by Monterrubio (2018).

During this process, the community is related to various forms of economic development,

such as the cultural value of the municipality. The culture of a municipality is seen as the symbolic system of visions of the world and the human being, in addition to the norms and values of social behavior, and human capital, understood as knowledge, synonymous with cognitive capital, according to Monterrubio (2018). The activation of only one capital, economic capital, used as an example, is not enough to generate development. In this sense, material investment should not be put as a priority before investment in people. A Sustainable Management Model for Community Tourism should first consider that this type of tourism is part of Rural Tourism and that it is part of an integrated model of tourism development. The most important specificity of community-based tourism is the control of the tourism product by the community, which implies that all decisions regarding the community-based tourism development process are adopted by the community. The great challenge in this area is how to make the community management process more efficient, which in general tends to take up too much time in decision-making. Community-based tourism does not only consider a mercantile-productivist vision of the tourism initiative, but also a sustainable management of resources and responsibility for the social environment; a community-based tourism project must be able to generate a flow of visitors that provides interesting economic income for the local communities. The model should conceive community tourism as part of an integral rural development strategy that promotes a sustainable activity, under a logic of productive diversification. The challenge in this case is for community tourism to become the articulating axis of the variety of productive activities. Finally, when there is an articulation between the different participants, in this case, the community, the government and the tourism operators of a territory, the probabilities of success in tourism ventures are potentially

effective.

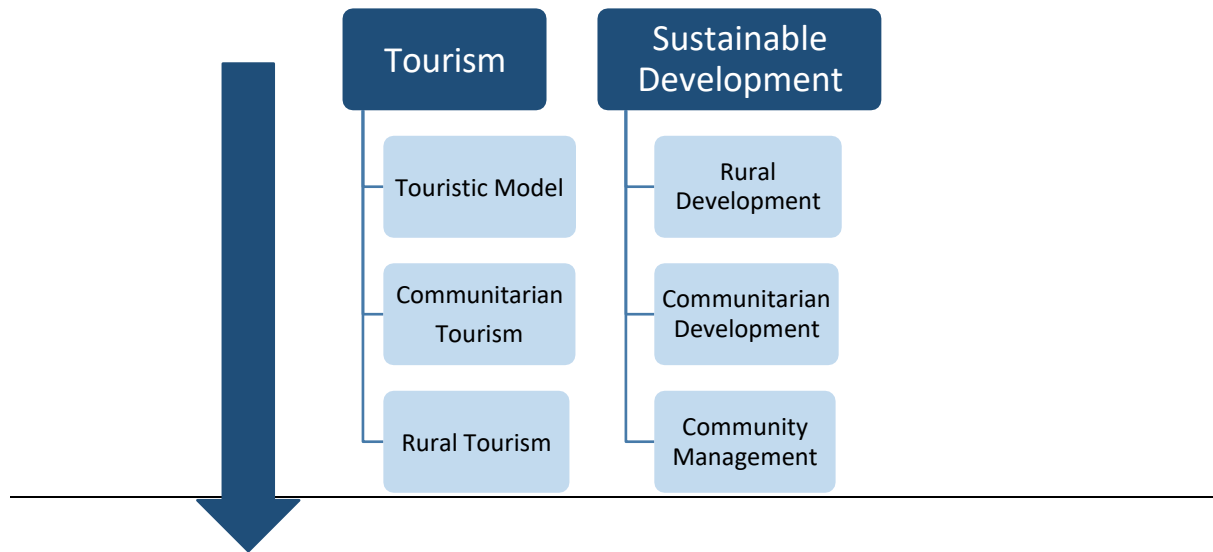


Figure 9-Considerations to be taken to achieve a Sustainable Community Tourism Management Model. Source: Own creation based on Monterrubio (2018).

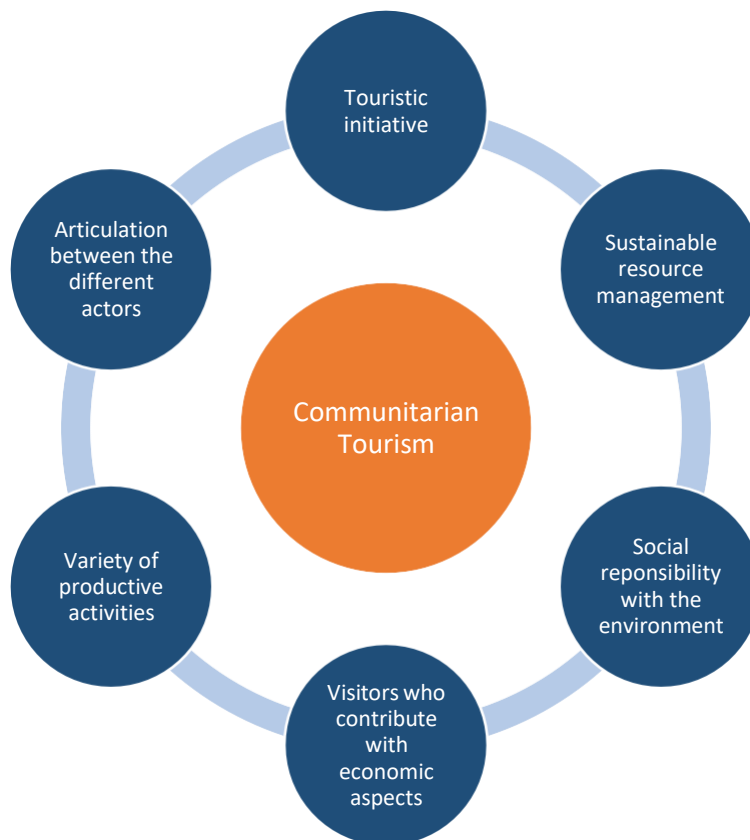


Figure 10- Important elements for the sustainable development of community-based tourism. Source: Own creation based on Monterrubio (2018).

Tourism and education

As stated by Colom and Brown (1993), the study of the relationship between tourism and education implies the analysis of the role that education is taking in the world of tourism and the role that tourism is developing in education. Tourism undoubtedly has an educational aspect. This can be cultural and experiential, formal or informal. Approximately forty years ago, tourism first appeared as an area of study, specifically in sectors such as hotel operations and restaurants and those activities that compose it, such as entertainment and recreation. In the 1960s, important changes occurred in tourism, in higher education and in society in general.

As a result, tourism emerged as an area of study and research (Airey et al., 2006). The changes brought about by the 1960s laid the groundwork for the study of a new topic and attracted academics to it. As a result of these important changes, there has been an increase in the rate of higher education students interested in studying careers in tourism. Students are keen to explore the origins of tourism as a subject of study and to analyze and explain the ways in which it has developed. In addition, institutions and practitioners are aligned to research and study tourism, and it has become a subject of study at many levels of education, from technical studies to doctoral degrees. Amoah and Baum (1997) state that tourism studies should go hand in hand with administrations and businesses, since these are the connecting agents of any kind of tourism, whether educational, recreational, environmental, cultural, among others.

Tourism is a reflection of economic development and companies should keep this in mind, since they could create a number of economic development initiatives based on tourism, such as Interpretation Centers, Cultural and Environmental Itineraries. These types of initiatives generate important changes in the educational, cultural and economic

development of a region or country. According to the World Tourism Organization (2018), tourism shows a constant growth, not only in economic development, but also in the activity. It has demonstrated an increase in the expansion of companies and organizations related to satisfying the needs of tourists, from airlines, hotels, restaurants and tour operators.

This worldwide growth, combined with the increase in academic requirements by employers, has helped drive higher education institutions to meet the demands and job opportunities created by tourism administrations and companies with academic offerings. The growth of tourism has brought with it a series of situations, from major economic developments to social and environmental problems. The problems brought about by tourism have generated interest among academics and researchers at the higher education level in understanding and explaining this global phenomenon (Jafari, 1990).

The annual growth of international tourists worldwide and a number of other factors such as advances in communications and social media have been essential elements in this remarkable increase in tourism. In addition, students today are enrolling in higher education programs, especially in innovative programs that develop them in a career context. This topic has been of academic interest for several years. Students are conscious when choosing their field of study because today they look at the purchasing power of completing their degree or employment opportunities in the world of work. They no longer study to have a profession, to study the academic offering of their interest, but their impulse is the opportunity in the working world and therefore the salary. The employment context has changed and continues to change constantly due to the influences of globalization, governments and communications and students are much more aware of the potential for employment when choosing a course of study.

Within the field of tourism there could be a specialty that is not contemplated in the training and that undoubtedly has a great future. There is an urgent need to establish training plans in this regard. It would be about training in community-based tourism models. Community-based tourism is an approach to tourism that focuses on involving local communities in the development and management of tourism in their areas. This type of tourism seeks to foster the local economy, preserve the culture and environment, and improve the quality of life of the communities involved (Agüera, 2013; Linares & Garrido, 2014).

Community-based tourism can contribute to job creation, increased income, and improved infrastructure in rural communities (Jiménez López & Cavazos, 2012; Vinasco, 2017). It can improve relations between tourists and local communities and foster greater mutual understanding and appreciation. However, for community-based tourism to be effective, it is important to involve local communities in all phases of the process, from planning to management and monitoring (Morales, 2006; Choi, H. C., & Sirakaya, 2006; Matos et al., 2022). It is also important to ensure that tourism activities do not harm the environment and respect the culture and rights of local communities. This is one of the most important issues in this area, since everything must be developed in a sustainable environment in accordance with the necessary ethical requirements.

Tourism education models

Although in general we can speak of tourism education thinking of higher education, university training and continuing professional development, this need not be the case only. It is necessary to establish the connections that exist between education and tourism, and to verify that there are different approaches that, from a training perspective, should be approached in different ways.

In the first place, we must indeed speak of models within what we could specifically define as "tourism education". This would be, in its traditional sense, training for tourism professionals (Veintimilla, 1997; Dam, 1998). Tourism education is an important element of the travel and hospitality industry, as it provides students with the knowledge, skills and abilities to perform a variety of roles in the tourism industry. Tourism education combines elements of business and management, geography, psychology, and economics to help students understand the industry, customer behaviors, and marketing principles. From entry-level to senior management positions, tourism education can provide graduates with the essential knowledge and qualifications they need to succeed in the competitive tourism industry.

However, the approach to tourism education can be extended to the entire population, even in stages before university or professional training. For example, understood from a cultural and not purely business approach. It would be seen as a culturally based social practice that can promote the safeguarding and sustainability of cultural heritage, thus influencing the travel and tourism sector (Fonseca, 2010). The population would thus be trained to respect the environment. Going beyond an industry focused on leisure, seeking to train in generating responsible tourism committed to the cultural environment, ecology and historical heritage (Villalobos, 2022).

In this line, and going a step further, it would be possible to discuss other models, which we would call "educational tourism". This term, as Silva (2013) states, refers to all actions derived from training and formative processes to transmit the customs, traditions and cultural heritage of an area. It can be for cultural, nature and ecology training, language teaching, etc. In this area, for example, traveling to other countries to learn or perfect a

language has become a global trend in recent decades (Iglesias, 2018). Students of all ages can participate in educational tourism, from early childhood education to senior education.

Educational tourism is a growing trend in the travel industry. Undoubtedly, one of the benefits of educational tourism is that it can promote sustainable practices and ecological literacy. Multiple initiatives are now occurring that promote sustainable practices and ecological literacy in schools that thrive in the context of tourism through an integrated approach (Berman, 2021). This approach can help students develop environmental literacy and address the UN Sustainable Development Goals (SDGs), which derive in Education for Sustainable Development (ESD).

For its part, within the sphere of relations between tourism and education, the COVID-19 pandemic has also highlighted the importance of dynamic organizations and digital innovation in the world of education (Billy, 2020). Educational institutions have had to adapt to distance learning and virtual classrooms, which has led to the creation and growth of new digital tools and technologies that are making it possible to enhance the educational tourism experience by offering virtual tours, online language classes, and cultural exchange programs (Akhtar, 2021; Tiwari, Séraphin & Chowdhary, 2021). And, most importantly, as we discussed, educational tourism can also benefit indigenous cultures by providing a platform for cultural exchange and understanding (Topp, 2011).

By combining these approaches, we would obtain models for training in "community tourism". We place ourselves in the context of an offer of quality and sustainable competitive services, carried out in small localities, which become an alternative source of income and at the same time, a means to overcome poverty (Navas-Ríos, 2019). In this sense, ethics would be added to the previously presented, whether entrepreneurial or cultural. It is a concept that

is still under construction but is fundamental for the future, especially in Latin America (Cabanilla, 2018). Training for community-based tourism would allow its extension and the improvement of the lives of millions of people who could use it for their economic and social growth.

Although we will describe the latter term in more detail below, it should be said that all tourism education models, whatever their nature, should be framed under the country's public policy, as well as their development and implementation. Tourism is recognized as the fastest growing economic sector in the world. As a consequence, the number of academic offerings in tourism education has grown significantly in recent decades. Cooper and Shepherd (1997), state that tourism education includes a curriculum, the program offering, the teaching curriculum, and the teaching-learning environment. Essential elements of a tourism curriculum include business foundation, innovation, management, data analysis, humanities, and communication. Among the teaching-learning strategies is the integration of formal and informal learning spaces with the use of innovative technological tools (Gómez Galán and Figueroa, 2019; Figueroa et al., 2022). In this sense, educators will have new challenges to face.

[New approaches in tourism training](#)

Professional tourism education continues to be the most studied and where there is much room for improvement. The business tourism sector requires skilled labor and to meet the demands of the industry, higher education institutions have set out to develop cutting-edge programs to meet this demand, as stated by Kim et al. (2018). On the other hand, there are the challenges of this highly competitive and demanding industry that students entering this sector will be facing, as they will need various skills and among them is entrepreneurial

ability. According to Daniel et al. (2017), the integration of entrepreneurship and entrepreneurship education within tourism courses is considered important, since it helps future job prospects, whether students are employed or self-employed. In addition, students acquire and improve their non-cognitive skills such as responsibility, perseverance, and teamwork, which are highly valued by the tourism industry.

To achieve these objectives, it is important that students acquire a thorough understanding of the different roles within the industry, the various regulations and standards, and the different marketing and customer service strategies. They should also learn about the economic and environmental impacts of tourism and the importance of sustainability. They must understand the different cultures, customs, and traditions of the destinations they visit or market, as well as the regulations governing international travel (Cervera-Taulet & Ruiz-Molina, 2008; Lisitzina et al., 2015; Sushchenko, Akhmedova & Stryzhak, 2021) and they must be trained in the technological and digital trends that are transforming the industry (Pérez Sánchez et al., 2021; Figueroa Miranda, Gómez Galán, & López Meneses, 2022).

In addition to learning the concepts and principles of tourism, students get hands-on practice. These include customer service, communication, problem-solving and team management, which are vital for working in the tourism sector. They must participate in lectures, seminars, and practical activities and simulations, as well as field trips and industry visits (García-Manjón & Pérez-López, 2008; Costa & Vidal-Casellas, 2013).

There are many advantages to holistic and comprehensive training in this area. It is the best way to gain a competitive advantage in the tourism industry. It allows for greater job opportunities (Ferrerias, Sales & Serradell, 2020), whether for an entry-level job or for a more advanced position. Furthermore, it can also improve customer service, equips with the

knowledge to interact with customers effectively. Also, the student will learn how to provide the best possible customer service, which can help make the business to be more successful. Moreover, it offers better problem-solving and communication skills, essential for dealing with complex customers and situations (Rao, Yang & Yang, 2018; Hudson & Hudson, 2022).

Regardless of the training of tourism specialists, this topic is being included, in general, in the world of education (Torres, Zaldívar, & Enríquez, 2013). It is a growing trend in contemporary society. As people become increasingly mobile, more and more people are choosing to study abroad or participate in educational excursions to explore new places and cultures. It would fall within the realm of what we call "educational tourism".

The benefits it offers are multiple. First, it is an excellent way to bring people closer to new ideas and cultures, broadening their horizons (Velasco, 2009; Alcívar, & Bravo, 2017). This can help them gain valuable information about different lifestyles and can even foster appreciation for different worldviews. It can also help become more open and adaptable as people learn to accept what different cultures have to offer. Also, people become more socially aware. By immersing themselves in different cultures, they learn more about different customs, values and beliefs, and gain a better understanding of how cultures interact with each other (Reisinger & Turner, 2012; Chen & Rahman, 2018). This can help them become more tolerant and understanding, leading to improved interpersonal relationships. Another benefit is that it can help creativity. When students are exposed to new environments, they may be forced to think quickly and find creative solutions to the challenges they face. It allows them to become more confident and independent.

In all the new approaches required today in the field of education and tourism, and based on the needs of our society, educational programs must be flexible and adjusted to the

objectives pursued. For example, tourism education models, in general, must provide students with the necessary training to understand the needs of different types of tourists and to manage and promote destinations effectively. In the specific field of community-based tourism, they should also learn especially about the importance of sustainable tourism practices and the impact of tourism on local communities and the environment (Burguete, Hidalgo-Alcazár & Lanero, 2020; Sheller, 2021; Mathew, 2022). This knowledge is essential in today's global market and in any action aimed in one way or another at tourism.

Connections between educational tourism and community-based tourism

Certainly, in the context indicated, recently there has been intense work on the development of new forms of tourism, which are practiced sustainably, and aim to improve the socioeconomic development of local communities through their cultural, heritage and natural potential, as well as to improve the conservation of resources in these areas (Orgaz, 2013). This is the basis of community-based tourism, as we saw. And the connections with the concepts of educational tourism, in all its dimensions, are many.

Without going any further, community-based tourism can be fundamental for the development of education. Training in community-based tourism would allow the extension of this model or models of new forms of tourism, but at the same time by feeding back it would contribute to the improvement of education in the communities in need. In this context, as stated by Salas et al. (2020), community-based, integrated and participative tourism is an excellent way of strengthening education, especially environmental education, since it is already an ideal way of participation. As these authors argue, community-based tourism is a model that can be institutionalized in a community with participatory and integrated action by all members and local sectors. An experiential learning process can take

place to strengthen children's knowledge in the transmission of the identity values of this tourist space in the family and the community.

In agreement with Tinoco (2016), it can be affirmed that interpreting and acting consequently in terms of conserving the environment with which we interact, rationally taking advantage of the resources provided innately and promoting the quality of life of human beings and living organisms in general, undoubtedly requires assuming education as part of a contemporary culture. This implies the development of knowledge and convictions through the different formal educational channels, from the school institution, at any level, and through non-formal channels.

That community-based tourism has emerged as a popular form of tourism that seeks to promote sustainable development by involving local communities in the tourism industry necessarily links it to education. When travelers stay with local families or in small lodges, and participate in activities organized and led by local people, it not only offers visitors the opportunity to learn about the local culture, but also helps to sustain the local economy and promote cultural preservation. For its part, educational tourism can promote sustainable development by offering visitors the opportunity to learn about the local culture and support the local economy. There is no doubt that educational tourism and community tourism are closely linked (Figuerola, Gómez Galán & López Meneses, 2022).

Community-based tourism can be considered a type of educational tourism. In addition, educational tourism can be integrated into community-based tourism activities, such as visiting local schools, learning about traditional crafts, or participating in cultural events. Educational tourism can also bring benefits to local communities. By promoting cultural exchange and awareness, educational tourism can help preserve local cultures and traditions

and encourage the local community to take pride in their heritage. In addition, it can provide local people with the opportunity to share their knowledge and skills with visitors, which can generate income and support local businesses.

However, the relationship between educational tourism and community-based tourism can also pose challenges. For example, it is important to ensure that the educational experiences provided by tourism activities are respectful of local cultures and traditions, and do not exploit or misrepresent the community. In addition, it is important to ensure that the economic benefits of tourism are distributed equitably among the local community and that tourism does not cause negative social or environmental impacts. It is necessary, therefore, to enhance its virtues and minimize its drawbacks.

In this line, different educational models have been presented in the Ibero-American space -most of them environmental- that are very interesting and in which the development of community-based tourism is sought. For example, the one carried out by Lomas and Trujillo (2018), in Ecuador, which sought the historical-environmental reconstruction of the community's tourism experience, based on cognitive recognition and its relationship with nature, the establishment of inter-institutional alliances, the consolidation of what has been learned and the continuity of learning, school-community integration in the teaching of community tourism and, what is very innovative, the incorporation of ancestral knowledge in the development of tourism. Or that of García-Vera and Malucín (2019), also in Ecuador, which, although it understands community development as an economic activity that drives the growth of a locality so that it values the natural and cultural resources of its community, defends the need for training and education to achieve the good work of the ecological and sustainability projects that can be carried out. It seeks, above all, an integrated community

development with the tourist activity to improve it as an effective axis of the economy and with it the progress of the settlers.

There are many other models of community-based tourism that, in one way or another, present the importance of the educational dimension, such as those of Morales (2006), in Chile; López Guzmán and Sánchez Cañizares (2009) in El Salvador; Casas, Soler, and Pastor (2012), in Peru; Rodrigues da Silva, Corbari, Cioce, and Jurema (2014), in Brazil; Quiñónez, Salazar, and Tapia (2018), in Ecuador; or Salcedo (2019), in Colombia. In the latter case, the need for the construction of educational processes with rural communities with tourism potential is defended to effectively develop community tourism programs. Also, noteworthy is the recent study by Ramos, Chávez and Schlemer, in Honduras, where positive results were obtained that generated income for the families involved and provided important support for the education of children and young people. However, it found little government involvement, little urban and tourism infrastructure and, above all, a lack of training, all of which are elements that most community tourism programs have to face. And which underline the importance of investment in these models, not only in infrastructure but also in training.

In this sense, Manzano, González Sánchez and Nasimba (2017), in an important research conducted in Ecuador, consider training and education so relevant that they even speak of a "knowledge economy". They seek to relate the knowledge economy to the movement of community tourism, for which they consider it decisive to analyze theoretically the concept of knowledge economy, entrepreneurial culture and employability in the field of community tourism, to develop from it educational training programs.

Planning of training programs

The integration of tourism education in the curricula of educational institutions plays a crucial role in the preparation of people. This is especially true for careers focused on today's dynamic and constantly evolving tourism industry. Tourism education programs should provide students with a broad understanding of the industry, equipping them with the knowledge and skills necessary to pursue specialties in a variety of roles, such as tour operators, travel agents, destination marketers, and event planners (Schulte, 2003; Merinero & Pulido, 2016; Schenkel, 2019).

Ideally, as has been indicated, training programs should be adapted to the contexts, models and objectives related to tourism that are being pursued. However, it would be essential to establish some general guidelines for the correct planning of these curricular developments. Focusing, for example, on the training of tourism professionals, in the general context of tourism education, we could present the following planning phases:

Phase 1. Assess the needs of the tourism industry: the first step in integrating tourism into training curricula is to assess the needs of the industry (Cooper et al., 2005; Alexakis & Jiang; 2019; Gkoumas, 2019). This includes understanding the various components of it, such as its history, development, current trends and issues, as well as the skills and knowledge needed to succeed in various roles within the industry.

Phase 2: Develop a curriculum: based on the assessment of the needs of the tourism industry, educational institutions can develop a curriculum that provides students with a comprehensive understanding of the industry and the skills necessary for proper training (Collado et al., 2013; Ndou, Mele & Del Vecchio, 2019; Castillo, Ardila & Castrillón, 2020; Boluk, Cavaliere & Duffy, 2021). This curriculum should include a wide range of topics,

including the history of tourism, the development and evolution of needs in this field, the current situation, skills for market analysis and for effective communication with a wide range of stakeholders. Training in digital technologies will also be essential today (Balula et al., 2019) and should be included. The curriculum should also reflect the structure of internships.

Phase 3: Provide practical experience: in addition to theoretical knowledge, it is important that students gain practical experience in the tourism industry (Peñaloza et al., 2011; Ferreras, Sales, & Serradell, 2020). This can be achieved through internships, cooperative programs, or other learning experiences. This would provide students with the opportunity to apply their knowledge and skills in real-world settings and gain a deeper understanding of the industry.

Phase 4: Encourage collaboration with the tourism industry: educational institutions should encourage collaboration with tourism-related businesses. It is fundamental in university extension (Michalijos, Gernaldi & Visciarelli, 2016). This can be achieved through partnerships with local businesses, tourism organizations and other related parties. Collaboration with industry allows students the opportunity to not only gain a deeper understanding of the industry, but to develop networks and connections, which today is fundamental in tourism education (Ortega, Medina & Osorio, 2020). In addition, it would greatly enhance their practical experience in real-world settings.

These phases could be applied to all areas and models existing today within the field of tourism, as is the case of community-based tourism, on which we have focused in particular. The bases of this type of tourism have been structured since its origins (Joppe, 1996; Choi & Sirakaya, 2006), but it is necessary to continually update them in relation to the

new needs and problems that arise in current times. For example, the COVID-19 pandemic led to a transformation in many aspects of this activity, which has undoubtedly had an impact on training (Tiwari, Séraphin & Chowdhary, 2021). This is the only way to ensure its viability, quality and necessary extension.

Emerging technologies in community and educational tourism processes

We cannot conclude our theoretical framework without analyzing the impact that the technological advances of our modern era are having on our society. Not only do they constitute a fundamental support in all aspects of human life (Chicaiza-Vinueza et al., 2022), but they have, and above all will have, a determining influence in the field of tourism, and within it naturally both in the community and in education. Today we are living in an era of immense progress in information and communication technologies (ICTs) that affect all aspects of our lives, especially what we know and how we learn. That is, we live in a society where everyday interactions are increasingly conditioned by technologies, where learning is conceived as a co-creation of knowledge in technology-enhanced communities (Kali, Baram-Tsabari & Schejter, 2019). At the same time, it constitutes resources that have demanded citizens to generate new ways of learning, necessary to respond to the labor and productivity demands that are emerging today within society (Panagiotis et al., 2011; López-Meneses et al. 2020; Vázquez-Cano, Gómez-Galán, Infante-Moro & López-Meneses, 2020).

In turn, technologies are more than necessary in the business sector today (Infante-Moro et al. 2020), they arrived as a complement to the traditional concept of business, but have become essential in its operation (Jaén-Arenas, 2019; Ruiz-Falcó, 2019; Infante-Moro et al., 2019) and constitute one of the most relevant factors of change in tourism activity

(López-Palomeque et al., 2022). We cannot ignore that tourism is one of the main drivers of the welfare of the economy (Khoshnevis et al., 2017; Solarin, 2018; Zuo & Huang, 2018). However, it is worth mentioning that digital transformation, as Pesonen (2020) points out, does not consist of the mere adoption of technologies, as it must be accompanied by adjustments in the business model and organizational redesign to be truly beneficial.

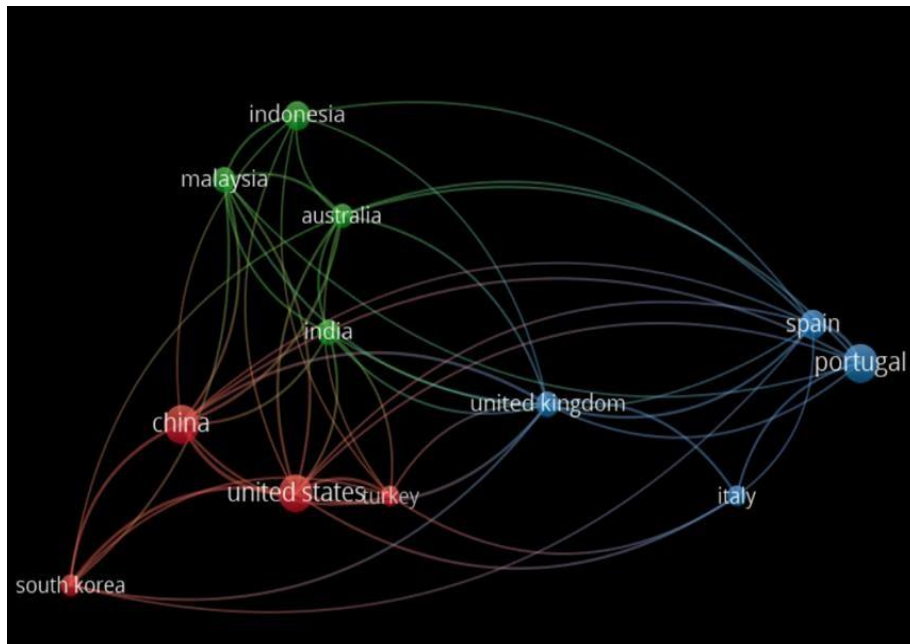
Currently, there is a great diversity of technologies used in organizations (VV.AA., 2016): computers, internet, emails, office and decisional software, telephones, fax servers, inmotics (infrastructure automation), social networks, point-of-sale terminals (POS), augmented reality, Internet of things, drones, blockchain, robots, artificial intelligence, etc., the application of which is of vital importance for the development of the productive fabric of a country.

Tourism, as indicated by López-Palomeque et al. (2022), is frequently present in the media, in everyday topics of conversation in society, in the political agenda, in literature, in cinema or in the research carried out in educational institutions. In this sense, it is worth highlighting in the scientific literature referring to tourism topics in the field of technologies, that the countries with the highest scientific production recently (2018-2022) are Portugal, China, the United States, Spain and Indonesia with more than 130 scientific publications (Table 1).

Country	Documents	Citations
united states	249	4164
china	260	2490
united kingdom	92	1586
australia	85	1971
south korea	65	1094
malaysia	97	1107
portugal	261	1002
spain	138	840
turkey	62	539
india	96	772
italy	60	695
indonesia	132	310

Table 3. Scientific production of countries with more than 60 publications on the subject of tourism and technology (2018-2022). Source: Figueroa, et al. (2022): *Emerging technologies as valuable resources for global tourism*.

In turn, Figure 2 shows the co-authorship networks of the countries with the most publications lately related to *tourism* and *technologies* (used as descriptors) according to an analysis carried out by the VOSviewer software version 1.6.7 (application for elaborating and visualizing bibliometric networks).



Co-authors network of the countries with the highest scientific production related to Tourism and Technology. Source: Figueroa, et al. (2022): *Emerging technologies as valuable resources for global tourism*.

As can be seen, this is a problem that affects countries on five continents and at different levels of development. Today, tourism has a great interest in technology. Certainly, the emergence of the Internet and ICTs have gradually facilitated the birth of a digital tourism scenario (Jacobsen & Munar, 2012) and the rise of a new tourist, hyperconnected and multichannel, who maintains a close link with mobile devices and the use of information and communication technologies (Buhalis & Foerste, 2014; Xiang, Magnini & Fesenmaier, 2015). It is gradually becoming more important to contemplate tourism from innovative approaches and in the scenario of a new society (Figueroa, & Gómez Galán, 2018; Figueroa et al., 2020).

Since the 1990s, the progressive advance in the development of ICTs has influenced transformations in tourism behavior, which contributes to an informed, empowered tourist intending to obtaining more personalized and better designed experiences (Buhalis & Foerste, 2015; Fermentia-Serra et al., 2019). Likewise, each person who travels leaves a *digital footprint in the* form of raw data that offers valuable information about their consumption patterns and if behavior is analyzed throughout the travel process, technologies open up a relevant source of knowledge to understand, measure and predict tourism dynamics (Más-Ferrando, Ramón-Rodríguez, & Aranda-Cuellar, 2020).

This entails a structural change in the tourism experiential ecosystem partially mediatized and remodeled by new technologies (Neuhofer, Buhalis & Ladkin, 2012; Wang, Park & Fesenmaier, 2012; Wang, Xiang & Fesenmaier, 2016). In this sense, as Ostelea (2021) points out, ICTs help the distribution of tourism information and products through social networks, improve digital spaces based on the promotion, advertising, marketing and contracting of tourism services. ICTs also favor the promotion of tourism products and

services directly to numerous customers and democratize global sales and purchases (Pérez-Sánchez et al., 2021).

On the other hand, the travel cycle takes place in a complex tourism system with a growing number of actors of varying sizes and roles, where technology and data management play a key role (Gretzel et al. 2015a). In this regard, according to the latest UNWTO World Tourism Barometer (2022), it expresses that international tourist movements almost tripled from January to July 2022 (+172%) compared to the same period in 2021, which means that the sector was almost at 60% of pre-pandemic levels. Forecasts for the current year, 2023, speak of even exceeding those pre-pandemic levels.

Lately, with the development of emerging systems and technologies appears *smart tourism* that merges the physical environment with the digital environment through the use of *Internet of Things* (IoT), *Artificial Intelligence* (AI), ubiquitous connectivity (Gretzel et al. 2015b; Park et al., 2016, Wang et al., 2016), *Blockchain* (Pérez-Sánchez et al., 2021), etc. In turn, smart technologies occupy a relevant place in the current smart tourism landscape, due to their ability to provide rich information and increased efficiency (Huang et al., 2017), and most importantly, offer a personalization and co-creation experience through ubiquitous connectivity (Neuhofer et al., 2015). Smart technologies can create new levels of machine interaction, using different devices and up-to-date information, which can transform experiences and businesses (Gretzel, Zhong, & Koo, 2016). All of this, moreover, can be integrated into training processes both to enhance tourism itself and in its business context (Gómez-Galán et al., 2019; Barrientos-Báez et al., 2022).

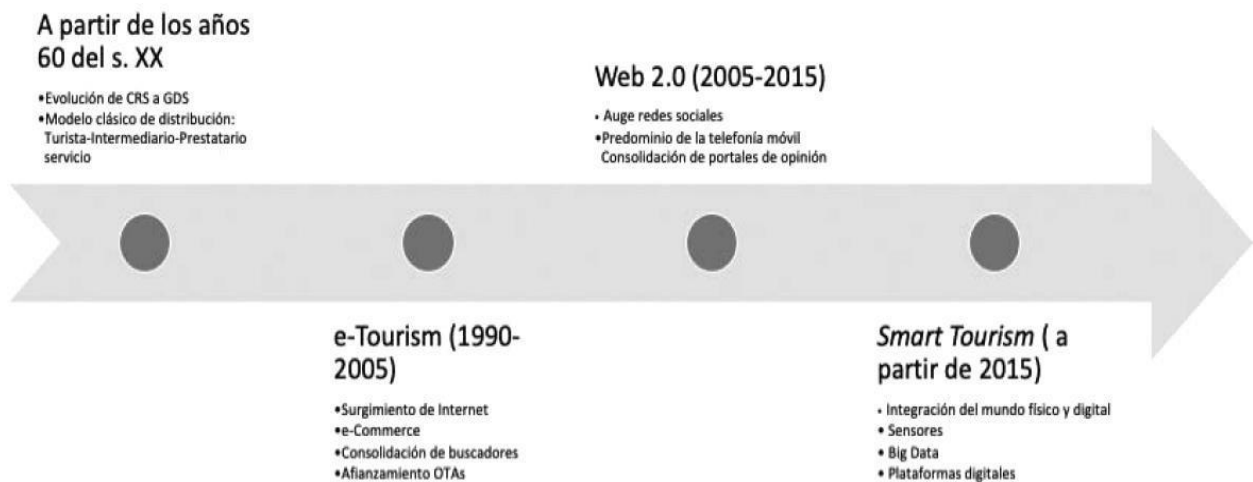
The impact of ICT in tourism recently generates a new evolution consisting of investing in the collection and monitoring of data derived from physical infrastructure, social

interactions, institutional and non-governmental organizations with the use of advanced technologies to transform that data into on-site experiences, business value propositions and experience enrichment (Gretzel et al., 2015b).

There are future trends in which there will be a transformation of what we understand today as tourism, and neither community tourism nor educational tourism will escape, as we have seen. Globally, the technological revolution will have an impact on the tourism ecosystem. In this sense, taking as a frame of reference the contributions of various authors (Buhalis, 2019; Gretzel et al., 2015b; López-Palomeque et al., 2022), various chronological stages have already been determined (Figure 2):

- Since the 1960s, there has been a transformation from computer *reservation systems* (CRS) to global distribution *systems* (GDS), involving the intermediation of travel agencies and generating the classic model of tourism distribution until the emergence of the Internet.
- The *e-tourism period* (1990-2005) is characterized using web pages and the development of *e-commerce* in tourism and by the crystallization of web search engines, among which the Google search engine stands out.
- Web 2.0/social web (2005-2015), linked to the explosion of social networks (Facebook, Twitter, Instagram, etc.), which facilitate interactions between tourists, organization and the development of content generated by them, supported by the growth of mobile telephony. At this stage, digital opinion platforms (Tripadvisor) or traveler communities (Minube) emerge, which will expand their tourism marketing services.

- Since 2015, the era of *Smart Tourism* has emerged, characterized by a complex and changing environment immersed in the ubiquity of technology and the integration of the physical and virtual worlds. The deployment of sensors thanks to the development of the Internet of Things (Internet of Things, IOT), the application of Big Data techniques (commonly defined through its four basic characteristics referred to data: Volume, Variety, Velocity and Value) or advances in artificial intelligence configure a techno-tourism ecosystem and digital platforms are consolidated, such as: Tripadvisor (information), Airbnb (accommodation), Blablacar (transportation), Uber Eats (restoration) or BeMy- Guest (guided activities) that provide new business models and services to the tourist himself.



Evolution of ICT in the tourism context (Buhalis, 2019; Gretzel et al. 2015b; López-Palomeque et al., 2022).

Nowadays, emerging technologies such as robotics, the internet of things and artificial intelligence are progressively being incorporated into the tourism ecosystem, which can help sustainable tourism development. According to the above, there is evidence of a constant evolution in technological trends oriented to the reservation and purchase of tourism services

incorporating solutions such as virtual reality for the promotion of services and tourist destinations or *chatbots* supported by artificial intelligence to guide the process of information, reservation and purchase, experiences with virtual voice assistants such as Siri or Alexa, or the *blockchain*, a transaction system consisting of a blockchain that provides a high level of security (López-Palomeque et al., 2022). In this sense, Tyan et al. (2020) mention among its applications the improvement of the tourist experience, the recognition of sustainable behavior or the reduction of privacy problems.

Similarly, the concept of smart tourism is gradually expanding, which, according to Corral-Sastre (2021), should go beyond the use of technologies to increase economic returns; it should contribute to respect for the environment and the social and cultural environment of the destination, so important in community-educational tourism. And for this, following the same author, technologies such as Big Data, Cloud Computing, Blockchain, Internet of Things (IoT) and Artificial Intelligence (AI), among others, can transform a tourist destination into an *intelligent one*, to increase the quality of tourism services provided to visitors and the quality of life of residents. As stated by Neuhofer et al. (2015) it is necessary for the smart personalization of the tourism experience to meet the following requirements: ability to aggregate information on a digital platform, ubiquitous mobile connectivity between service providers and demand, and real-time synchronization to meet the tourist's needs at the right time and in the right context.

The tourism sector is so influenced utilizing the internet and the increased use of digital devices and virtual communities that it entails a paradigm shift in communication between tourists and businesses, making it easier for users to share their experiences online. In addition, they are useful for analyzing their needs and being able to adapt the service to the

tourist (Sánchez-Vargas, Campón-Cerro and Moreno-Lobato, 2022). Following the same authors, it is worth mentioning the virtual communities that include content generated by travelers, with millions of users, such as Tripadvisor, Trivago, Travellerspoint or Fodor's Travel, which highlight the changes that are taking place in tourism and the importance that these virtual spaces are acquiring. In them, users narrate their lived experiences, which serve future tourists to learn about the product or service before purchasing or participating in it (Gonçalves et al., 2013). Therefore, it is worth highlighting the importance of the comments in these digital spaces, by allowing to know the different options that can be carried out on the trip before making it and have an impact on the decision to choose one tourist company or another (Bastidas et al., 2018). In this sense, the digital platform Tripadvisor has positioned itself as a global benchmark in the tourism sector, as it is used by millions of travelers around the world and has been analyzed in various research studies (Balagué et al., 2016; Marine-Roig, 2017, 2019, 2021; San-Martín et al., 2018).

On the other hand, the creative use of ICTs can have an impact on the achievement of a better awareness of tourism demand and the development of a more responsible behavior, favoring ecological trends with the generation of sustainable products within a higher quality offer in the tourism ecosystem (INVAT-TUR, 2020), but without forgetting that the staff of the tourism sector must be trained in technological applications to optimize a sustainable development of tourism. It is vitally important to create collaborative synergies between the tourism ecosystem and the scientific-technological field to promote innovation, renewal and economic empowerment in post-pandemic times.

In short, the digitalization of society is a phenomenon that has been influencing citizens for some decades (Concepción, Veytia, Gómez-Galán and López-Meneses, 2019)

and impacting communication, training and work processes (Vázquez-Cano et al., 2020). In this sense, tourism activity should be a sustainable practice that contributes to economic development, social equity, cultural revaluation and environmental preservation (Torres-Delgado, 2013). The current crisis situation has shown the real scope of tourism: the variety of activities it integrates (commercial, cultural, sports, etc.), the diversity of companies and, also, the corporate interrelationship that influences the business fabric of a country (López-Palomeque et al., 2022).

In the specifically educational field, technologies are increasingly integrated into educational processes, causing changes in the forms of access and/or production of information; while modifying the forms of interaction not only between people but also between people and computers (Lovos, 2019). They are giving way to novel ways of interacting with reality through interactive and emerging technologies, bringing citizens closer to a culture of collaborative knowledge (Cope & Kalantzis, 2010, Aguaded & Cabero, 2014) whose trends tend to privacy, connected content, globality as a process, the use of mobile, a digital identity and *b-learning*, among others (Martínez-Pérez & Fernández-Robles, 2018). Similarly, they constitute a high quality support at the service of training processes (Cela et al., 2017; Vázquez-Cano, León-Urrutia, Parra-González & López-Meneses, 2020).

In the intervention scenario of the 2030 Agenda, the United Nations has endorsed that young people adopt flexible and useful skills and competencies throughout their lives, considering a world that needs greater sustainability and interdependence based on knowledge and ICTs (Gómez-Galán, 2014; Riis, 2017; Acosta and Andrés, 2020). Therefore, modern societies demand a change in the curricular approach that requires citizens to have certain skills and abilities to develop in a complex, technological, competitive and constantly

changing world of work (Rodríguez-Sánchez and Revilla-Rodríguez, 2016). In other words, we are facing a paradigmatic change regarding the process of training professionals (López-Meneses and Vázquez-Cano, 2013; Vázquez-Cano, 2015; López-Meneses, 2020).

Training, research and technological innovation are backbones for the improvement of the quality and competitiveness of a country, in addition to the sustainable development of citizenship (López-Meneses, 2017; 2020). Educational tourism should not be oblivious to all this. One of the main substantive functions of the university in the 21st Century is that which refers to research processes, as well as the incorporation of ICTs (Veytia, Gómez-Galán, & Morales-Cevallos, 2019). Consequently, one of the priority objectives of education professionals would be to train and empower citizens in the digital competence ecosystem and thus be proactive agents for the sustainable development of techno-cultural citizenship.

In line with López-Palomeque et al. (2022), the current critical pandemic situation and the forecasts of what will be the post-COVID scenario, both the desirable and the possible, have an impact on another vision of tourism that, broadly speaking, gives relevance to the value of tourism as a socioeconomic reality on which millions of people live and depend. The trends of the new tourist demand personalized experiences and to be always connected in all phases of their trip VV.AA. (2022). Similarly, it is of vital importance to ensure sustainable tourism, to care for the natural environment and create balanced employability in destinations, consequently, the education-citizenship and the global economy must be prepared for the new challenge of this new type of traveler. All of which is decisive in the development of community-based tourism in line with the needs of our era.

CHAPTER IV

RESULTS

Field work

The opinion of the community is essential in any tourism development, since it is part of the destination. In addition, the community is a crucial part of the tourism activity to be developed. It is for this reason that their feelings regarding their socio-educational, economic, ecological, and cultural environment must be taken into consideration. On the other hand, it is the community that directly receives the impacts, whether positive or negative, that arise from tourism activities. Knowing the perception of the community helps to detect a number of needs, problems and solutions to situations that afflict the community daily. Similarly, during the study of the community's perception, opportunities for the development of tourism projects may arise.

Since we intend to study the perception of the community from a tourism point of view, we propose to address the following topics: tourism, local development, tourism planning and, of course, the community's perception of any local development. Through the perception of the community, successful developments are achieved and their needs and problems are addressed. It is a fundamental factor in the promotion of tourism. This perception should be integrated into the planning of each tourism activity, as mentioned in their research by Mimbela (2017), Marins et al. (2015), Cueva (2017), Monterrubio et al. (2011) or Guzón (2015), among others. These researchers have concluded that the community is the one who establishes the dynamism of tourism development, as well as the support for the activities developed.

Perception includes the sensations received by human beings as a result of stimulation of the nervous system (Durand, 2008), however, people do not perceive in the same way. During perception not all sensations and/or situations are registered, in many occasions they are partially perceived and on other occasions they are blocked. The latter has to do with the attitude of the person and the openness to receive. In addition, the vision as an individual and as a social entity. On the other hand, sensations are the product of the characteristics of that which produces the stimulus to the nervous system, such as the lived experience or the analysis of the experience, this includes attitudes, expectations and previous experiences. Thus, as mentioned by Durand (2008), perception goes from being something that simply happens to a process in which experience and personal experiences intervene. Therefore, we can say that perception is a learning process that produces knowledge or experience about the environment.

Perception has its ramifications and among these is social perception. Social perception involves social and cultural factors such as beliefs, attitudes, opinions, values, and social roles. For the purposes of this research, community perception is considered as the willingness or opposition towards tourism development as a socio-economic development activity of the community. The inhabitants of a community develop a link with their environment in terms of their history, culture and society. This link is fundamental to knowing the characteristics, needs and particularities of the place. In turn, the reasons for or against any activity, to finally seek solutions focused on specific situations (Ambroz, 2008).

In this sense, Zielinski and Botero (2011), in their research *Community perception as an indicator of the life cycle of a destination*, refer to perception as an inescapable instrument, which is generally not given the necessary importance. This aspect serves as an indicator of the life cycle of tourism development in a certain small destination. Other authors have concluded

that community perception depends on the type of tourist visiting the area, more specifically on the cultural difference between the tourist and the inhabitant, the cultural environment and social class, the economic importance of tourism for the community, the visibility of tourists, the governance and actions of the local authority, the control the community has over tourism development and the history of tourism development (Zielinski and Botero, 2011).

The research by Zielinski and Botero (2011) emphasizes the importance of community perception as an indicator of the impacts that tourism has on the local population for the development of tourism and local development. Other authors, such as Andriotis and Vaughan (2003), suggest that "a balance of residents' perception of the costs and benefits of tourism is considered an important factor in visitor satisfaction and, therefore, vital for the success of the tourism industry" (Zielinski and Botero, 2011, p. 1378), which will allow both the participation of the community itself and an increase in its quality of life.

In this sense, knowledge of the community's perception makes it possible to reflect on the contributions or repercussions that a certain activity brings with it, in in this case on tourism. The acceptance or rejection of the community for the development of tourism projects defines in large part the success of the tourism activity, since the community should be integrated into such projects from the conceptualization stage to benefit the community, which is the primary purpose of these developments. Table 3 shows the general characteristics of perception that should be considered, according to the authors of the research conducted:

General characteristics of perception	
Authors and year of publication	Perception characteristics
García, A., Serrano, R, Osorio, M. and López, E. (2015).	<ul style="list-style-type: none"> • Subjective nature.
Cueva Neyra, G. J. (2017).	<ul style="list-style-type: none"> • Attitude as predisposition.
Mimbela Fune, G. E. (2017).	<ul style="list-style-type: none"> • Perceptions of opportunities and participation. • Attitudes towards tourism.
Carrasco López, D. C. (2018).	<ul style="list-style-type: none"> • Opinions, attitudes and debates.
Delgado Abanto, J. A. (2019).	<ul style="list-style-type: none"> • Attitude of residents. • Harmony of interests of residents and authorities.
Barrio Limones, J. L., Pérez, M., & Tyrone, H. (2016).	<ul style="list-style-type: none"> • Categories affecting community perception of tourism impacts.
Martínez, A. K. G., Barquín, R. D. C. S., García, M. O., & Carré, E. L. (2015).	<ul style="list-style-type: none"> • Specific factors.
Vasconcelos, P. (2017).	<ul style="list-style-type: none"> • External influences. • Experiences.
Mendoza Gálvez, T. B. (2018).	<ul style="list-style-type: none"> • Economic benefits.
Mendoza Gálvez, T. B. (2018).	<ul style="list-style-type: none"> • Social and cultural benefits.
Arana Nombera, G. C., & Adanaqué, C. (2018).	<ul style="list-style-type: none"> • Negative reactions.
Guzón Camporredondo, A. (2015).	<ul style="list-style-type: none"> • The local community determines its quality of life (economic, environmental, social and cultural development).
Martínez, A. K. G., Barquín, R. D. C. S., García, M. O., & Carré, E. L. (2015).	<ul style="list-style-type: none"> • Identification of reasons for support or opposition to the development of tourism projects.
Velandia, M. C. (2016).	<ul style="list-style-type: none"> • Variability of tourism impacts.
Castellucci, D. I., Cruz, G., & Barbini, B. (2016).	<ul style="list-style-type: none"> • Economic dependence.
Marins, S. R., Mayer, V. F., & Fratucci, A. C. (2015).	<ul style="list-style-type: none"> • Heterogeneity of communities and hierarchy of social classes.

Table 4- General Characteristics of Perception. Source: Own elaboration based on various sources, the main one being García-Martínez, Serrano, Osorio and López Carré (2015).

To obtain as much information as possible about the community's perception of the topic under analysis, a validated and reliable questionnaire was used, and survey techniques were applied, as developed extensively in the chapter describing the methodology. We reproduce below the questionnaire used, indicating the dimensions studied and the items that comprise them (Table 2). Next, we will present the results obtained with the application of the questionnaire and the analysis and interpretation of the data collected.

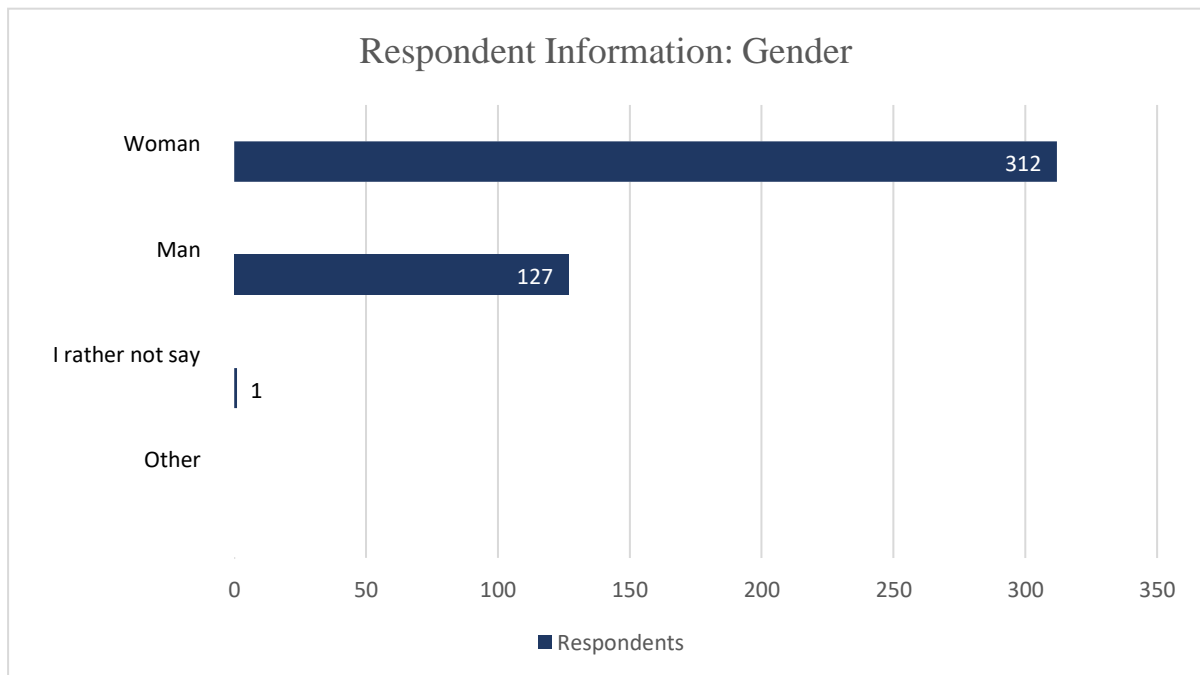
Dimensions of the questionnaire	
Dimensions	
Socio-educational	<ul style="list-style-type: none"> • I am proud to belong to this community. • I am interested in the preservation of their customs and traditions. • I want tourists to come and visit my community. • The presence of tourists will change my way of life. • Alcohol abuse is a serious problem in my community. • Lack of jobs is a serious problem in the community. • Migration is a serious problem in the community. • Conflicts over property are common among the inhabitants. • Las Cucharillas marsh, La Mano lagoon and resources The natural resources in the community are highly polluted.
Environmental	<ul style="list-style-type: none"> • Wildlife preservation is fundamental to tourism. • The preservation of Las Cucharillas marsh, La Mano lagoon and the natural resources of Cataño are very important for tourism. • Preserving cultural and historical sites is very important for tourism. • Tourism can ensure that the municipality of Cataño's natural and cultural resources are rescued and developed in harmony with the environment.
Economic	<ul style="list-style-type: none"> • Public safety will improve when tourists come. • There will be better public transportation if tourists come. • Tourism will generate more jobs for the local population. • Tourism will generate more local businesses and other businesses. • Tourism will lead to the development of agribusinesses in the community.
Tourist	<ul style="list-style-type: none"> • A tourism project will benefit the community. • Participating in tourism initiatives and projects is convenient for the inhabitants of Cataño. • I would like Cataño to be a tourist destination.

Table 5- Dimensions of the questionnaire. Source: Own elaboration based on the instrument of García-Martínez, Serrano, Osorio and López Carré (2015).

Analysis and interpretation of results

The survey was directed to the population of the municipality of Cataño. It was divided into four dimensions: socio-educational, ecological, economic and tourism. To obtain the respondent's profile, the questionnaire included questions about gender, age, school level, nationality, marital status, and employment status at the time the survey was completed. The survey sample consisted of 440 respondents. The following graphs show the profile of the respondents:

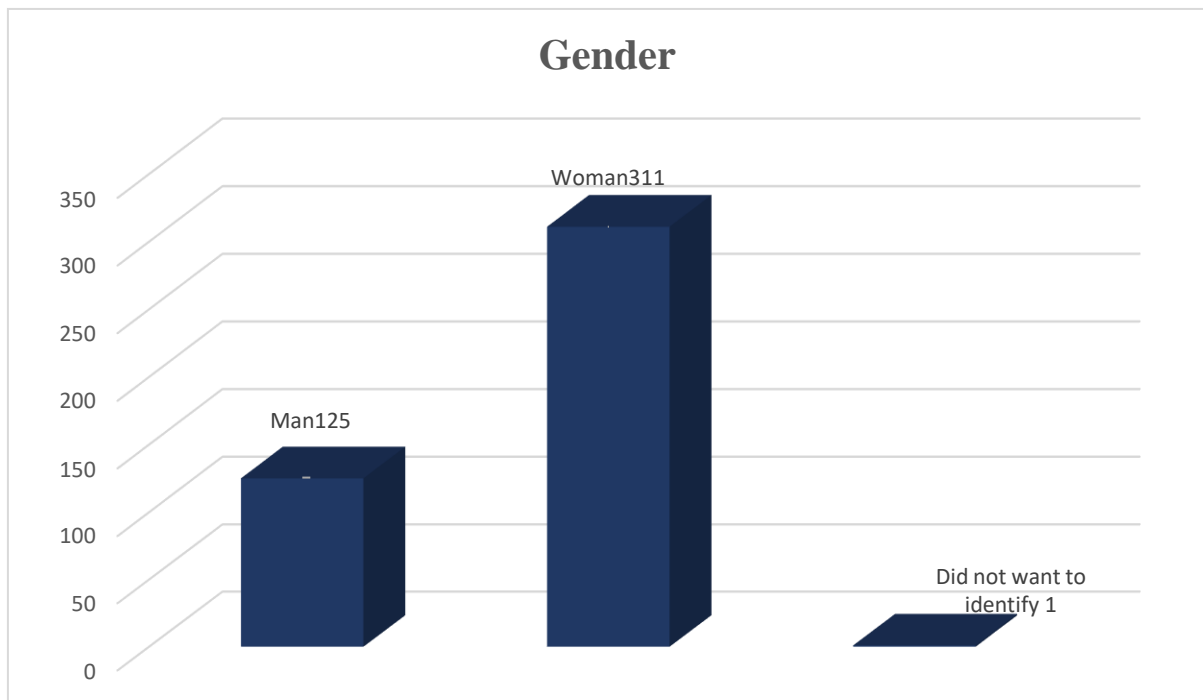
Respondent Profile



Graph 1- Graphical presentation of the tabulation of Respondent Information question 1: Gender. Source: Survey. Own creation.

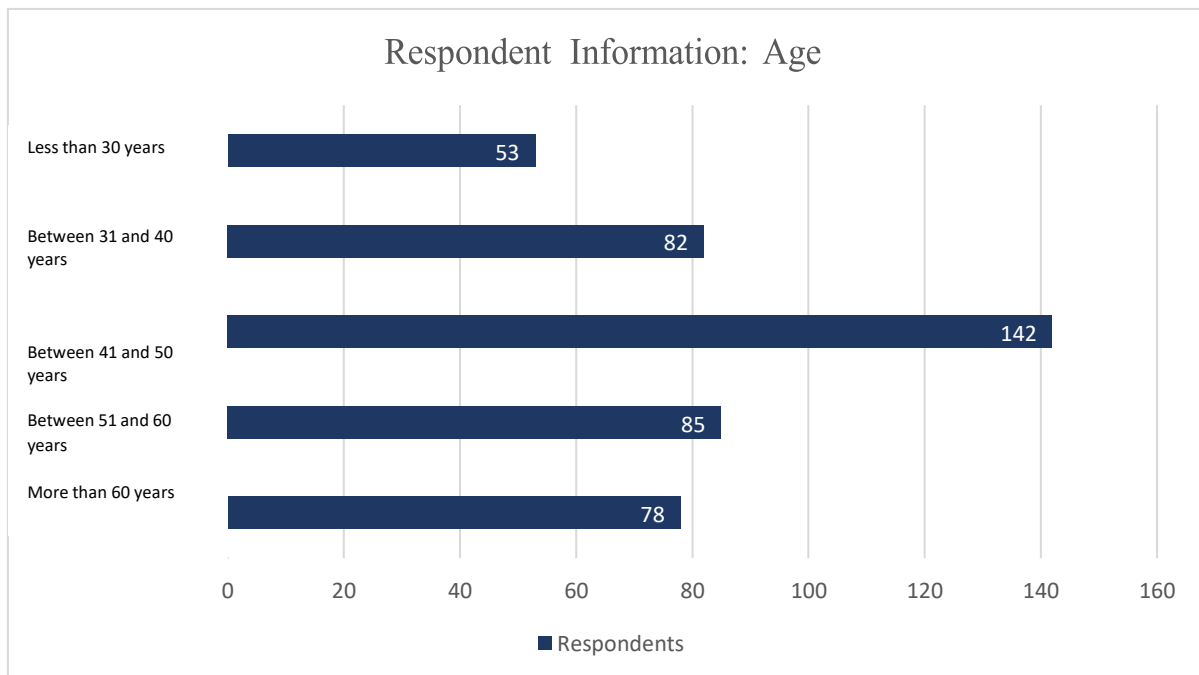
Analysis: 71% of the people participating in the survey are women. While 28% are men and 1% opted for the other option.

Interpretation of results: These results reflect that the majority of participants were women.



Graph 2- Graphical presentation of the Gender tabulation. Source: Survey. Own creation.

Interpretation of the results: From the bar graph we can see that most of the respondents were women.

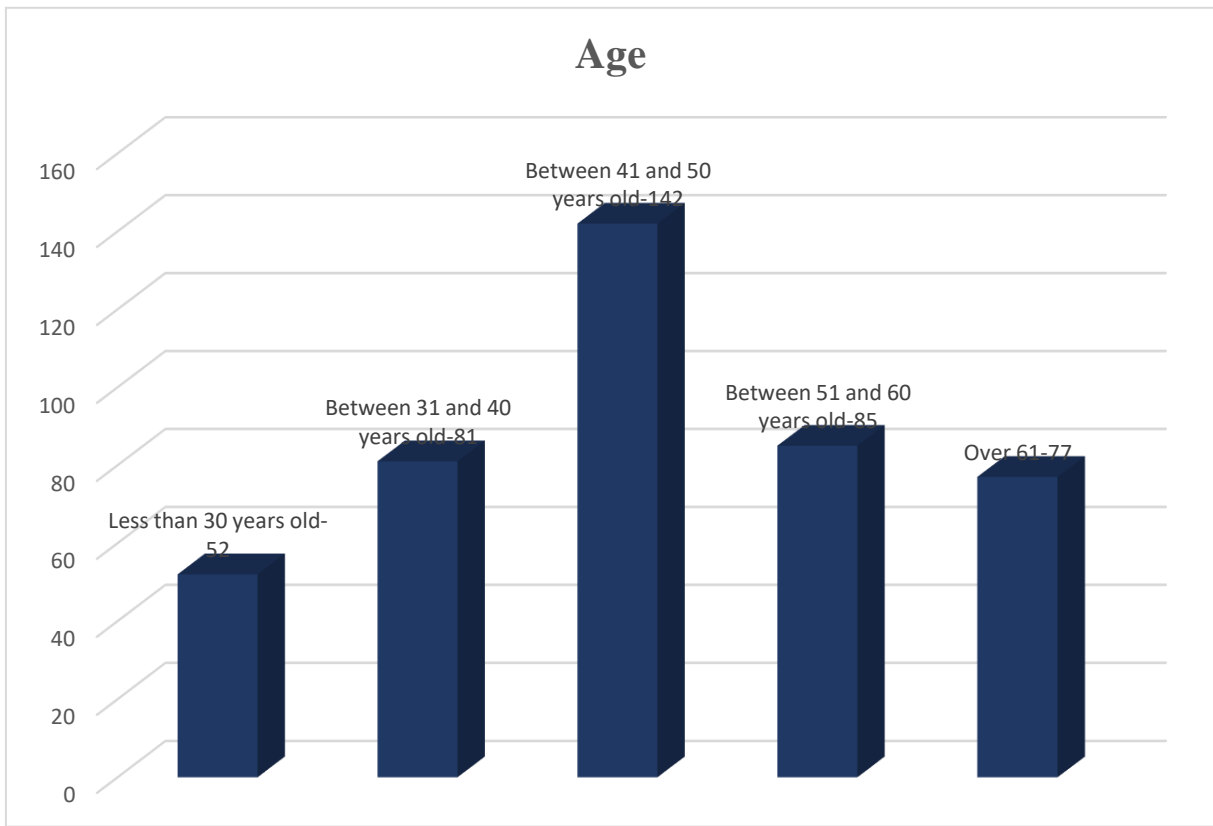


Graph 3- Graphical presentation of the tabulation of Respondent Information question 2: Age. Source: Survey. Own creation.

Analysis: 12% of respondents are between the ages of 30 and under, 19% of respondents are between the ages of 31 and 40, 32% of respondents are between the ages of 41 and 50, 19% of respondents are between the ages of 41 and 50, 19% of respondents are between the ages of 41 and 50, and 19% of respondents are between the ages of 41 and 50.

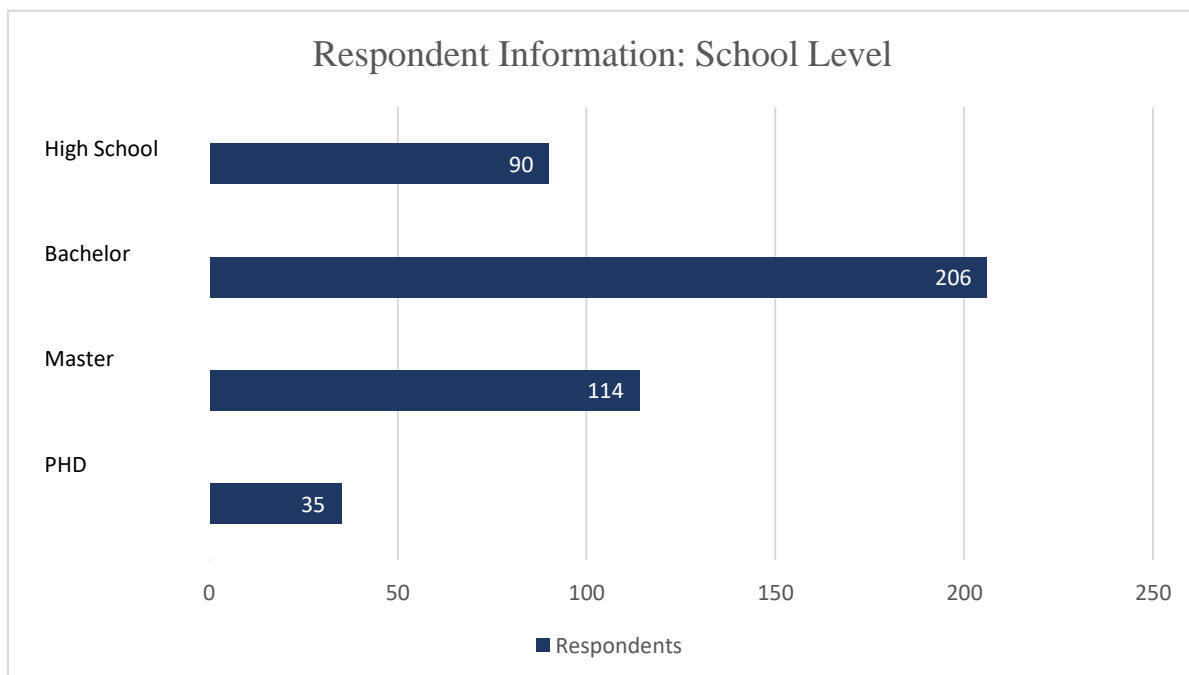
ages 51 and 60, and 18% of respondents are between the ages of 61 and over.

Interpretation of the results: These results reflect that the majority of the participants, 32%, are between the ages of 41 and 50 years.



Graph 4-Graphic presentation of respondent age tabulation. Source: Survey. Own creation.

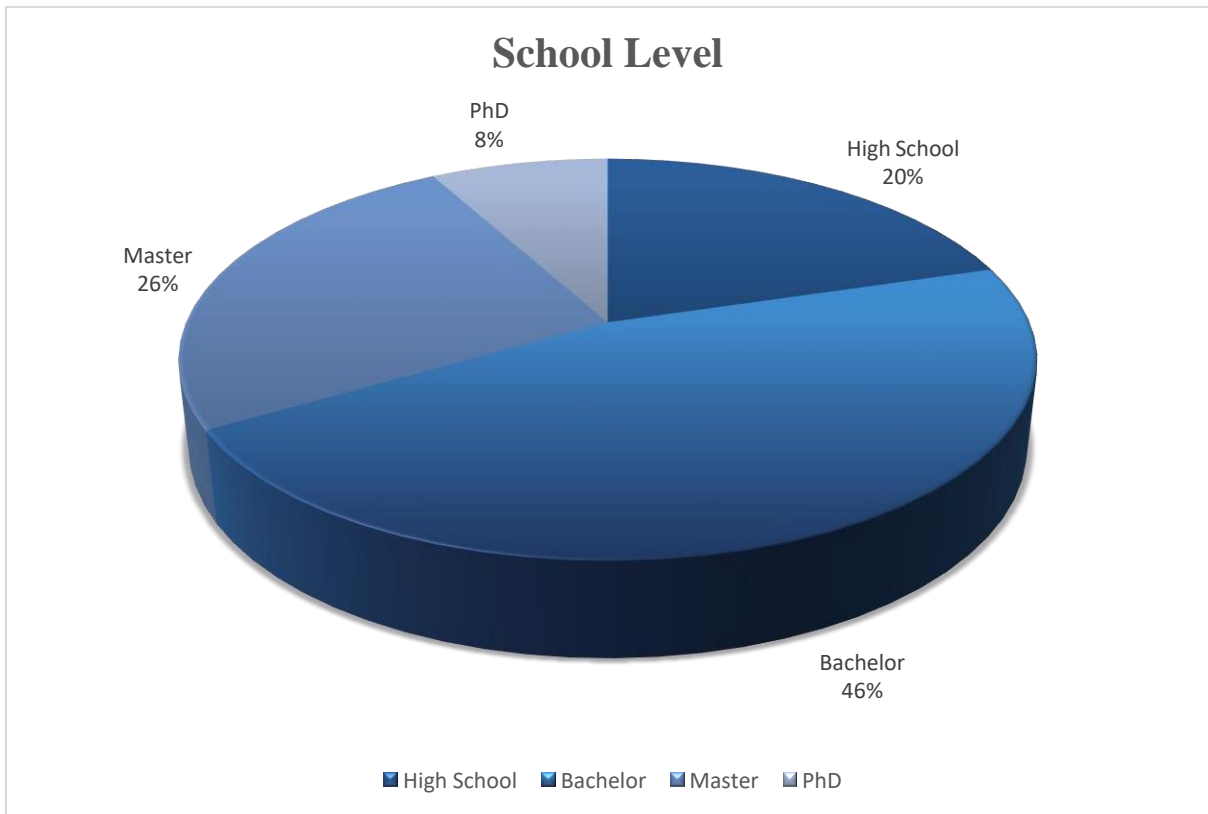
Interpretation of the results: From the bar graph we see that the largest number of respondents are middle-aged, ranging in age from 31 to 60 years old. The largest number belong to the age group between 41 to 50 years old.



Graph 5--Graphic presentation of the tabulation of question 3 of Respondent Information: School Level. Source: Survey. Own creation.

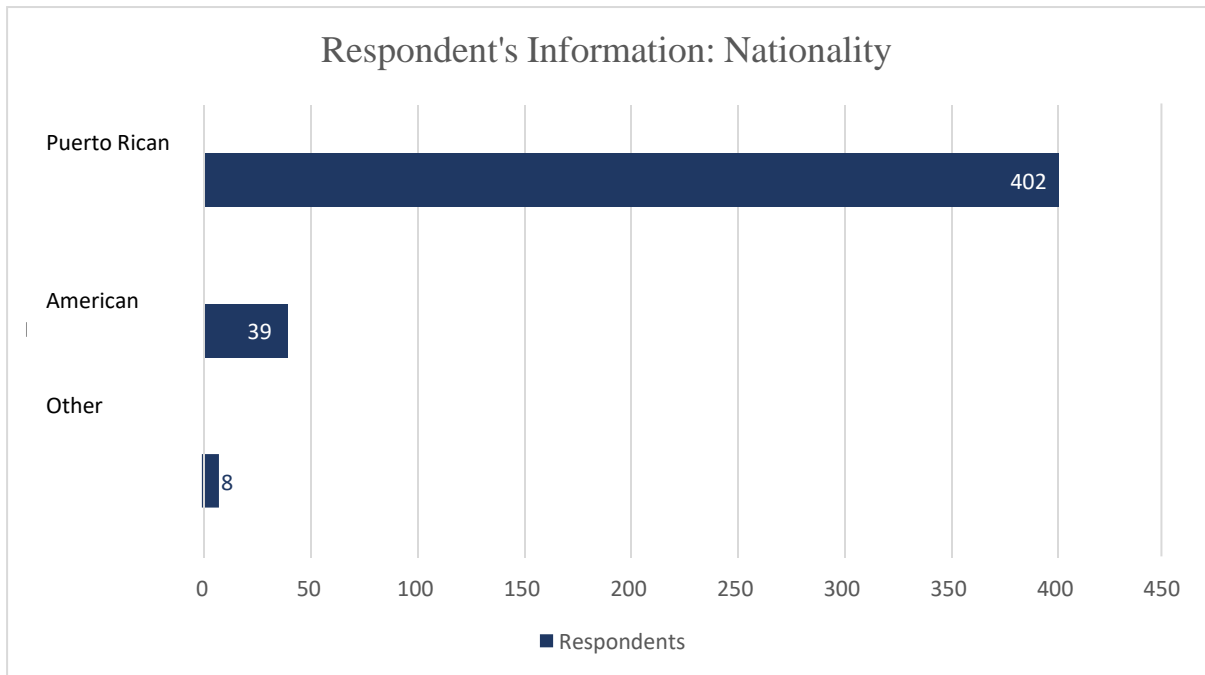
Analysis: 20% of survey participants completed High School. Forty-seven percent of the respondents have a Bachelor's degree. While 26% have a Master's degree and 8% have a Doctorate.

Interpretation of the results: These results reflect that the majority of the participants have higher education studies, specifically a Bachelor's degree.



Graph 6 - Pie chart presentation of the tabulation of the respondent's School Level. Source: Survey. Own creation.

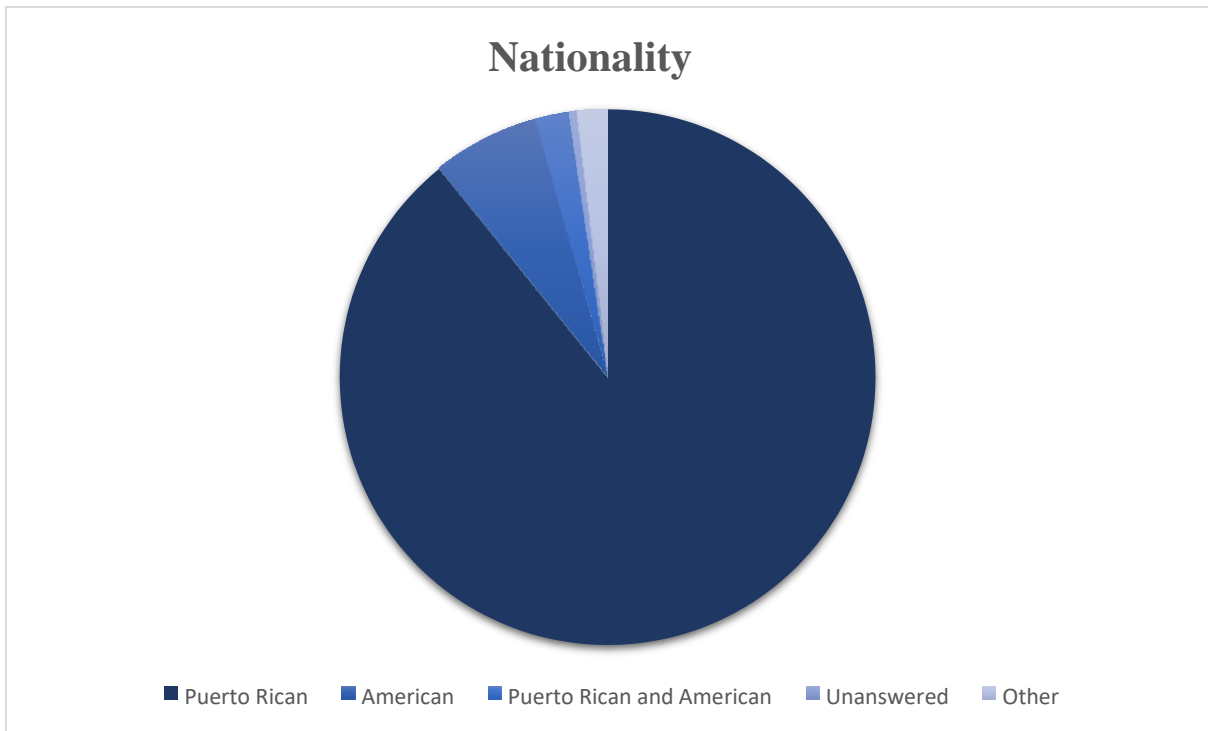
Interpretation of the results: In the pie chart, we see that approximately 46% of the respondents have passed a bachelor's degree. The smallest percentage of respondents have a PhD.



Graph 7- Graphical presentation of the tabulation of question 4 of Respondent Information: Nationality. Source: Survey. Own creation.

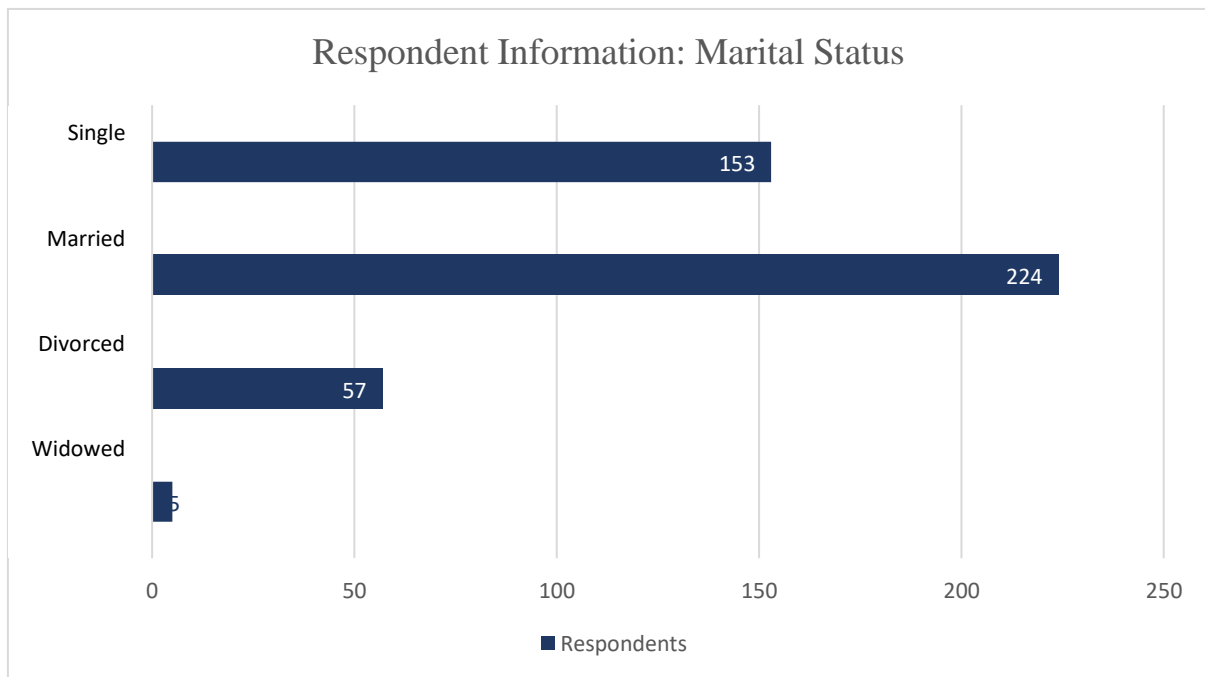
Analysis: 91% of the people participating in the survey are Puerto Rican. Eight percent of the respondents are U.S. citizens and 2% are of another nationality.

Interpretation of the results: These results reflect that the majority of the participants are Puerto Rican.



Graph 8-Presentation of pie chart tabulation of respondent's Nationality. Source: Survey. Own creation.

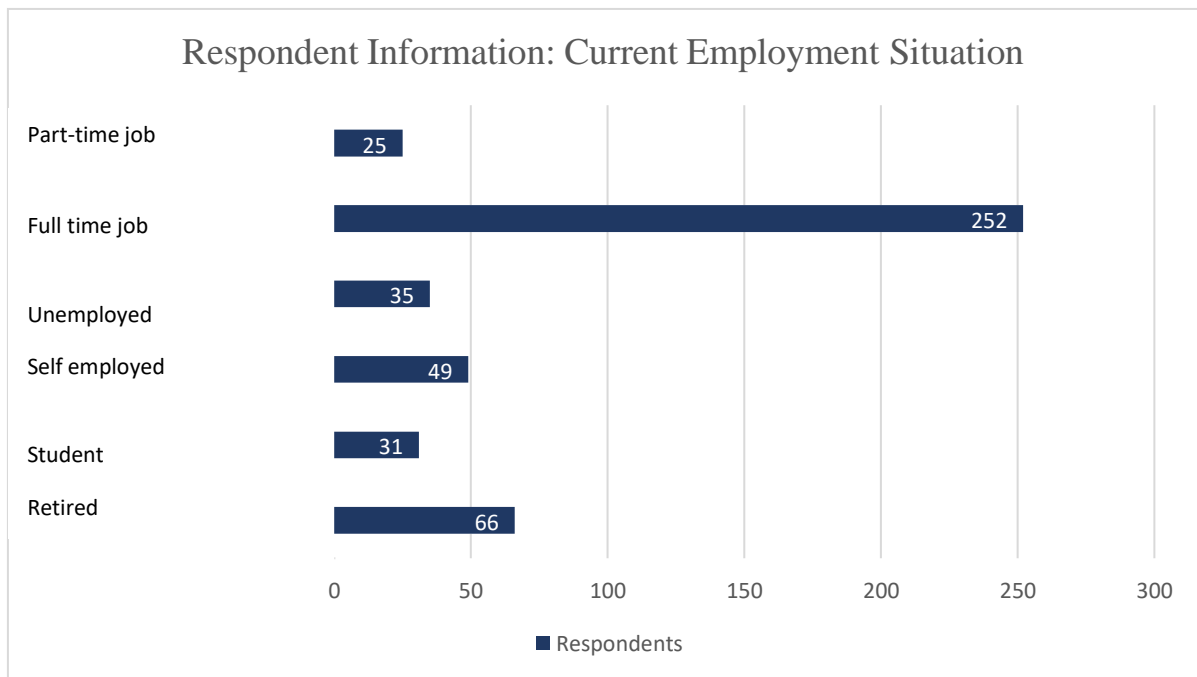
Interpretation of the results: In the pie chart we see that the majority of respondents are Puerto Ricans followed by Americans.



Graph 9-Graphical presentation of the tabulation of question 5 of Respondent Information: Marital Status. Source: Survey. Own creation.

Analysis: 35% of the survey participants are single. 51% of the respondents are married. While 13% are divorced and 1% are widowed.

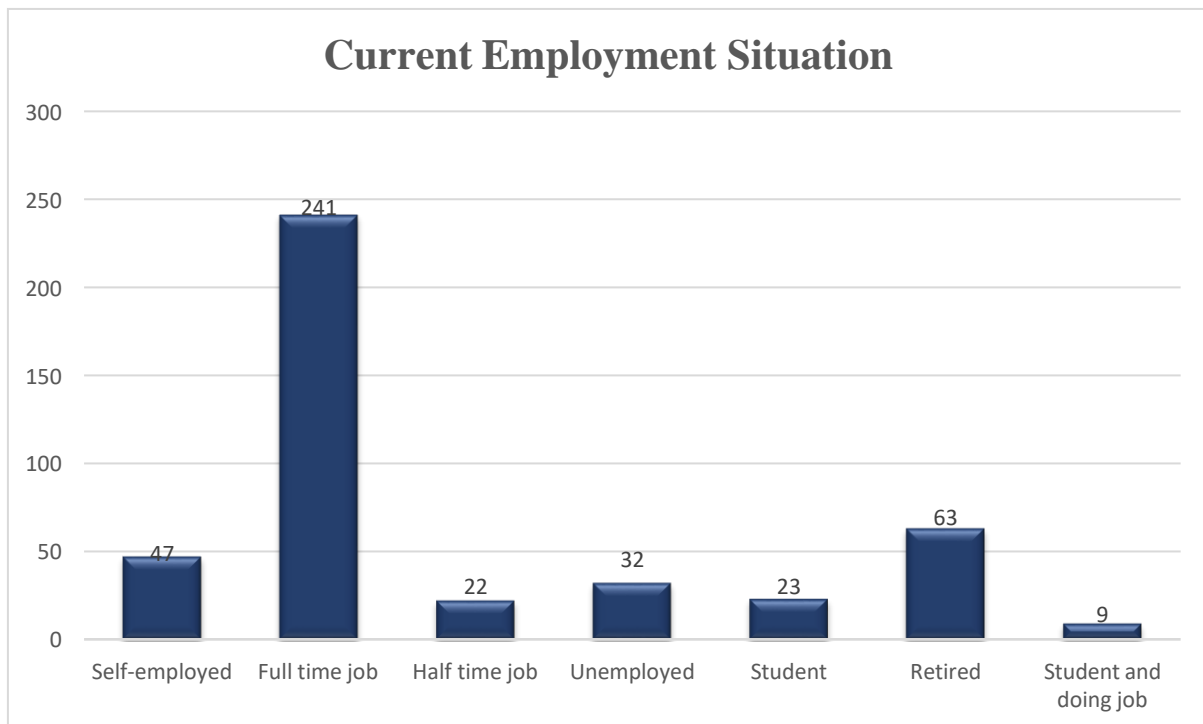
Interpretation of results: These results reflect that most of the participants are married.



Graph 10- Graphical presentation of the tabulation of question 6 of Respondent Information: Current Employment Status.
Source: Survey. Own creation.

Analysis: 7% of survey participants are employed part-time. 57% of the respondents are employed full time. 8% are unemployed. 11% are self-employed, either with their own business or in some type of sales. Seven percent are in education and 15% are retired.

Interpretation of the results: These results reflect that most of the survey participants have a full-time job.



Graph 11-Bar graph presentation of respondent's tabulation of Current Employment Status. Source: Survey. Own creation.

Interpretation of the results: In the bar chart, we see that most of the respondents are doing full-time jobs.

General interpretation of the population studied in the municipality of Cataño:

We can establish a profile of the characteristics of the surveyed sample and, in general, of Cataño. The population described is mostly female, between 41 and 50 years of age, and most of them have a bachelor's degree. They are of Puerto Rican nationality, mostly married and employed full time. In the Western world, these demographic characteristics are common in the Puerto Rican population in the United States, especially in affluent urban areas of New York and Florida. The high rate of full-time employment and higher education

suggest that this population is economically active and has a medium-high socioeconomic status. In addition, the majority of the population is married, suggesting that family and interpersonal relationships are important to them. In general, this population can be seen as a hard-working and educated community with strong family and cultural ties.

The data obtained are in line with the statistics obtained by the Office of the Comptroller of the Commonwealth of Puerto Rico (2022), so they can be considered representative of the community analyzed. Due to its characteristics, the municipality of Cataño has a unique cultural identity and a strong sense of community. It is highly focused on education and career advancement, as well as a strongly family-oriented culture.

According to general statistics for Puerto Rico (U.S. Census Bureau, 2022), Cataño has a different demographic composition than the rest of the Puerto Rican population. Puerto Rico's population is mostly female, with 51.2% female and 48.8% male (Pagán & González Rivera, 2019). In terms of age, 22.9% of the population is between 0 and 19 years old, 63.5% is between 20 and 64 years old, and 13.6% is 65 years old or older (Pagán & González Rivera, 2019). Referring to education, 18.3% of the population has a high school or higher degree, while 25.5% have completed secondary education (De Jesús-Monge, 2011). Regarding marital status, 44.8% of the population is married and 31.5% is single (Irizarry, 2020). Regarding employment, 40.4% of the population is employed full time, while 12.5% is unemployed (Instituto de Estadística de Puerto Rico, 2023).

Thus, as can be seen, while the majority of Puerto Ricans are women, the age range and educational level of the surveyed sample, and Cataño in general, differ from the national average. In addition, the fact that most residents work full-time and are married makes it very different from large areas with higher unemployment rates and single-parent households.

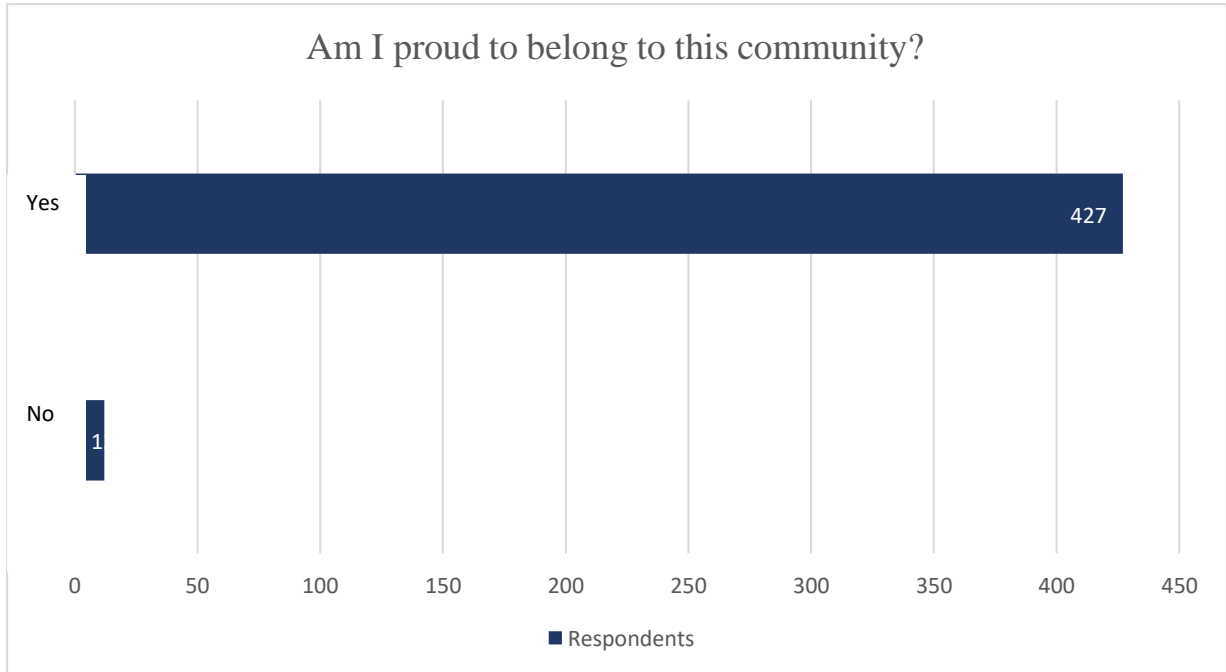
Overall, Cataño is among the twenty most prosperous municipalities in Puerto Rico (Puerto Rico Institute of Statistics, 2019), ranked 20th, which is consistent with the characteristics described in the sample.

Pos.	Municipio	ingreso (\$)		cambio		Pos.	Municipio	ingreso (\$)		cambio	
		2009-13	2014-18	%	\$			2009-13	2014-18	%	\$
1	Jayuya	21,166	15,424 *	-27.1%	-\$5,742	40	Toa Baja	25,946	24,899	-4.0%	-\$1,047
2	Cidra	26,280	19,949 *	-24.1%	-\$6,331	41	San Lorenzo	19,566	18,821	-3.8%	-\$745
3	Camuy	20,810	16,831 *	-19.1%	-\$3,979	42	Sabana Grande	17,481	16,846	-3.6%	-\$635
4	Las Marías	16,539	13,435	-18.8%	-\$3,104	43	Caguas	25,941	25,006	-3.6%	-\$935
5	Fajardo	23,153	19,068 *	-17.6%	-\$4,085	44	Vega Alta	19,567	18,895	-3.4%	-\$672
6	Hatillo	20,714	17,201 *	-17.0%	-\$3,513	45	Dorado	30,680	29,667	-3.3%	-\$1,013
7	Vieques	18,536	15,539	-16.2%	-\$2,997	46	Arecibo	18,375	18,001	-2.0%	-\$374
8	Orocovis	15,869	13,319 *	-16.1%	-\$2,550	47	Aguadilla	16,961	16,693	-1.6%	-\$268
9	Loíza	20,722	17,402 *	-16.0%	-\$3,320	48	Barranquitas	16,179	15,970	-1.3%	-\$209
10	Maricao	15,667	13,262	-15.4%	-\$2,405	49	Bayamón	26,279	26,017	-1.0%	-\$262
11	Hormigueros	22,886	19,394 *	-15.3%	-\$3,492	50	Manatí	19,523	19,459	-0.3%	-\$64
12	Yabucoa	18,775	16,013 *	-14.7%	-\$2,762	51	Ciales	15,062	15,071	0.1%	\$9
13	Corozal	17,609	15,088 *	-14.3%	-\$2,521	52	Adjuntas	12,760	12,902	1.1%	\$142
14	Cabo Rojo	18,642	16,080 *	-13.7%	-\$2,562	53	Patillas	15,578	15,761	1.2%	\$183
15	Mayagüez	16,339	14,120 *	-13.6%	-\$2,219	54	Maunabo	19,524	19,788	1.4%	\$264
16	Moca	16,310	14,155 *	-13.2%	-\$2,155	55	Isabela	16,429	16,748	1.9%	\$319
17	Santa Isabel	19,913	17,640	-11.4%	-\$2,273	56	Quebradillas	16,161	16,630	2.9%	\$469
18	Guayama	18,476	16,374 *	-11.4%	-\$2,102	57	Luquillo	20,034	20,829	4.0%	\$795
19	Canóvanas	23,293	20,673 *	-11.2%	-\$2,620	58	Guayanilla	16,239	16,922	4.2%	\$683
20	Cataño	20,443	18,253	-10.7%	-\$2,190	59	Barceloneta	16,190	16,889	4.3%	\$699
21	San Juan	24,725	22,146 *	-10.4%	-\$2,579	60	Utua	15,835	16,533	4.4%	\$698
22	Guaynabo	37,741	33,937 *	-10.1%	-\$3,804	61	Naguabo	18,404	19,356	5.2%	\$952
23	Comerío	14,075	12,812	-9.0%	-\$1,263	62	Coamo	18,798	19,833	5.5%	\$1,035
24	Ceiba	20,956	19,103	-8.8%	-\$1,853	63	Las Piedras	20,436	21,792	6.6%	\$1,356
25	San Germán	17,047	15,619	-8.4%	-\$1,428	64	Vega Baja	17,790	19,096	7.3%	\$1,306
26	Lajas	15,002	13,747	-8.4%	-\$1,255	65	Añasco	17,994	19,379	7.7%	\$1,385
27	Río Grande	24,542	22,509	-8.3%	-\$2,033	66	Aguas Buenas	15,960	17,255	8.1%	\$1,295
28	Humacao	21,660	19,880 *	-8.2%	-\$1,780	67	Naranjito	17,878	19,332	8.1%	\$1,454
29	Trujillo Alto	33,856	31,193 *	-7.9%	-\$2,663	68	Peñuelas	16,027	17,592	9.8%	\$1,565
30	Guánica	14,363	13,242	-7.8%	-\$1,121	69	Florida	18,298	20,315	11.0%	\$2,017
31	Cayey	22,965	21,320	-7.2%	-\$1,645	70	Villaalba	17,824	19,855	11.4%	\$2,031
32	Ponce	18,456	17,173 *	-7.0%	-\$1,283	71	Juana Díaz	18,692	20,845 *	11.5%	\$2,153
33	Yauco	16,020	14,954	-6.7%	-\$1,066	72	Gurabo	29,714	33,661 *	13.3%	\$3,947
34	Juncos	20,140	18,969	-5.8%	-\$1,171	73	Aibonito	17,300	19,720 *	14.0%	\$2,420
-	Puerto Rico	21,213	20,166 *	-4.9%	-\$1,047	74	Lares	12,718	14,540	14.3%	\$1,822
35	Carolina	30,930	29,434	-4.8%	-\$1,496	75	Salinas	14,679	16,887 *	15.0%	\$2,208
36	Arroyo	17,813	16,976	-4.7%	-\$837	76	Morovis	16,327	20,589 *	26.1%	\$4,262
37	San Sebastián	15,535	14,812	-4.7%	-\$723	77	Rincón	16,989	21,591 *	27.1%	\$4,602
38	Toa Alta	30,232	28,863	-4.5%	-\$1,369	78	Culebra	16,188	23,802 **	47.0%	\$7,614
39	Aguada	17,082	16,347	-4.3%	-\$735						

Table 6 -Average household income between the periods 2009-2013 and 2014-2018 by municipality. Source: Puerto Rico Institute of Statistics, 2019.

Respondent Perception Report

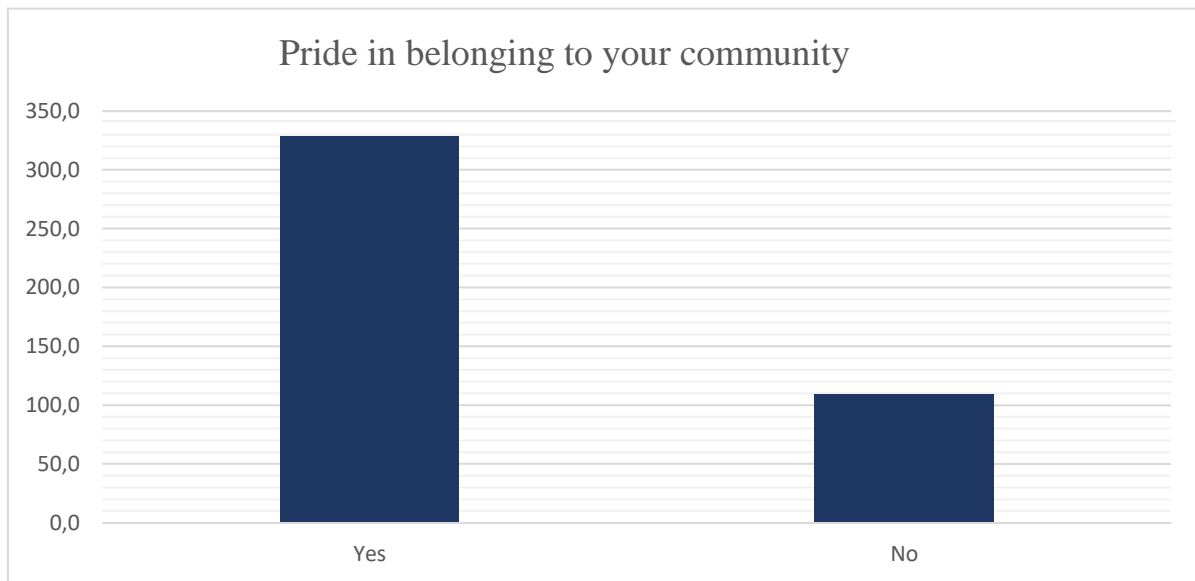
Socio-educational Aspect



Graph 12-Graphical presentation of the tabulation of the question: Am I proud to belong to this community? Source: Survey. Own creation.

Analysis: 97% of the people who participated in the survey feel proud to belong to their community. While 3% do not feel proud to belong to it.

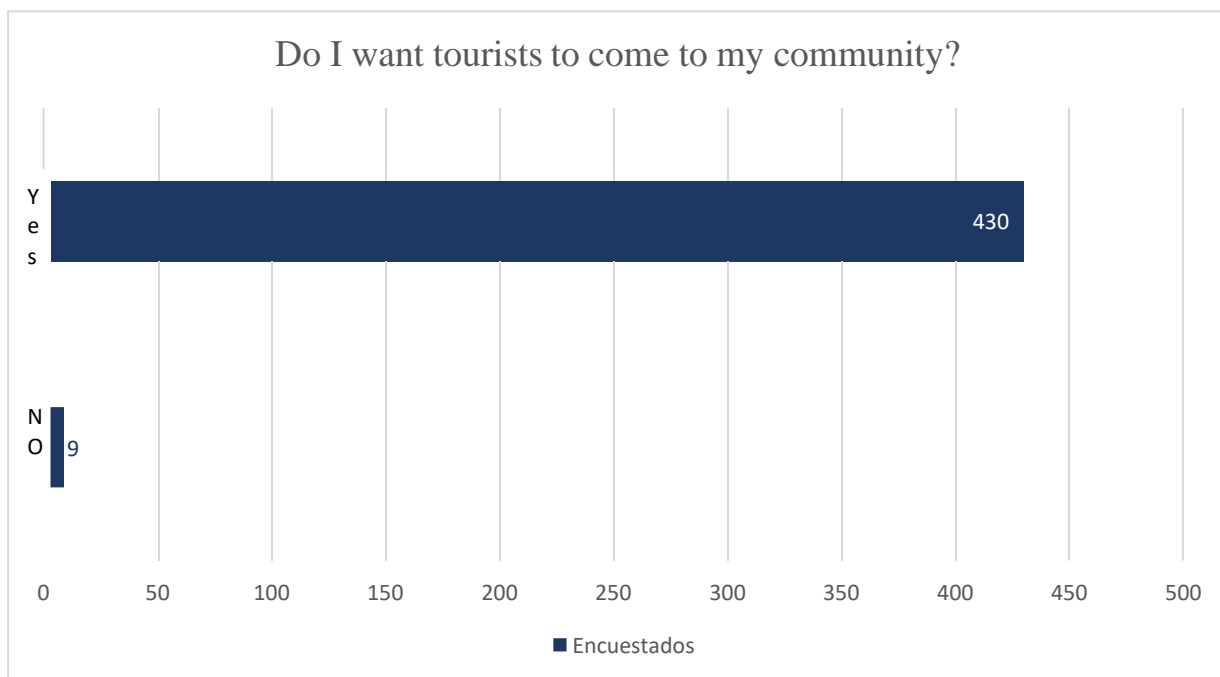
Interpretation of the results: These results reflect that the majority of survey participants feel proud to belong to their community.



Graph 13- Graphical presentation of respondents' perception of their pride in belonging to their community. Source: Survey. Own creation.

Analysis: The majority of the surveyed population states that they are proud to belong to their community.

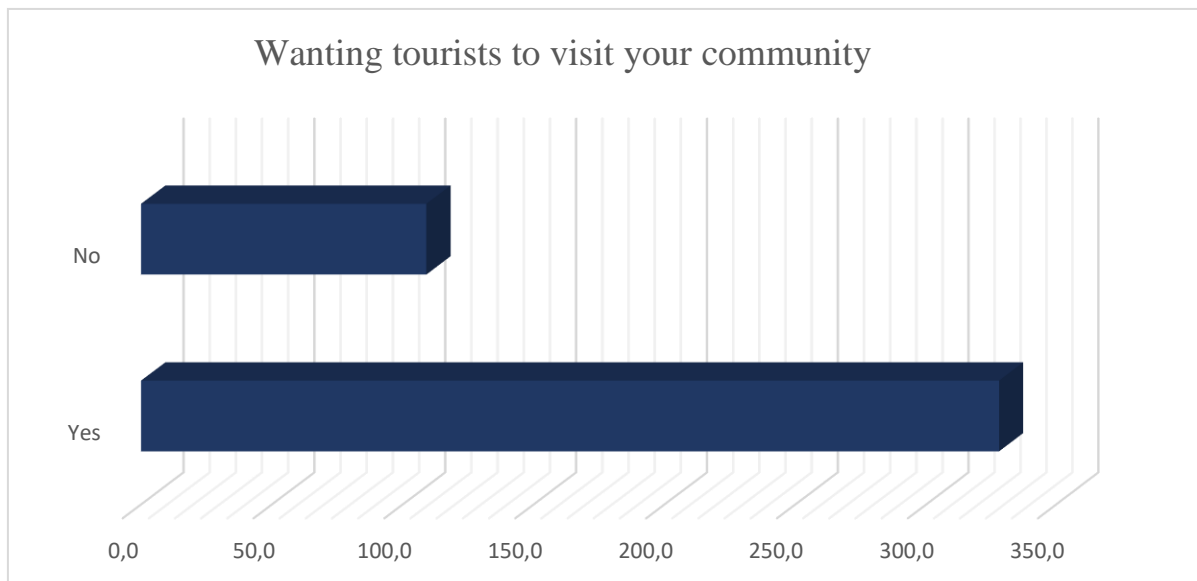
Interpretation of the results: These results reflect that the majority of respondents feel proud to belong to their community.



Graph 14-Graphical presentation of the tabulation of the question: Do I want tourists to come to my community? Source: Survey. Own creation.

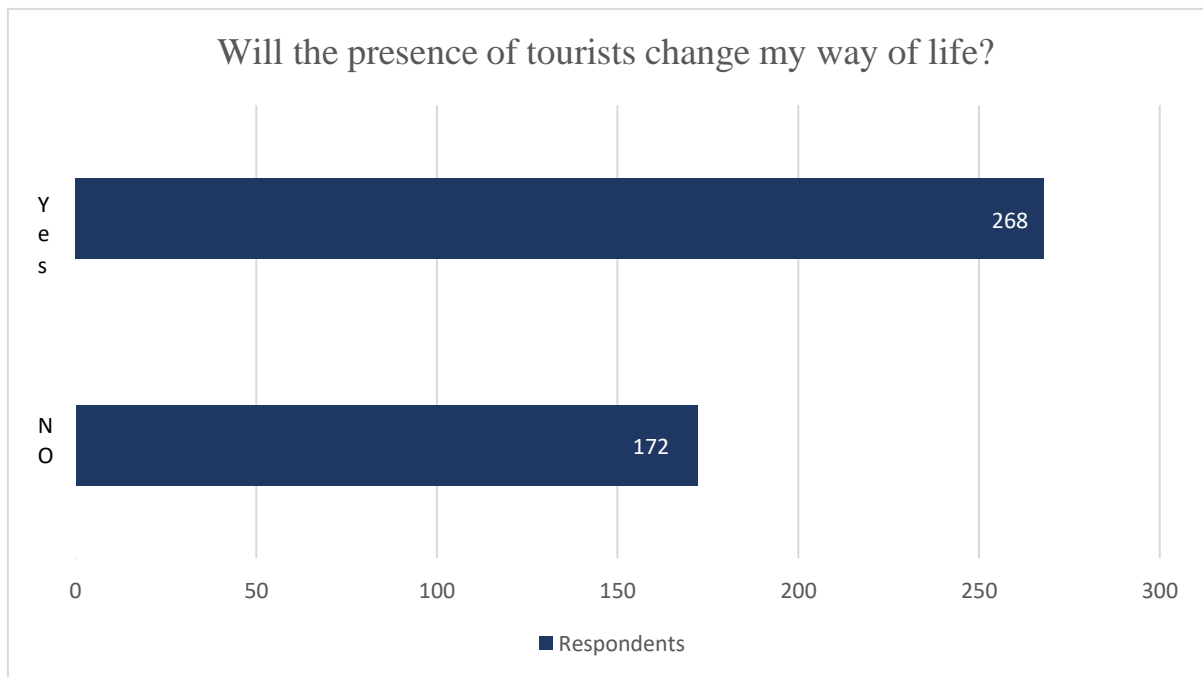
Analysis: 98% of the people participating in the survey want tourists to visit their community and get to know it. While 2% do not want tourists to visit their community.

Interpretation of the results: These results reflect that the majority of survey participants want tourists to visit their community and get to know it.



Graph 15- Graphical presentation of respondents' perception of their desire for tourists to visit their community. Source: Survey. Own creation.

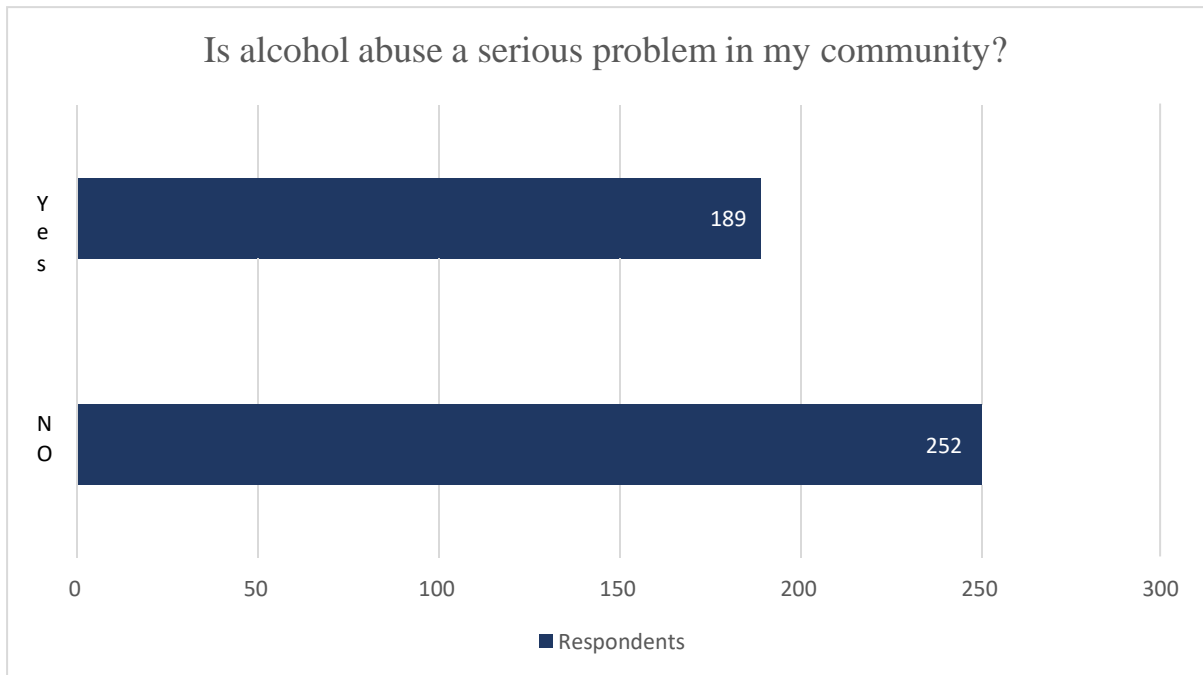
Interpretation of the results: Based on the research data, we can see that the majority of respondents respond positively to tourists visiting their community.



*Graph 16- Graphical presentation of the tabulation of the question: Will the presence of tourists change my way of life?
Source: Survey. Own creation.*

Analysis: 61% of the people participating in the survey understand that the presence of tourists will change their way of life. While 39% do not believe that the presence of tourists will change their way of life.

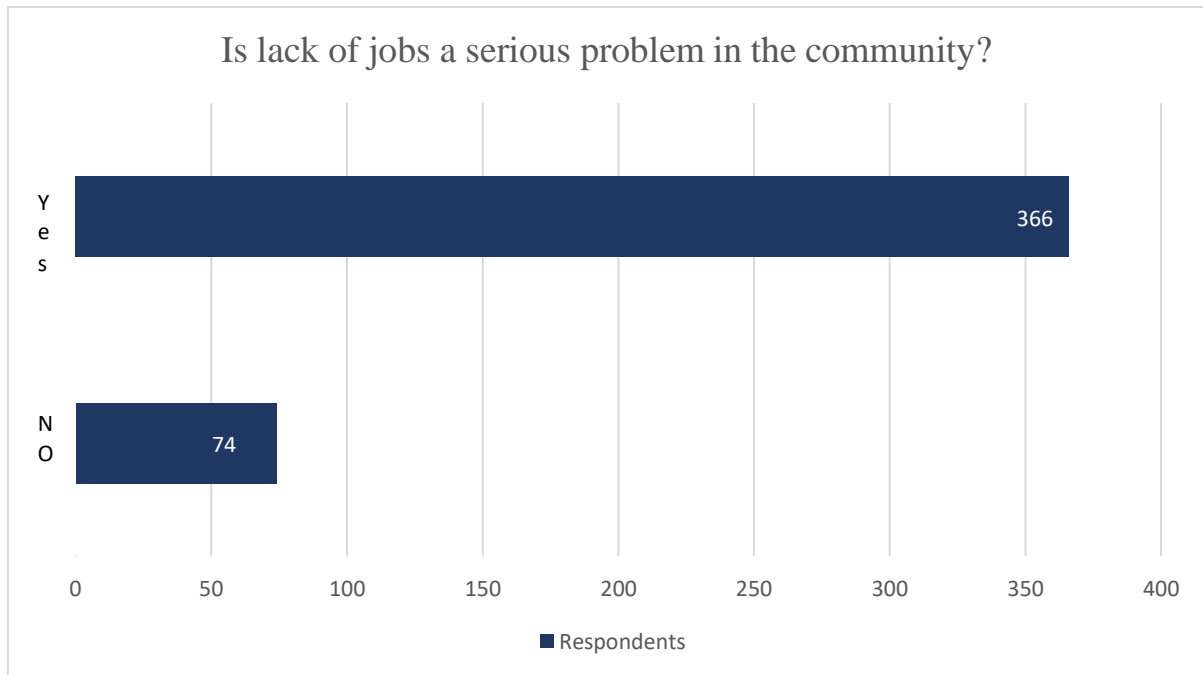
Interpretation of results: These results reflect that the majority of survey participants understand that the presence of tourists will change their way of life.



*Graph 17- Graphical presentation of the tabulation of the question: Is alcohol abuse a serious problem in my community?
Source: Survey. Own creation.*

Analysis: 43% of the people participating in the survey affirm that alcohol abuse is a serious problem in their community. While 57% do not believe that alcohol abuse is a serious problem in my community.

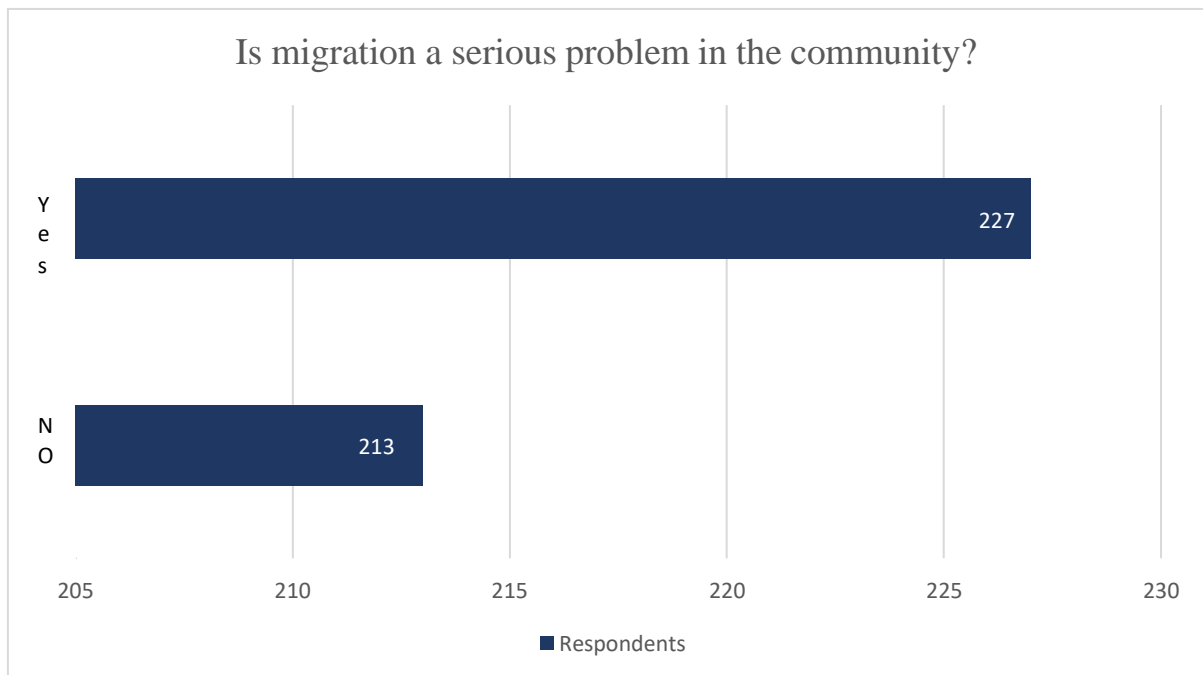
Interpretation of the results: These results reflect that the majority of the survey participants do not believe that alcohol abuse is a serious problem in their community, although the high percentage who determine that such a problem exists is of concern.



*Graph 18- Graphical presentation of the tabulation of the question: Is lack of work a serious problem in the community?
Source: Survey. Own creation.*

Analysis: 83% of the people participating in the survey affirm that the lack of jobs is a serious problem in the community. While 17% do not believe that lack of work is a serious problem in the community.

Interpretation of the results: These results reflect that the majority of the survey participants believe that the lack of jobs is a serious problem in the community, despite the fact that the municipality is in a better situation in this regard than most of Puerto Rico.

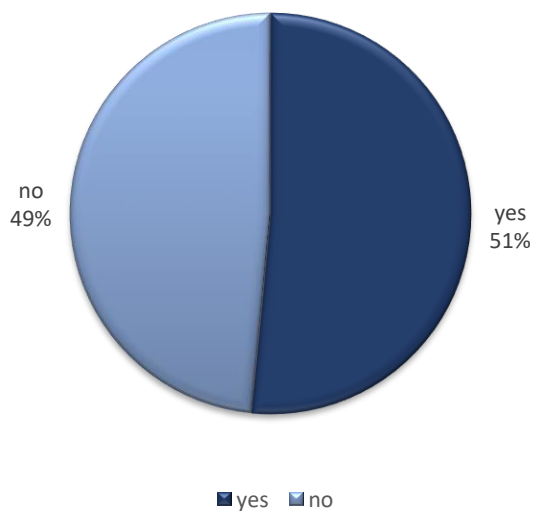


Graph 19- Graphical presentation of the tabulation of the question: *Is migration a serious problem in the community?*
 Source: Survey. Own creation.

Analysis: 52% of the people who participated in the survey affirm that migration is a serious problem in the community. 48% do not understand that migration is a serious problem in the community.

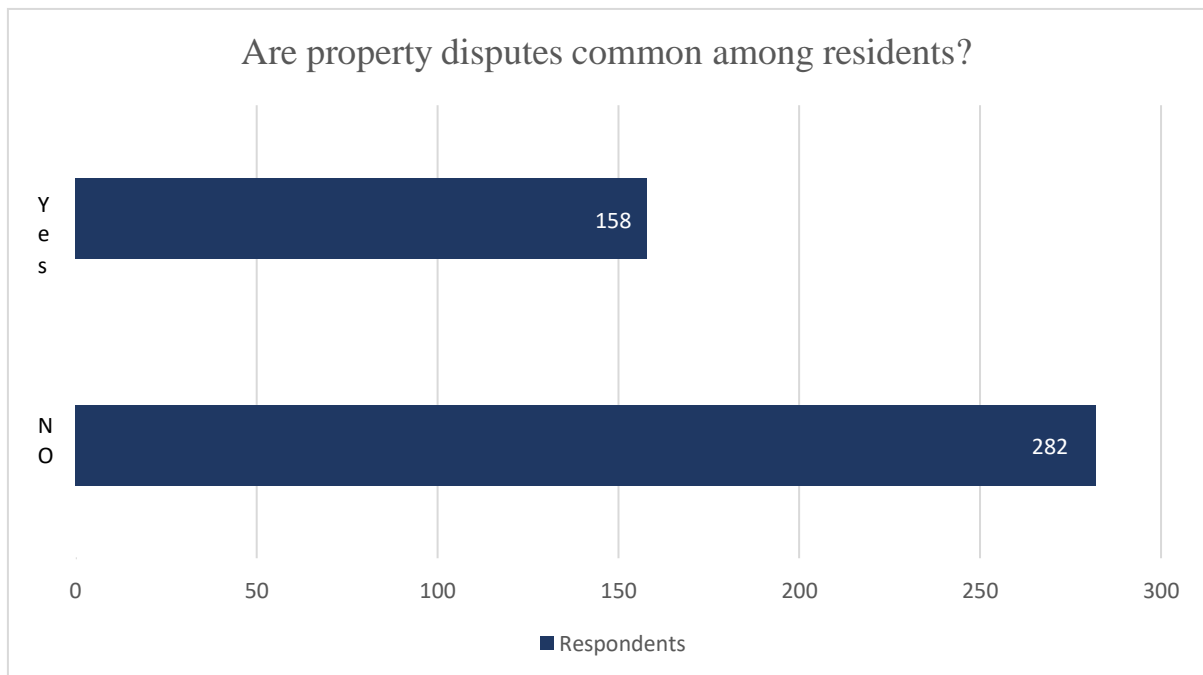
Interpretation of the results: These results reflect that the majority of the participants, 52% of the respondents, believe that migration is a serious problem in the community.

Consider migration to be a serious problem in your community.



Graph 20-Presentation of pie chart about the perception of respondents who consider migration to be a serious problem in their community. Source: Survey. Own creation.

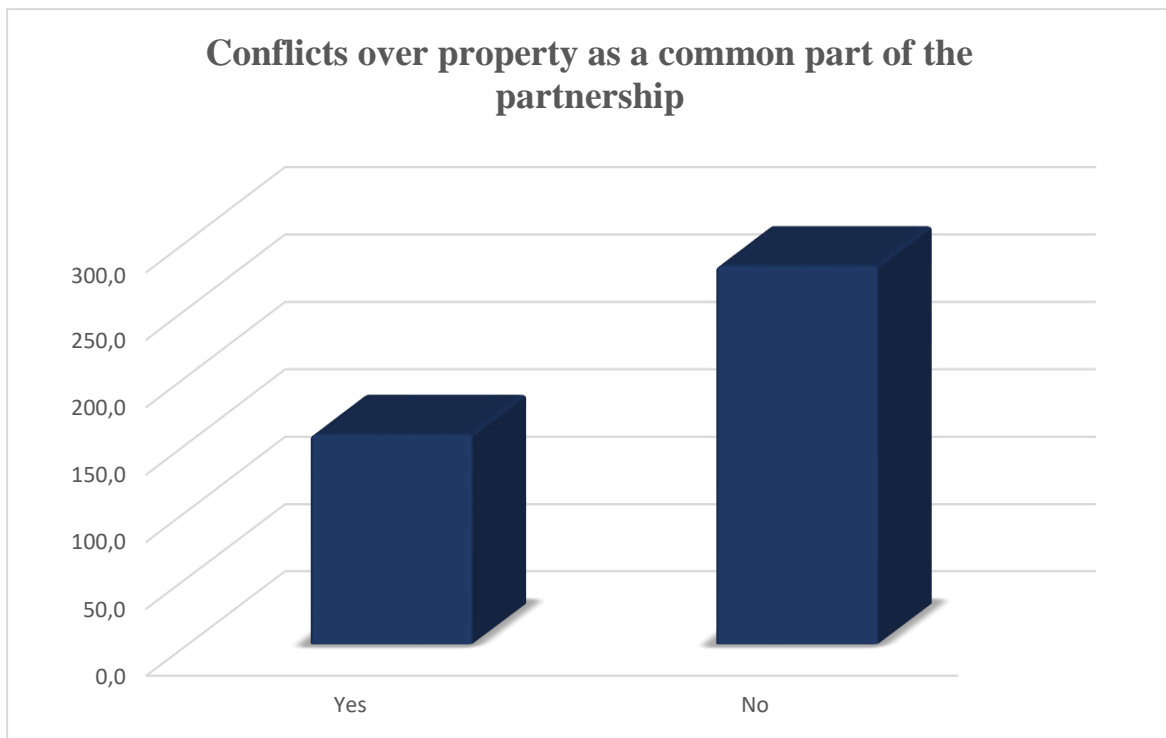
Interpretation of the results: Based on the research data, we can observe that out of 440 respondents, the majority respond positively that migration is a serious problem in their community. However, this percentage is only a majority by 2%.



*Graph 21- Graphical presentation of the tabulation of the question: Are property conflicts common among inhabitants?
Source: Survey. Own creation.*

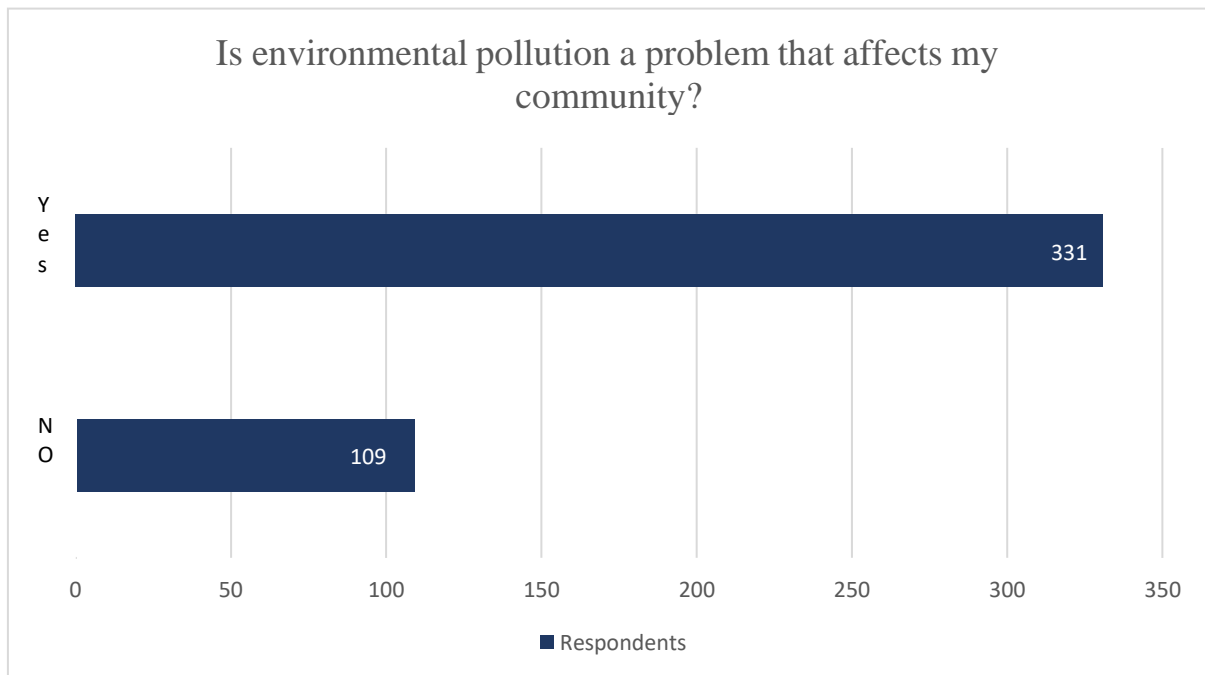
Analysis: 36% of the survey participants state that property conflicts are common among the inhabitants. 64% do not believe that property conflicts are common among residents.

Interpretation of the results: These results reflect that a minority of the participants, 36%, believe that conflicts over property are common among the inhabitants.



Graph 22- Bar graph presentation about conflicts over property as a common part of society. Source: Survey. Own creation.

Interpretation of the results: Based on the research data, we can observe that, out of 440 respondents, the majority answer that property conflicts are not considered a common problem in society.

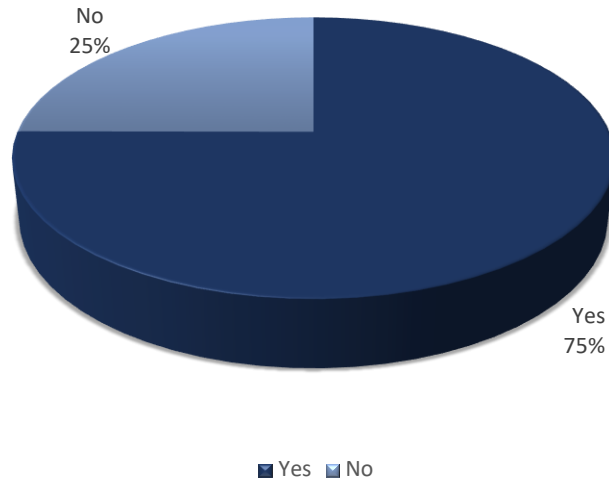


Graph 23- Graphical presentation of the tabulation of the question: Is environmental pollution a problem that affects my community? Source: Survey. Own creation.

Analysis: 75% of the people participating in the survey affirm that environmental contamination is a problem that affects their community. 25% do not believe that environmental contamination is a problem that affects their community.

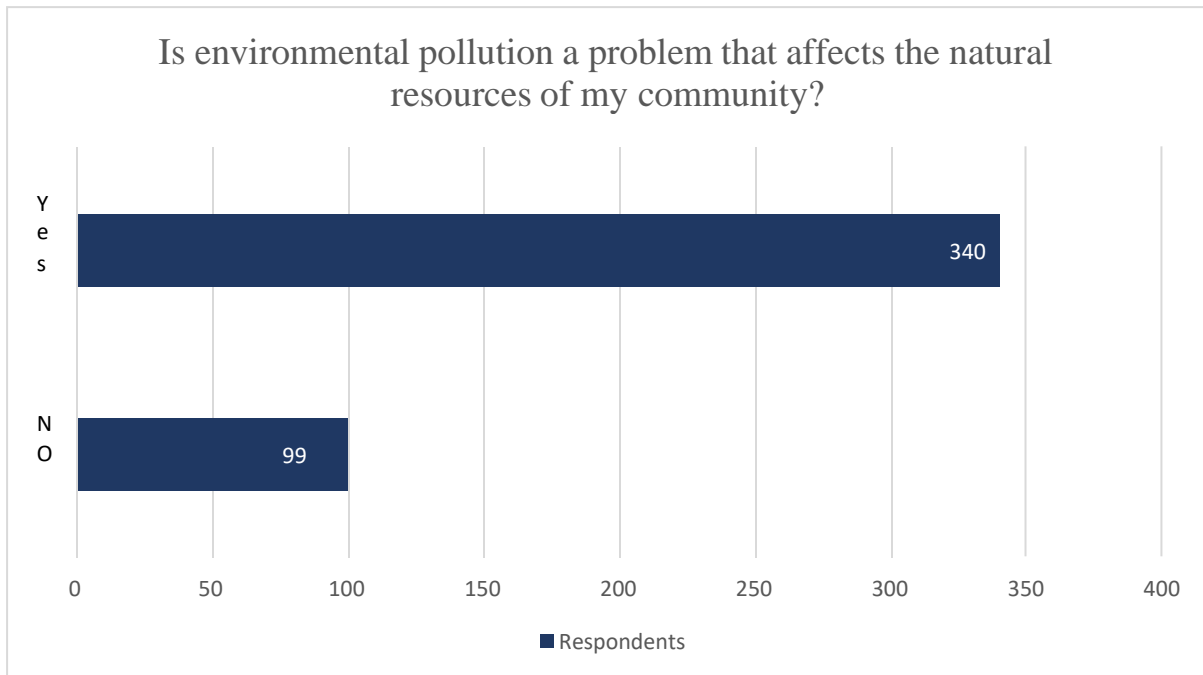
Interpretation of the results: These results reflect that the majority of the participants (75%) believe that environmental pollution is a problem that affects their community.

Consider environmental pollution as a problem that affects their community.



Graph 24- Pie chart presentation about the perception of respondents who consider environmental pollution to be a problem in their community. Source: Survey. Own creation.

Interpretation of the results: These results reflect that the majority of the survey participants consider environmental pollution to be a problem that affects their community.

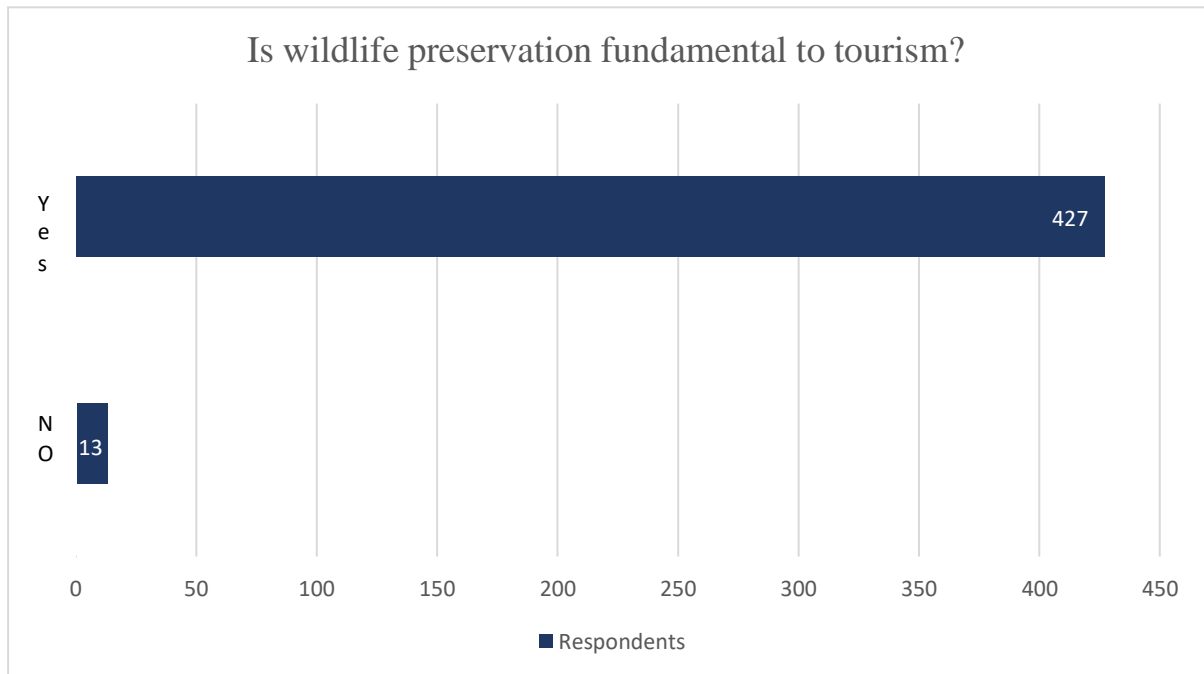


Graph 25- Graphical presentation of the tabulation of the question: Is environmental pollution a problem that affects the natural resources of my community? Source: Survey. Own creation.

Analysis: 77% of the people participating in the survey affirm that environmental contamination is a problem that affects the natural resources of their community. 23% do not believe that environmental pollution is a problem that affects their community's natural resources.

Interpretation of the results: These results reflect that the majority of the participants (77%) believe that environmental pollution is a problem that affects the natural resources of their community.

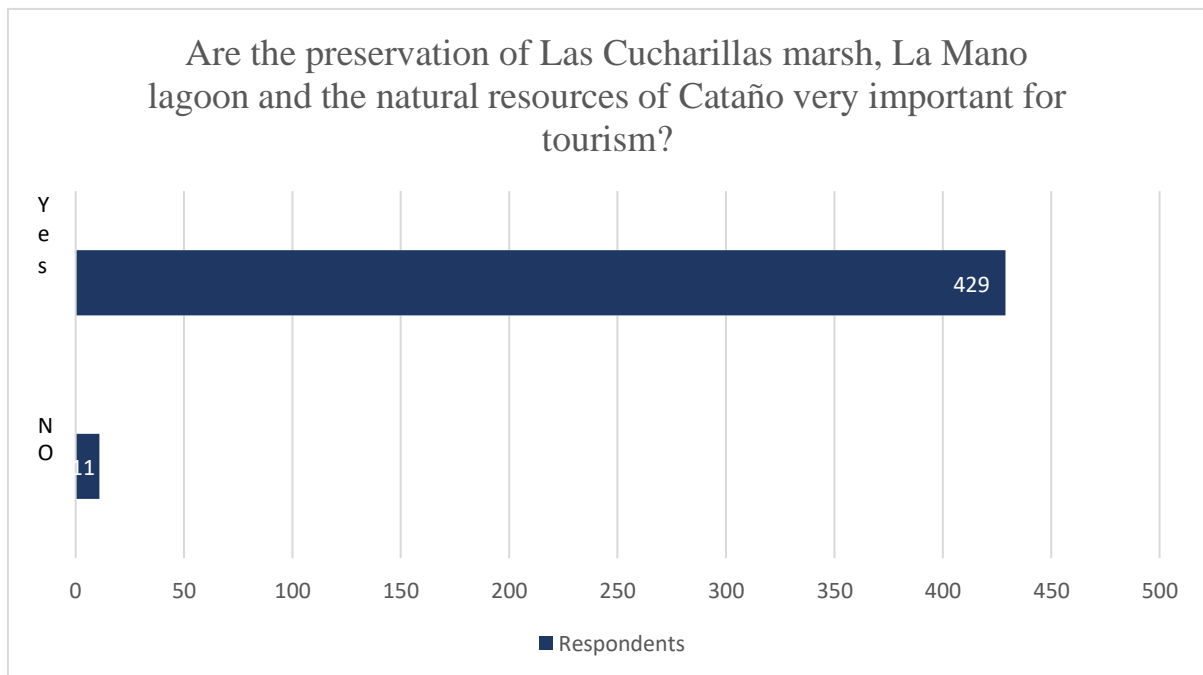
Ecological Aspect



*Graph 26-Graphical presentation of the tabulation of the question: Is wildlife preservation fundamental for tourism?
Source: Survey. Own creation.*

Analysis: 97% of the people participating in the survey affirm that wildlife preservation is fundamental for tourism. Three percent do not believe that wildlife preservation is fundamental to tourism.

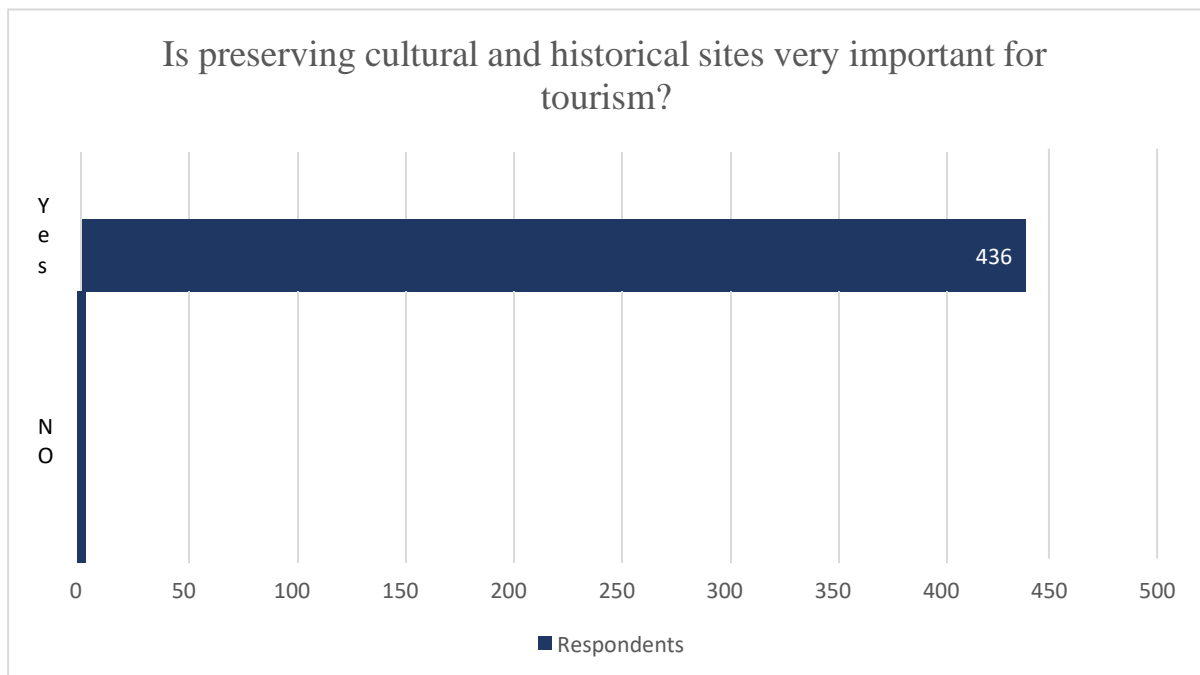
Interpretation of the results: These results reflect that the majority of participants (97%) believe that wildlife preservation is fundamental for tourism.



Graph 27-Graphical presentation of the tabulation of the question: Are the preservation of Las Cucharillas marsh, La Mano lagoon and the natural resources of Cataño very important for tourism? Source: Survey. Own creation.

Analysis: 98% of the people participating in the survey affirm that the preservation of the Las Cucharillas marsh, La Mano Lagoon and the natural resources of Cataño are very important for tourism. 2% do not believe that the preservation of Las Cucharillas marsh, La Mano lagoon, and Cataño's natural resources are very important for tourism.

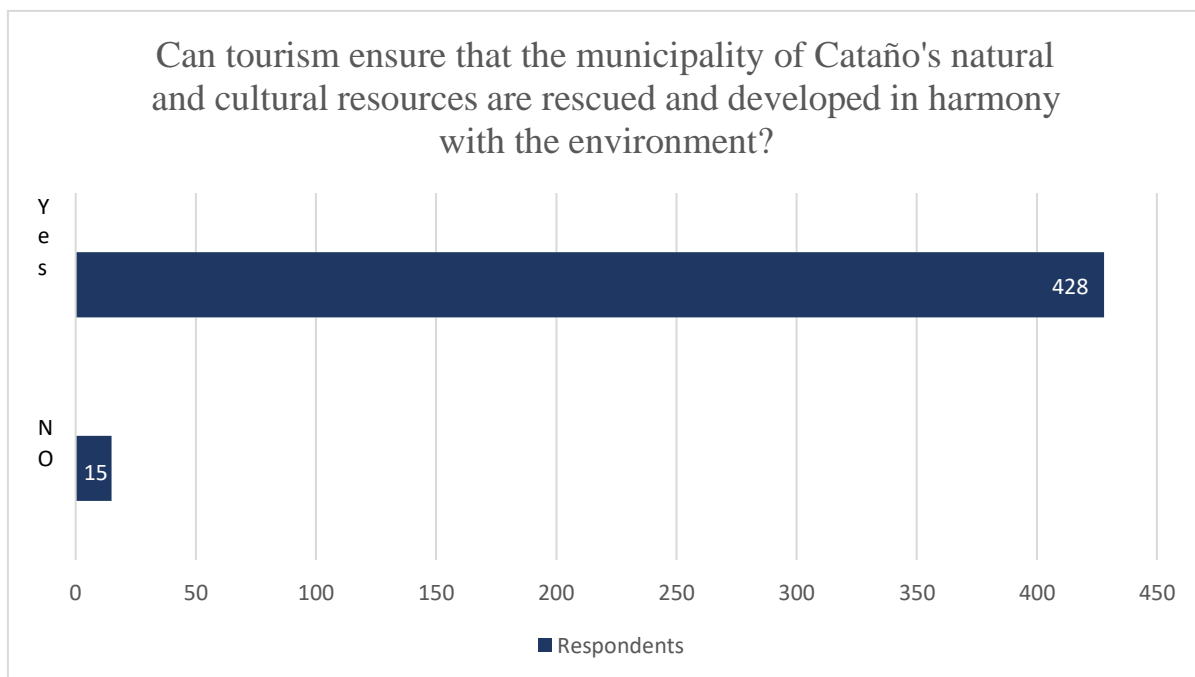
Interpretation of the results: These results show that 98% of the participants believe that the preservation of the Cucharillas marsh, La Mano Lagoon, and the natural resources of Cataño are very important for tourism.



Graph 28- Graphical presentation of the tabulation of the question: Is preserving cultural and historical sites very important for tourism? Source: Survey. Own creation.

Analysis: 99% of the survey participants say that preserving cultural and historical sites is very important for tourism. 1% do not believe that preserving cultural and historical sites is very important for tourism.

Interpretation of the results: These results reflect that the majority of the participants (99%) believe that the conservation of cultural and historical sites is very important for tourism.

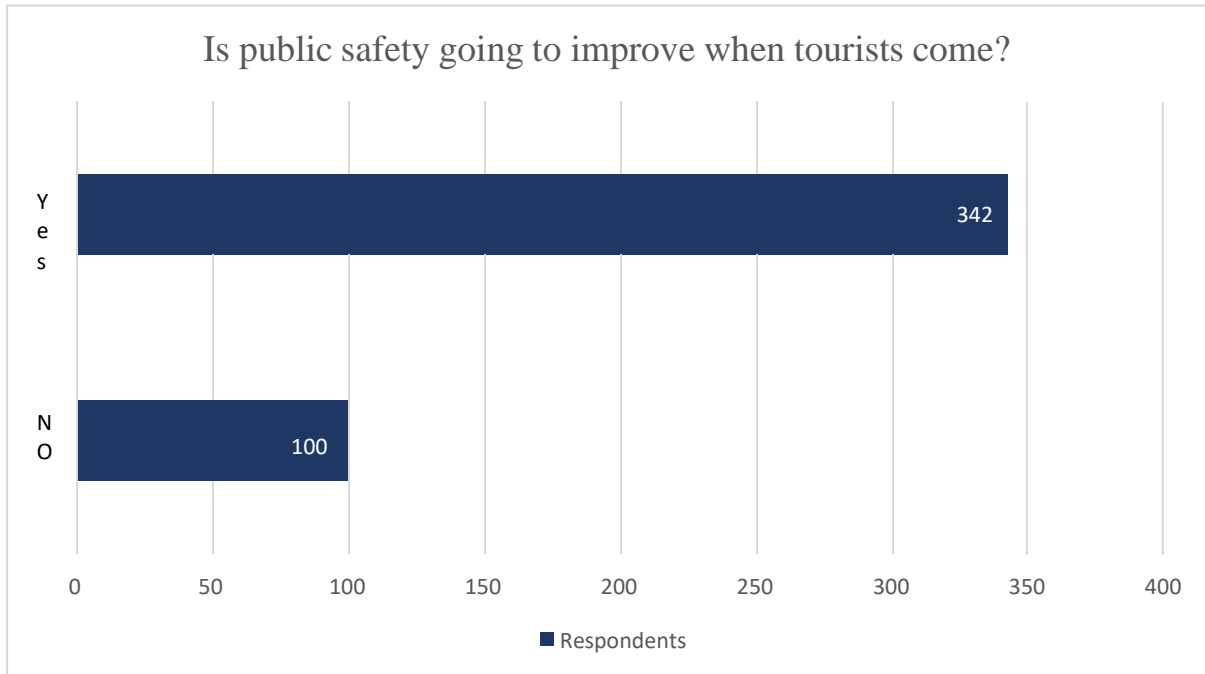


Graph 29- Graphical presentation of the tabulation of the question: Can tourism ensure that the natural and cultural resources of the municipality of Cataño are rescued and developed in harmony with the environment? Source: Survey. Own creation.

Analysis: 97% of the people participating in the survey affirm that tourism can ensure that the natural resources of the municipality of Cataño and its cultural resources are rescued and developed in harmony with the environment. 3% do not believe that tourism can ensure that the municipality of Cataño's natural resources and cultural resources are rescued and developed in harmony with the environment.

Interpretation of the results: These results reflect that the majority of the participants (97%) believe that tourism can ensure that the natural and cultural resources of the municipality of Cataño are rescued and developed in harmony with the environment.

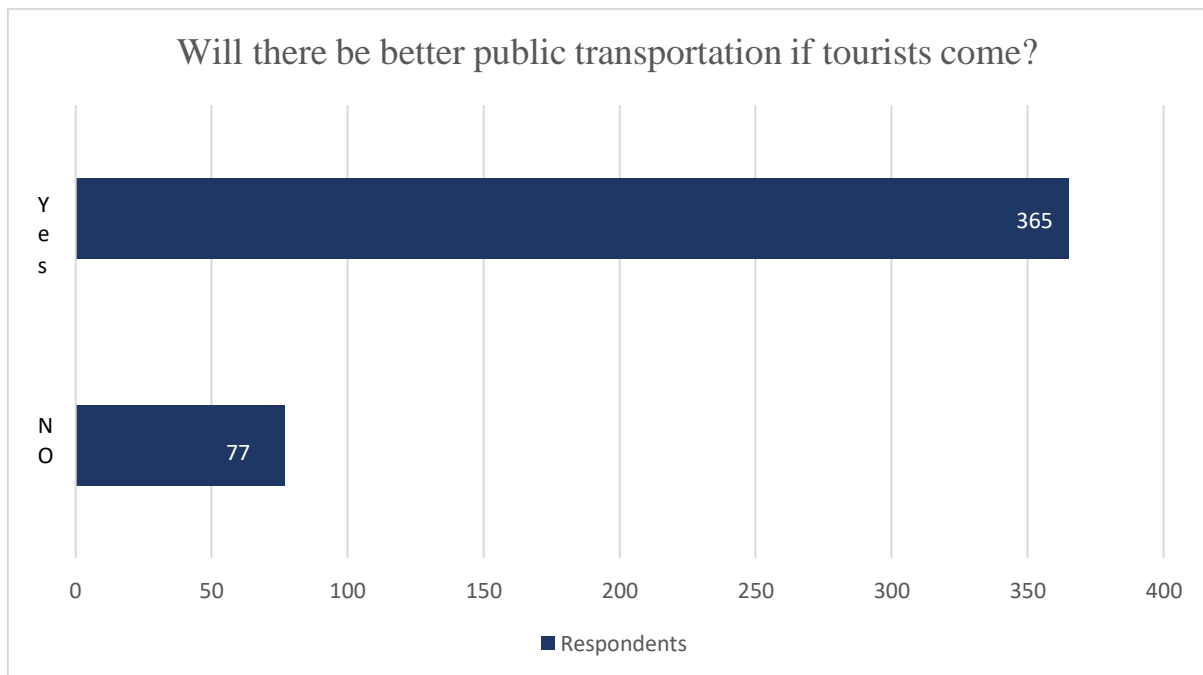
Economic Aspect



Graph 30- Graphical presentation of the tabulation of the question: Will public safety improve when tourists come? Source: Survey. Own creation.

Analysis: 78% of the people participating in the survey affirm that public safety will improve when tourists come. 22% do not believe that public safety will improve when tourists come.

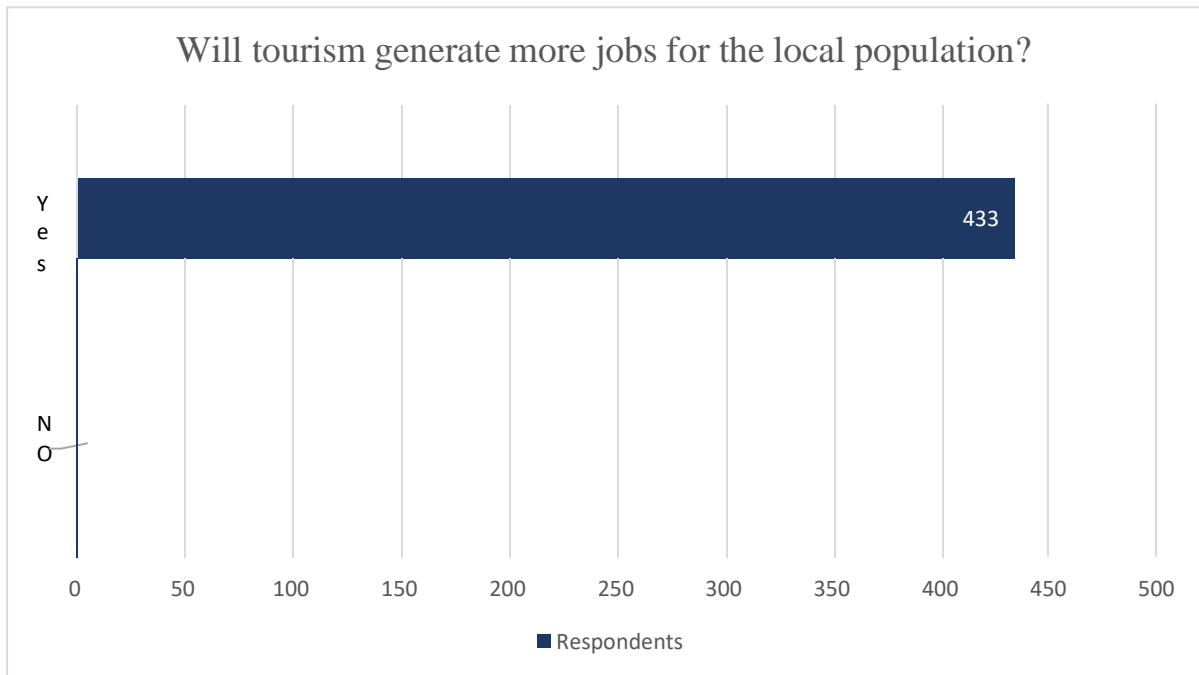
Interpretation of the results: These results reflect that the majority of participants (78%) believe that public safety will improve when tourists come.



*Graph 31-Graphic presentation of the tabulation of the question: Will there be better public transportation if tourists come?
Source: Survey. Own creation.*

Analysis: 83% of the people participating in the survey affirm that there will be better public transportation if tourists visit their community. 17% do not believe that there will be better public transportation if tourists visit their community.

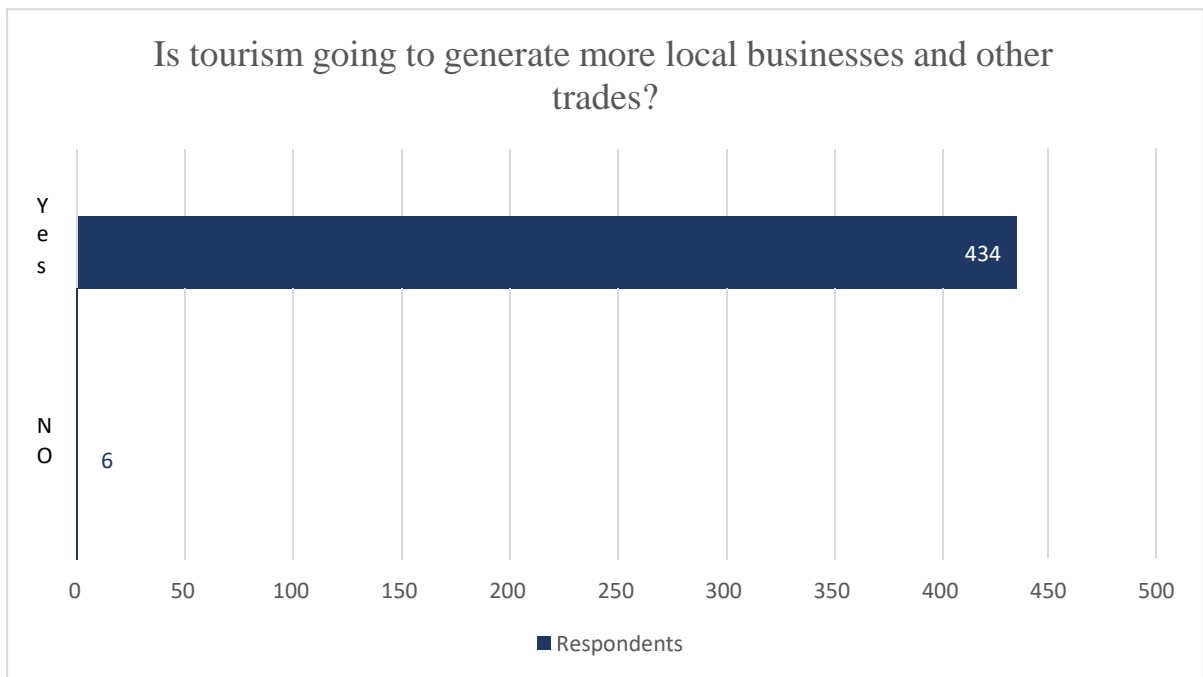
Interpretation of the results: These results reflect that the majority of the participants (78%) believe that there will be better public transportation if tourists visit their community.



Graph 32-Graphical presentation of the tabulation of the question: Will tourism generate more jobs for the local population? Source: Survey. Own creation.

Analysis: 98% of the people participating in the survey affirm that tourism will generate more jobs for the local population. Two percent do not believe that tourism will generate more jobs for the local population.

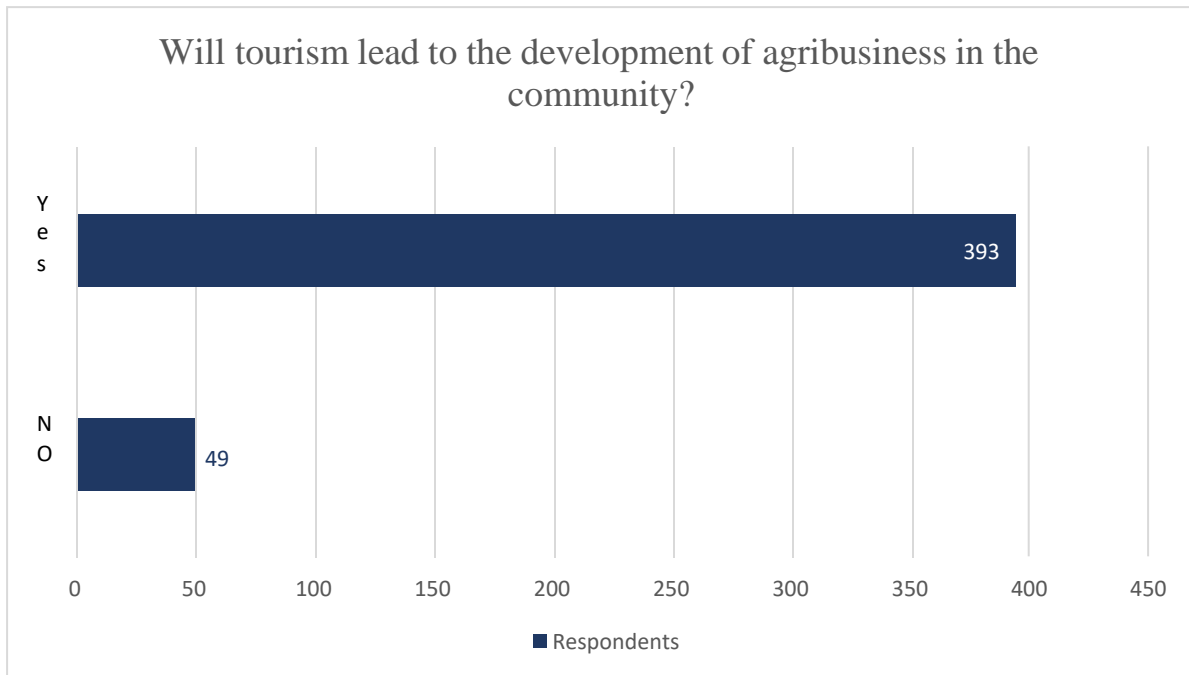
Interpretation of the results: These results reflect that the majority of the participants (78%) believe that tourism will generate more jobs for the local population.



Graph 33-Graphical presentation of the tabulation of the question: Is tourism going to generate more local businesses and other businesses? Source: Survey. Own creation.

Analysis: 99% of the people participating in the survey affirm that tourism will generate more local businesses and other commerce. Two percent do not believe that tourism will lead to the creation of more local businesses and other businesses.

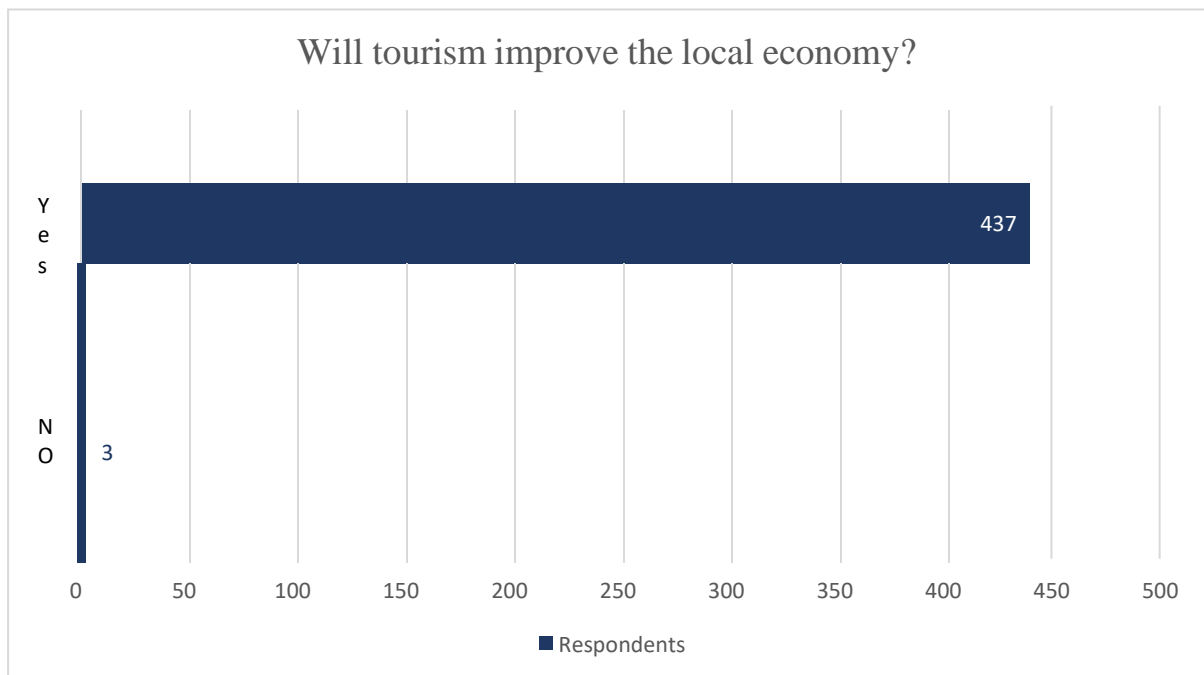
Interpretation of the results: These results reflect that the majority of the participants (99%) believe that tourism will generate more local businesses and other businesses.



Graph 34- Graphical presentation of the tabulation of the question: Will tourism lead to the development of agribusiness in the community? Source: Survey. Own creation.

Analysis: 89% of the people participating in the survey affirm that tourism will help develop agribusiness in the community. Eleven percent do not believe that tourism will lead to the development of agribusiness in the community.

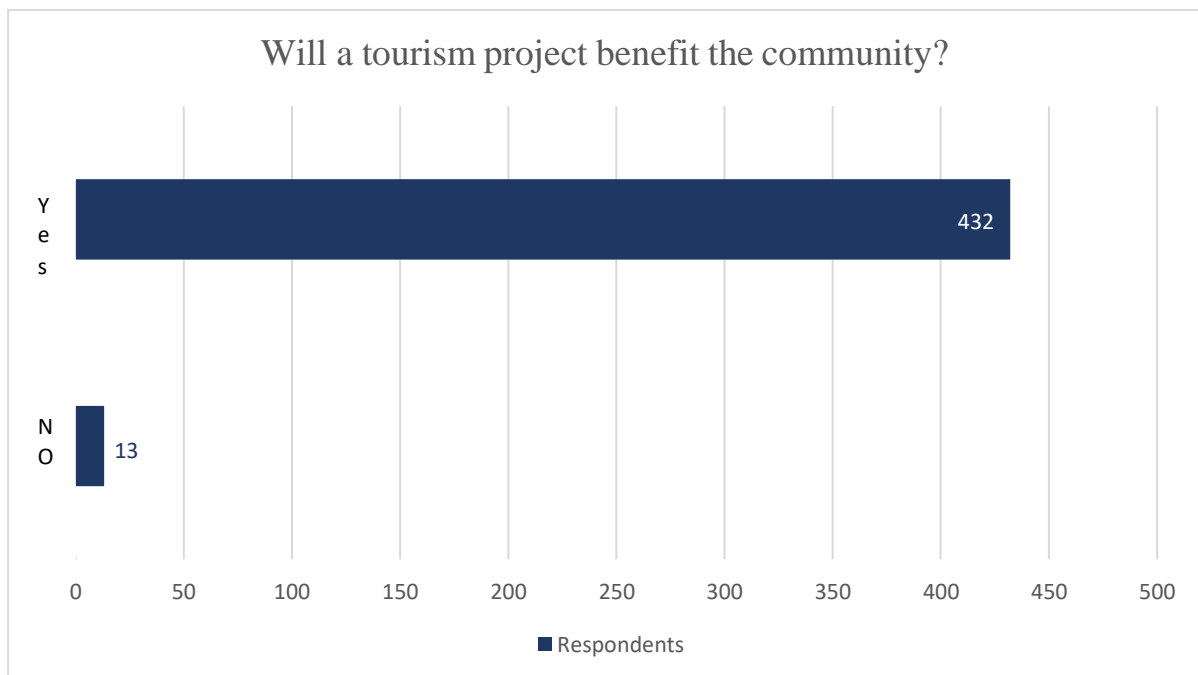
Interpretation of the results: These results reflect that the majority of participants (89%) believe that public safety will improve when tourists come.



Graph 35-Graphical presentation of the tabulation of the question: Will tourism improve the local economy? Source: Survey. Own creation.

Analysis: 99% of the people participating in the survey affirm that tourism will improve the local economy. 1% do not believe that tourism will improve the local economy.

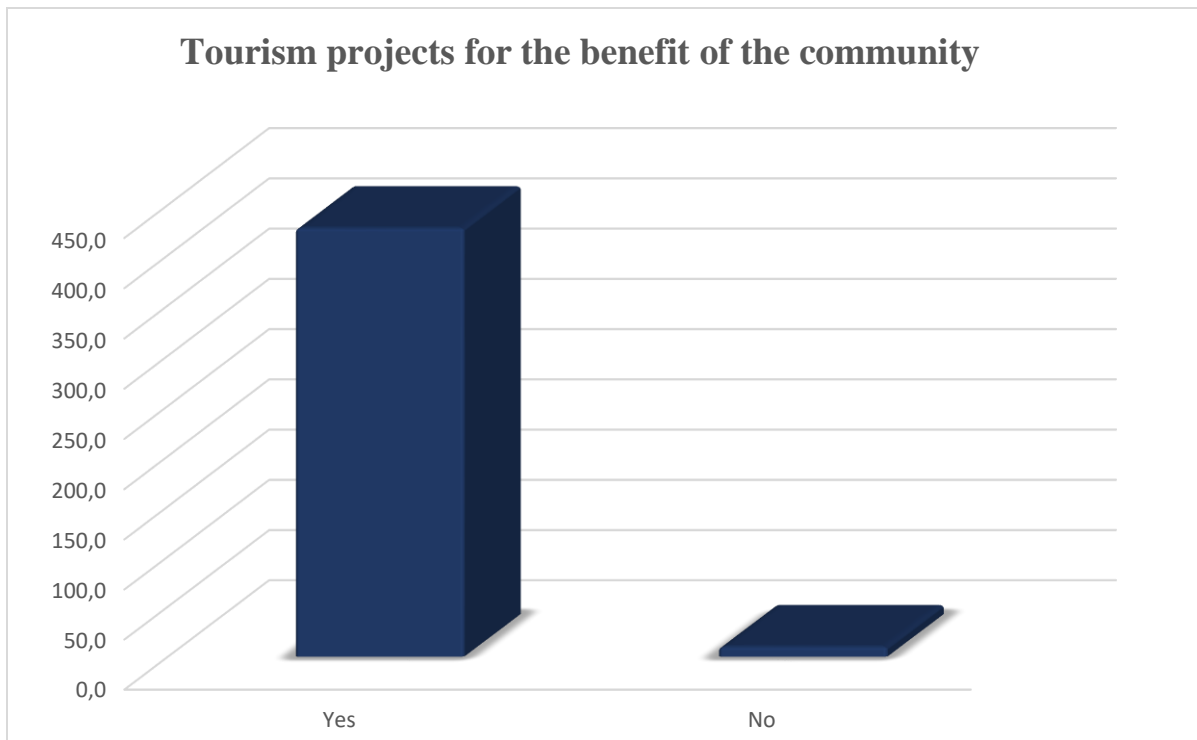
Interpretation of the results: These results reflect that the majority of the participants (99%) believe that tourism will improve the local economy.



Graph 36-Graphical presentation of the tabulation of the question: Will a tourism project benefit the community? Source: Survey. Own creation.

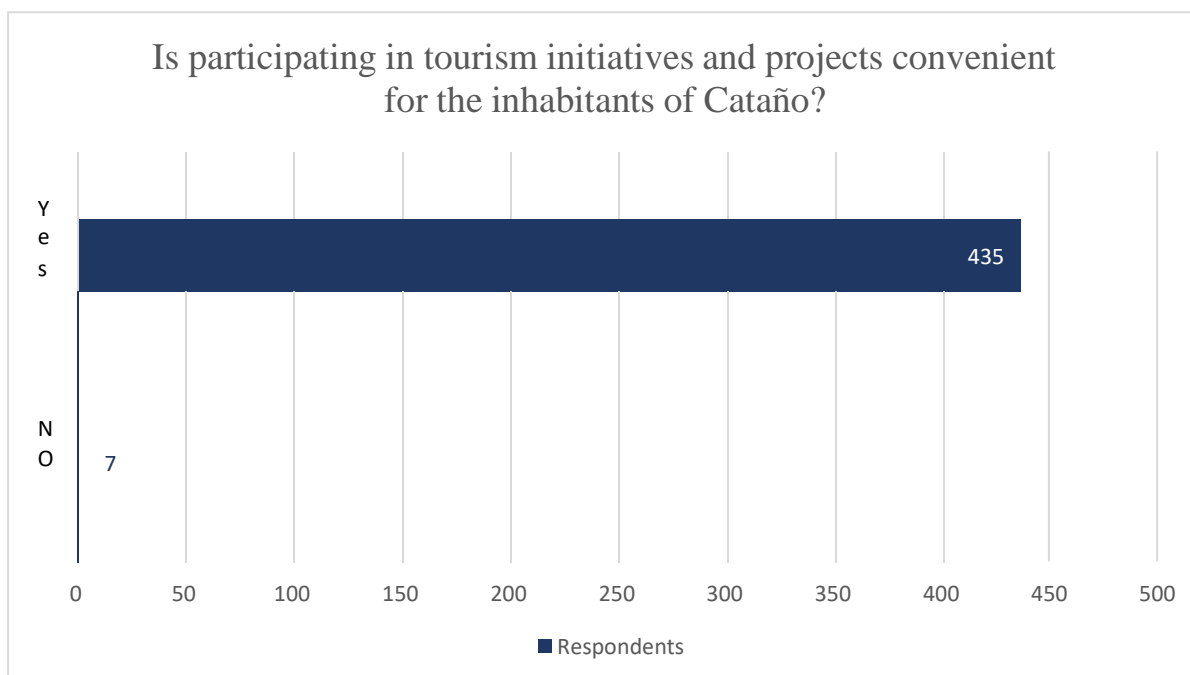
Analysis: 98% of the people participating in the survey affirm that a tourism project will benefit the community. 2% do not believe that a tourism project will benefit the community.

Interpretation of the results: These results reflect that the majority of the participants (98%) believe that a tourism project will benefit the community.



Graph 37- Bar graph presentation of respondents' perception of tourism projects for the benefit of the community. Source: Survey. Own creation.

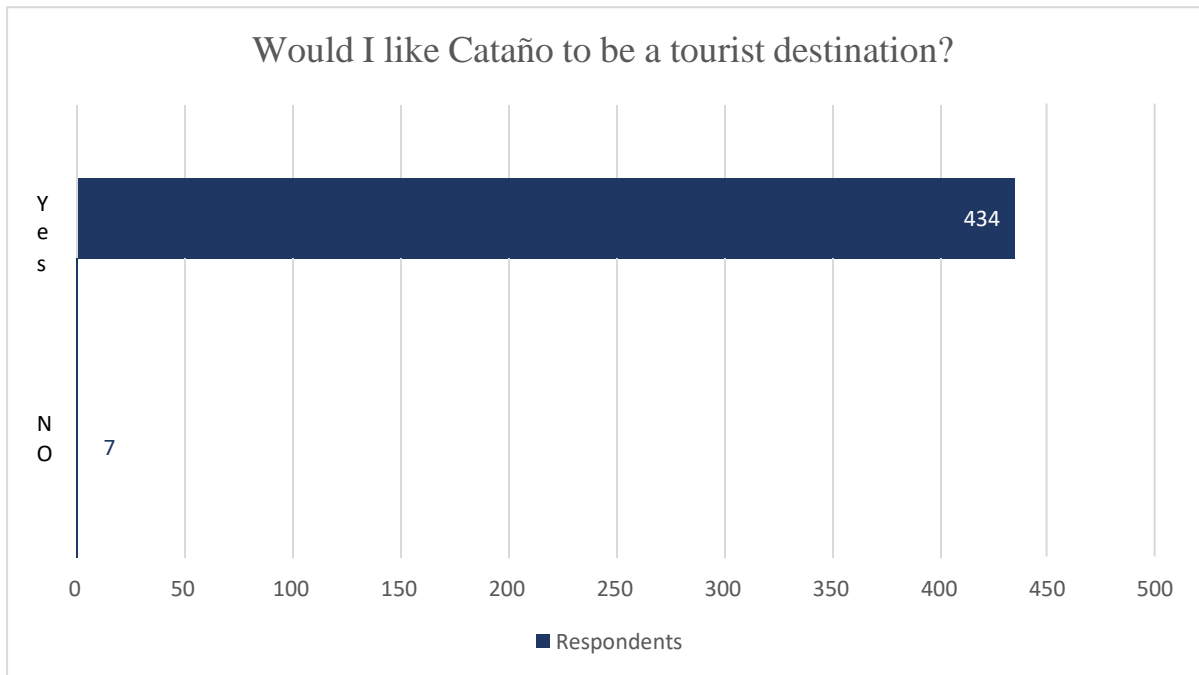
Interpretation of the results: These results reflect that most of the survey participants think that tourism projects are beneficial to their community.



Graph 38-Graphical presentation of the tabulation of the question: Is participating in tourism initiatives and projects convenient for the inhabitants of Cataño? Source: Survey. Own creation.

Analysis: 99% of the people participating in the survey affirm that participating in tourism initiatives and projects is convenient for the residents of Cataño. 1% do not believe that participating in tourism initiatives and projects is convenient for the inhabitants of Cataño.

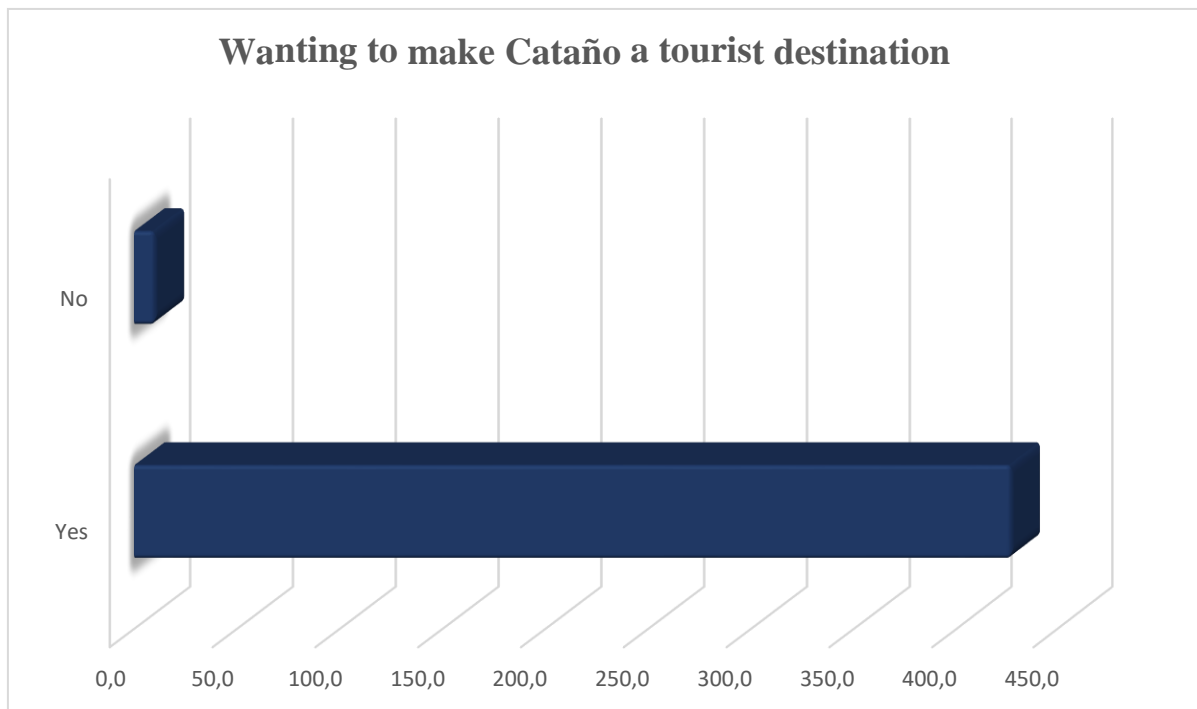
Interpretation of the results: These results reflect that the majority of the participants (99%) believe that participating in tourism initiatives and projects is convenient for the inhabitants of Cataño.



Graph 39-Graphical presentation of the tabulation of the question: Would I like Cataño to be a tourist destination? Source: Survey. Own creation.

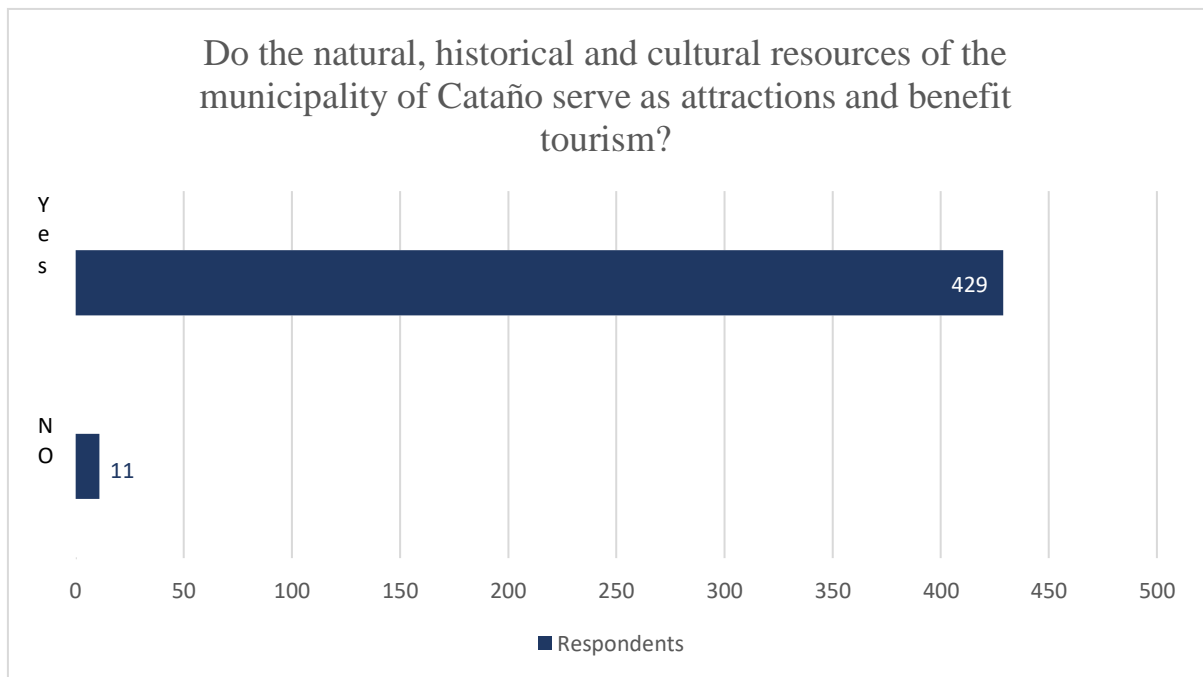
Analysis: 99% of the people who participated in the survey affirm that they would like Cataño to be a tourist destination. 1% would not like Cataño to be a tourist destination.

Interpretation of the results: These results reflect that the majority of the participants (99%) would like Cataño to be a tourist destination.



Graph 40- Bar graph presentation of respondents' perception of wanting Cataño to be a tourist destination. Source: Survey. Own creation.

Interpretation of the results: The graph shows that almost 100% of the survey participants would like Cataño to be a tourist destination.

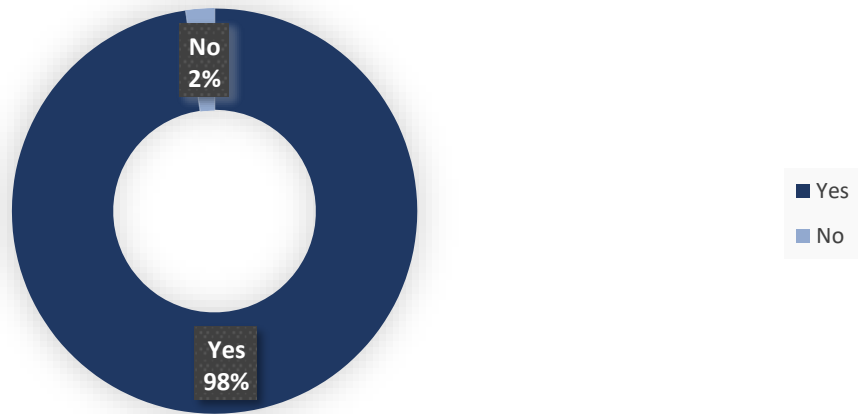


Graph 41-Graphic presentation of the tabulation of the question: Do the natural, historical and cultural resources of the municipality of Cataño serve as attractions and benefit tourism? Source: Survey. Own creation.

Analysis: 98% of the people participating in the survey affirm that the natural, historical and cultural resources of the municipality of Cataño serve as attractions and benefit tourism. 2% do not believe that the natural, historical and cultural resources of the municipality of Cataño are attractive and benefit tourism.

Interpretation of the results: These results reflect that the majority of the participants (98%) believe that the natural, historical and cultural resources of the municipality of Cataño serve as attractions and benefit tourism.

**Considering the preservation of the Cucharillas marsh,
the La Mano lagoon and the natural resources of
Cataño important for tourism**



Graph 42-Graphical presentation of respondents' perception that the preservation of Las Cucharillas marsh, La Mano lagoon and the natural resources of Cataño are important for tourism. Source: Survey. Own creation.

Analysis: 98% of the survey participants consider the preservation of Las Cucharillas marsh, La Mano Lagoon, and the natural resources of Cataño to be important for tourism. 2% of respondents do not consider the preservation of Las Cucharillas marsh, La Mano lagoon, and Cataño's natural resources to be important for tourism.

Interpretation of the results: These results reflect that almost all respondents consider the preservation of Las Cucharillas marsh, La Mano Lagoon, and Cataño's natural resources to be important for tourism.

Backward Analysis

A 90% certainty level was considered,

Analysis of Variance						
Model		Sum of squares	From	Mean Square	F	Sig.
	Regression	88.084	19	4.636	3.543	.000
	Residual	545.646	417	1.309		
	Total	633.730	436			

Dependent Variable: Positive tourism outlook score.

Table 7-Analysis of Variance. Source: Survey. Own creation.

Analysis of Variance Analysis: In the table, we see that the overall model is significant, the p-value (marked in red) is less than 0.1.

Hypothesis Testing

The chi-square statistical method was used to test the hypothesis of this research topic.

Hypothesis statement

The hypothesis will be:

H₀ : Different levels of gender, age, educational level, nationality and employment status have no effect on the Positive Outlook on Tourism score.

H_A : Different levels of gender, age, educational level, nationality and employment status have a significant effect on the Positive Outlook on Tourism score.

The detailed model is considered:

Model		Standardized coefficients		Coefficients	T	Sig.
		B	Std. Error	Standardized		
				Beta		
	(Constant)	6.570	1.497		4.389	.000
	Gender==Male	5.758	1.162	2.161	4.954	.000
	Gender ==Female	5.492	1.162	2.066	4.725	.000
	Age==Under 30 years old	.001	.285	.000	.005	.996
	Age ==Between 31 and 40 years old	-.450	.225	-.145	-2.001	.046
	Age ==Between 41 and 50 years old	-.109	.210	-.042	-.519	.604
	Age ==Between 51 and 60 years old	.107	.205	.035	.523	.601
	School Level==High School	.024	.246	.008	.099	.921
	School Level==High School	-.152	.227	-.063	-.671	.503
	School Level==Master's Degree	-.009	.240	-.003	-.038	.970
	Nationality==Puerto Rican	-.445	.821	-.115	-.543	.588
	Nationality ==American	-.320	.850	-.065	-.377	.707
	Nationality==Other	-.478	.932	-.053	-.513	.608
	Nationality== Puerto Rican and American	-1.563	.904	-.184	-1.729	.084
	Employment status==Self employed	.083	.440	.021	.188	.851
	Employment status ==Full time job	-.077	.408	-.032	-.190	.850
	Employment Status ==Part-time job	-.561	.467	-.102	-1.202	.230
	Employment Status == Unemployed	-.170	.451	-.037	-.377	.706
	Employment Status ==Student	-1.012	.490	-.188	-2.068	.039
	Employment Status ==Retired	-.149	.451	-.044	-.331	.741

Dependent Variable: Positive tourism outlook score.

Table 8--Hypothesis testing with the chi-square statistical method. Source: Survey. Own creation.

Analysis of the results of hypothesis testing with the chi-square statistical method:

In the table, we can see that, the change in the gender variable for the category "male" and "female" compared to "not wanting to disclose gender" (is the reference category), has a significant effect on the dependent variable, Positive Tourism Outlook Score at 10% significance level, the p-value (marked in red) is less than 0.1. Both coefficients are positive, meaning that respondents in both categories have a positive outlook on tourism.

The change in the variable Age for the category "Between 31 and 40 years old" compared to "over 61" (this is the reference category), has a significant effect on the dependent variable, Tourism Positive Outlook Score with a significance level of 10%, the p-value (marked in red) is less than 0.1. The coefficient is negative, meaning that respondents in this category have a comparatively less positive outlook on tourism.

The change in the Nationality variable for the "Puerto Rico and U.S." category compared to "No response" (the reference category), has a significant effect on the dependent variable, Tourism Positive Outlook Score at the 10% significance level, the p-value (marked in red) is less than 0.1. The coefficient is negative, meaning that respondents in this category have a comparatively less positive outlook on tourism.

The change in employment status for the category "Student" compared to "Student and doing work" (this is the reference category), has a significant effect on the dependent variable, Tourism Positive Outlook Score with a significance level of 10%. Because the p-value (marked in red) is less than 0.1. The coefficient is negative, which means that respondents in this category have a comparatively less positive outlook on tourism.

Respondent Profile Information

Genre				Cumulative
	Frequency	Percent	Percent Valid	Percent
Male	125	28.6	28.6	28.6
Female	311	71.2	71.2	99.8
Another	1	.2	.2	100.0
Total	437	100.0	100.0	

Table 9--Gender data of respondents. Source: Survey. Own creation.

Analysis of results: The description of the population is based on a defined number of people who participated in the survey. They were taken as a reference for the research and data collection. The table presents the number of respondents and their gender as a total of the universe.

Age				Cumulative
	Frequency	Percent	Percent Valid	Percent
Under 30 years old	52	11.9	11.9	11.9
Between 31 and 40 years old	81	18.5	18.5	30.4
Between 41 and 50 years old	142	32.5	32.5	62.9
Between 51 and 60 years old	85	19.5	19.5	82.4
Over 61 years old	77	17.6	17.6	100.0
Total	437	100.0	100.0	

Table 10-Data on the age of respondents. Source: Survey. Own creation.

Analysis of results: The description of the population is based on a defined number of people who participated in the survey. They were taken as a reference for the

research and data collection. The age ranges of the participants and their total as the sample universe are presented in the table.

Educational Level				
	Frequency	Percent	Percent Valid	Cumulative Percent
High School	89	20.4	20.4	20.4
Baccalaureate	202	46.2	46.2	66.6
Master's Degree	111	25.4	25.4	92.0
PhD	35	8.0	8.0	100.0
Total	437	100.0	100.0	

Table 11- Data on educational level of respondents. Source: Survey. Own creation.

Analysis of results: The description of the population is based on a defined number of people who participated in the survey. They were taken as a reference for the research and data collection. The table presents the different levels of education of each of the survey participants and their total as the sample universe.

Marital Status				
	Frequency	Percent	Percent Valid	Cumulative Percent
Single	152	34.8	34.8	34.8
Married	223	51.0	51.0	85.8
Divorced	57	13.0	13.0	98.9
Widowed	5	1.1	1.1	100.0
Total	437	100.0	100.0	

Table 12- Data on marital status of respondents. Source: Survey. Own creation.

Analysis of results: The description of the population is based on a defined number of people who participated in the survey. They were taken as a reference for the research and data collection. The table presents the marital status of each of the survey participants and their total as the sample universe.

Employment Status				Cumulative
	Frequency	Percent	Percent Valid	Percent
Self-employed	47	10.8	10.8	10.8
Full-time job	241	55.1	55.1	65.9
Part-time work	22	5.0	5.0	70.9
Unemployed	32	7.3	7.3	78.3
Student	23	5.3	5.3	83.5
Withdrawn	63	14.4	14.4	97.9
Student and working	9	2.1	2.1	100.0
Total	437	100.0	100.0	

Table 13-Data on the employment status of respondents. Source: Survey. Own creation.

Analysis of results: The description of the population is based on a defined number of people who participated in the survey. They were taken as a reference for the research and data collection. The table shows the employment status of each respondent at the time of answering the survey.

Contingency tables and Chi-square tests

Cross Tabulation				
		Wanting tourists to visit your community.		
		No	Yes	Total
Be proud to belong to this community.	No	4	8	12
	Yes	5	420	425
Total		9	428	437

Table 14- Cross tabulation about respondents being proud to belong to their community and those who want tourists to visit their community. Source: Survey: Own creation.

Analysis of the results of the Cross Tabulation: In all cases we will consider a level of certainty of 90%. Cross Tabulation was performed between the respondent's perception of "being proud to belong to this community" and "wanting tourists to visit their community". We can see that the majority of respondents are proud to belong to their community and want tourists to visit their community.

Chi-Square Test					
	Value	From	Asymptotic significance (2-sided)	Exact Sig (2- sided)	Exact Sig (1- side)
Pearson's Chi-square	59.829	1	.000		
Continuity correction	44.949	1	.000		
Probability index	18.058	1	.000		
Fisher's exact test				.000	.000
Linear by linear association	59.692	1	.000		
N of valid cases	437				

Table 15-Chi-Square test of cross-tabulation between respondent's perception of "being proud to belong to this community" and "wanting tourists to visit their community". Source: Survey. Own creation.

Analysis of the Chi-Square Test results: We see in the Chi-Square tests that there is a significant association between the variables, because the p-values (marked in red) are less than 0.1.

		(Cross Tabulation		
		Be proud to belong to this community		
		No	Yes	Total
Nationality	Puerto Rican	11	379	390
	American	1	27	28
	Another	0	8	8
	Puerto Rican and American	0	9	9
	No response	0	2	2
Total		12	425	437

Table 16- Cross tabulation between respondent's "Nationality" and perception of "Being proud to belong to this community".
Source: Survey. Own creation.

Analysis of the results of the Cross Tabulation: The Cross Tabulation was carried out between the "Nationality" of the respondent and the perception of "Being proud to belong to this community". We can observe that the majority of the respondents affirming the cross-tabulation are Puerto Rican.

Chi-Square Test			
	Value	From	Asymptotic significance (2-sided)
Pearson's Chi-square	.616	4	.961
Probability index	1.131	4	.889
Linear by linear association	.322	1	.570
N of valid cases	437		

Table 17-Chi-Square test of the cross-tabulation between the respondent's "Nationality" and the perception of "Being proud to belong to this community". Source: Survey. Own creation.

Analysis of the Chi-Square Test results: We see in the Chi-Square tests that there is no significant association between the variables, because the p-values are more than 0.1.

		Cross Tabulation		
		Wildlife preservation is essential for tourism.		
		No	Yes	Total
Age	Under 30 years old	1	51	52
	Between 31 and 40 years old	3	78	81
	Between 41 and 50 years old	4	138	142
	Between 51 and 60 years old	4	81	85
	Over 61 years old	1	76	77
Total		13	424	437

Table 18- Cross tabulation between respondents' age and wildlife preservation is essential for tourism. Source: Survey. Own creation.

Analysis of the results of the Cross Tabulation: The Cross Tabulation was carried out between the respondents, "Age" and perception of "Wildlife preservation is essential for tourism". In the same we can observe that for the respondents who are between the ages of 41 and 50 years old consider that wildlife preservation is essential for tourism.

Chi-Square Test			
	Value	From	Asymptotic significance (2- sided)
Pearson's Chi-square	1.993 ^a	4	.737
Probability index	2.077	4	.722
Linear by linear association	.019	1	.891
N of valid cases	437		

Table 19-Chi-Square test of cross-tabulation between "Age" and perception on, "Wildlife preservation is essential for tourism". Source: Survey. Own creation.

Analysis of the Chi-Square Test results: We see in the Chi-Square tests that there is no significant association between the variables, because the p-values are more than 0.1.

Cross Tabulation				
Cultural preservation and historical sites important to tourism				
		No	Yes	Total
School Level	High School	1	88	89
	Baccalaureate	0	202	202
	Master's Degree	2	109	111
	PhD	0	35	35
Total		3	434	437

Table 20- Cross tabulation between respondents' school level and cultural preservation and historical sites important for tourism. Source: Survey. Own creation.

Analysis of the results of the Cross Tabulation: The Cross Tabulation was carried out among the respondents, "School Level" and perception of "Cultural preservation and historical sites important for tourism". In the same we can observe that for the respondents with Bachillerato they consider the preservation of cultural preservation and historical sites important for tourism.

Chi-Square Test			
	Value	df	Asymptotic significance (2-sided)
Pearson's Chi-square	3.913 ^a	3	.271
Probability index	4.872	3	.181
Linear by linear association	.062	1	.803
N of valid cases	437		

Table 21-Chi-Square test of the quadratic tabulation between "School Level" and perception on, "Cultural preservation and historical sites important for tourism". Source: Survey. Own creation.

Analysis of the Chi-Square Test results: We see in the Chi-Square tests that there is no significant association between the variables, because the p-values are more than 0.1.

CHAPTER V

Conclusion and Recommendations

Conclusion

The research affirms that community-based tourism leads to the sustainable economic development of the communities. We can defend, according to the theoretical study and the results of the field work, that community tourism is an ideal tool for the municipality under study. Certainly, community tourism in Cataño will make it possible to rescue the existing infrastructures that have been identified as possible elements to be included in the tourist experience, develop the gastronomic offer that serves to satisfy the needs of the local and international tourists and the culinary tourist, and display the wildlife and natural resources in the natural environment of the area. We cannot forget the human and social aspect, unique to the community, since in this type of tourism development community and collective participation is a critical element in the management, planning, promotion, and marketing of tourist attractions. A relevant factor for a sustainable economy in this type of tourism are the strategic alliances in which important links are articulated in favor of the community. These strategic alliances are formed by the government, private enterprise, non-profit organizations, academia and the community. The support of the academy is necessary, since the community needs to be trained to be formed in the allusive areas of the destination, the tourist offerings, the needs of the tourist for the training of the diverse areas of development of the tourist experience. In addition, the academy offers accompaniment and training advice. All the important actors united to reach a sustainable development that will serve as an essential instrument in the decrease in poverty, the increase in the economy of the region and in the offering of better opportunities of life for the residents of the studied municipality.

This type of tourism activity allows not only the development of the community, but also its economic development. It also generates a sense of community ownership and belonging. The sense of belonging and community empowerment are fundamental factors in these processes, as they result in the protection, appreciation and care of the cultural and historical elements and natural resources of the destination, achieving a healthy, sustainable community with an extraordinary tourism experience for this and future generations.

However, it is important to emphasize that during field visits, significant progress has been observed in cleaning, painting, signs and other attractions that are favorable for local tourists. Undoubtedly, after reviewing and comparing studies from other countries, cities and communities, the strategies developed and recommended in this research, as well as the thorough and comparative reading of the research, confirm that the proposed strategies will provide a favorable result and an important advance for the promotion of community tourism in the municipality of Cataño.

The results are evidence that the development of community tourism is fundamental for the economic development of the area, that the inhabitants want their community to be visited and that they feel proud to belong. This is a key element to continue building a sense of belonging and community empowerment. On the other hand, the natural resources of the area are considered a tourist attraction with great development potential for the tourist experience. With all the important elements in place and maintained as recommended, new life opportunities will arise for the inhabitants. In addition, according to the analysis carried out during the research process, it is confirmed that the municipality of Cataño has all the necessary conditions for the community tourism activity. Its cultural, historical and natural attractions are latent throughout the area. The community tourism activity will contribute to

the conservation, preservation and sustainable management of the existing attractions and the development of those that are in deterioration.

Referring to one of the main objects of our interest, the relationship between community-based tourism and educational tourism, their close relationship is also demonstrated. Tourism education is an important element of the travel and hospitality industry, providing future professionals with the knowledge, skills, abilities and attitudes to perform a variety of roles in the highly dynamic and constantly evolving tourism industry. By understanding the different roles, regulations and standards, marketing principles and customer service strategies, students are authentically trained to effectively meet the challenges and opportunities of a rapidly changing global marketplace.

Extended to society as a whole, through educational tourism, travel training can be a powerful tool with which to develop people's communication skills and foster their appreciation of different cultures. It can help them become more open-minded, independent and socially aware, contributing to the development of fundamental skills and knowledge to better cope in the contemporary world. In general, the proper integration of tourism into educational curricula is crucial to prepare not only future professionals, but the entire population. Travel is an activity in full growth and must be known for its best practice.

In all the areas and models related to tourism and education, community-based tourism is significant and training in this specialty, which will be increasingly relevant in the future, should be urgently required. It can become a valuable tool to help improve the economy and quality of life of local communities, especially in poor and developing areas. Tourism in this field must be approached in a responsible and sustainable manner, which requires rigorous preparation and planning that can only be achieved through training plans.

It is therefore essential today to train future and current tourism professionals, through initial and continuing education, in the knowledge of community-based tourism. Providing students with a comprehensive understanding of its characteristics and the skills necessary for its management can be a determining factor in their success. Educational institutions should play an essential role in the training of competent professionals capable of facing current challenges. In the field of community-based tourism, emphasis should be placed on the training necessary to understand the impact of tourism on local communities and the environment, which, as indicated in another work (Gómez-Galán et al. 2021), environmental protection has become, especially in recent decades, a relevant issue of concern to people and is very present in European and international political agendas, and to develop and implement sustainable tourism practices. It will be to the benefit of all, professionals, tourists and local communities.

After the above, it is important to point out that the general and specific objectives of this research were fully met. The general objectives were "To analyze the infrastructure that supports community tourism development in the Municipality of Cataño, Puerto Rico, after Hurricane Maria." and "To establish development strategies that facilitate community tourism." For both objectives, a diverse analysis and countless field visits were made to identify structures that could serve as an attraction and support for the development of community tourism activity in Cataño. In addition, the fulfillment of both objectives is demonstrated in depth around Recommendations of this research with concrete development strategies and with relevance to the case under study.

The specific objectives of the research were: "To evaluate the cultural, patrimonial and natural potential of the Municipality of Cataño that facilitates or promotes community tourism activities", "To evaluate the possible typologies of tourism development and its The following recommendations were also completed in their entirety and evidence of compliance is shown throughout the research and in the area of Recommendations.

Recommendations

It is recommended that community tourism development strategies for Cataño include the following:

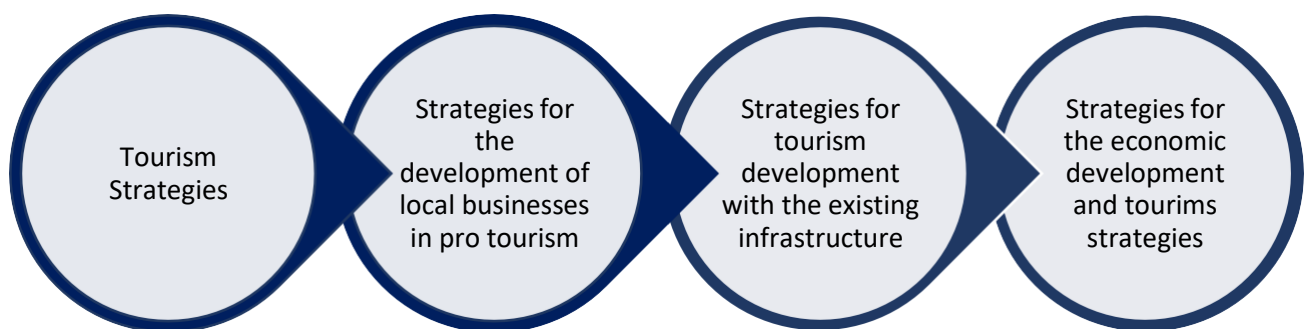


Figure 11- Strategies for community-based tourism development in Cataño, Puerto Rico. Source: Own creation.

After conducting the research and learning about the social, ecological, economic, cultural and tourism aspects of the municipality of Cataño, it is recommended that the following community tourism strategies be developed:

Tourism Strategies

1. Promotion strategies: the promotion strategies of the tourist offer should be one of the main objectives for the Municipality. This objective can be achieved with an informative communication campaign that generates a sense of belonging to the place. The promotion strategies of the digital era generate immediate presence in the world. The development of a website, mobile applications and having a presence in social networks leads to a promotion and presence without limits and in turn reaching borders with those who have the tool at hand. The development of these promotional tools positions Cataño as a competitive city, according to Yeyas (2016). On the other hand, it will generate a sustainable destination with innovative tourism initiatives as argued by Castillo et al.
2. Collaborative agreement with the Puerto Rico Tourism Company (PRTC): A collaborative agreement with the Puerto Rico Tourism Company, a public corporation of the Commonwealth of Puerto Rico and responsible for stimulating, promoting and regulating the development of the tourism industry on the island, would position Cataño with high visibility in all areas where the PRTC is providing greater global tourism outreach and growth opportunities as indicated by the PRTC (2020).
3. Creation of the Tourism Office in the Municipality of Cataño: It is important to create the Tourism Office in the Municipality, since it oversees all tourism developments in the municipality so that they comply with the laws and rules. Established and developed harmonizing with community tourism and community sustainability. In addition to providing information to local tourists and international tourists to facilitate their visit and to make them consider the destination on another occasion, reducing negative experiences that influence the

image of the tourist destination. This office should be the contact for all tourist services, security, schedules, attractions to visit, restaurants, transportation, routes, events and activities of interest and relevant to the tourist. Ponce (2018), mentions that having a tourist office is a necessary service for the destination, since it positions it in the mind of the consumer tourist depending on the tourist offers it provides. It is recommended that it be located at a point that is accessible to tourists and adequately visualized.

4. Develop strategic alliances: As defined by Ruiz-Lopera (2018), a strategic alliance is a collaborative form between companies that serves as a tool to obtain resources that help or facilitate processes, developments, sustainability, including survival in the market. These strategic collaborations cause a development of competitive advantages and, in many occasions, innovative projects that generate and innovations that translate into better economic results. It is recommended that strategic alliances be developed to develop innovative projects in the municipality with the main objective of improving its economy by generating better offerings for the community and local and international tourists.
5. Develop a mobile application: Camargo et al., (2019), the mobile application for the tourist destination provides a more dynamic experience with the use of this innovative technological tool. For them, it is necessary to value the historical attractiveness and the municipality to implement the mobile application. With the mobile application, it is possible to increase the impact of the places in the memory of visitors and strengthen tourism. With a mobile application that is interactive, easy to use and with relevant information is considered an added value and an attraction in the destination. In addition, it will help local and international tourists to learn about the important

elements of tourism in Cataño and will serve as a guide to make their visit an innovative one using technology.

6. Developing the tourism experience: The tourism experience is composed of several elements. The diagram shows the elements that make up this experience.

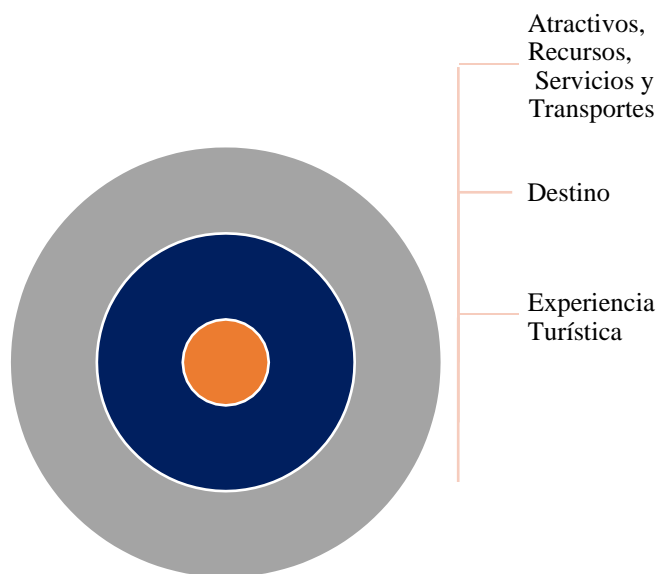


Figure 12-Diagram of the elements that make up the tourist experience. Source: Own creation based on Rodríguez-Zulaica, A. (2017).

To develop it, Cataño is visualized as the destination and the research indicates that the attractions, natural and human resources, services, and transportation for the tourist experience are present in the destination. The tourist experience will value the destination, for this, it is important to decide what type of tourist you want to reach with this in mind, you can identify and respond to the demands of tourists.

7. Develop marketing tools: The marketing tools to be developed should be initiated by understanding the physical, cultural, social, prestige and specific behavior and motivations of the tourist, Ramos (2017). It should be noted that it is important to

incorporate the destination in the development of these tools, as well as the specific characteristics that tourists' purchases have. These are:

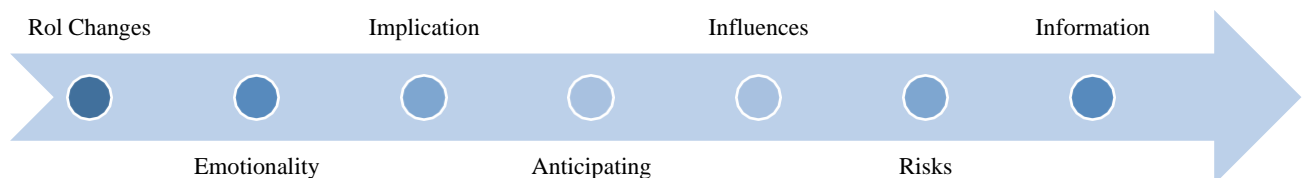


Figure 13- Specific characteristics of tourists' purchases. Source: Own creation based on Ramos (2017).

Based on Fernandez (2017), marketing tools will be used to identify, stimulate and develop the supply, to meet the needs, desires and demand of local and international tourists.

8. Develop cultural and gastronomic activities, among others. It is recommended the development of cultural and gastronomic activities that allow the knowledge and promotion of culture and local economic development as stated by the author Bate (2019). Cultural tourism, according to UNESCO and as mentioned by Bate (2019), is an innovative concept that seeks to promote understanding and respect for cultural and natural heritage in travel exchanges. For this reason, it is important to make known the culture and history in the dimension of social activities with cultural and

gastronomic base that are developed in favor of cultural identity and the promotion of economic development in the area.

9. Design and plan a community tourism education program for Cataño, which should develop the promotion of sustainable and responsible tourism, the preservation of local culture and heritage, the training of the community in tourism and business skills, the improvement of the community's quality of life through tourism, and the promotion of active participation and collaboration between the community and tourists. These objectives could vary depending on the focus and specific needs of each moment, and should be adapted according to social requirements. In any case, it should be a tool to promote environmental and cultural education, as well as to improve the quality of life of local communities. It is essential to provide visitors with an authentic and enriching experience, to enable them to interact with members of the local community and, above all, to offer them experiential learning about the history, culture and environment of the municipality.

Development strategies for local businesses supporting tourism

1. Business
 - a. Currently, in the municipality of Cataño there is no integration between businesses, artisans, the city and the tourism offer. It is recommended that commercial strategies be redefined to achieve insertion in the value chain of the local commercial and tourist offer, as established by the authors Mateos et al. (2019). It is important to incorporate new market trends and new business models. In these new models, the main option is centered on the different

types of tourism, since they are the primary drivers of the global economy as indicated by Andrade et al., (2019).

- b. Using tourism as an economic engine, the area will obtain significant income and sustainable economic development. Some of the business recommendations are: stores that meet the needs of tourists, local handicrafts, among others.

2. Gastronomy

- a. Restaurants are a tool for the healthy development of community tourism, since gastronomy is part of the tourist experience. The community tourist seeks to experience the local flavors of the environment they visit, making it part of their tour. This experience is part of the cultural narrative, Van (2019) and the development of a diversity of gastronomic offerings that appeal to the needs and desires of the tourist is recommended.
- b. For culinary tourists, traditional gastronomy, composed of culinary recipes characteristic of the region and that are transmitted from generation to generation, is part of what is desired, in turn contributes to the tourist experience of the destination. It is recommended, to develop day and night activities with traditional dishes that affirm the gastronomic offer, Rojas et al., (2018). According to Reyes (2017), sharing a culinary tradition in local territories allows development favoring the competitiveness of the area based on tourism.

3. Education

- a. The development of businesses, at the university level, academies or art and museum centers, based on education for culture, art and knowledge, could

include the creation of educational programs supporting tourism that promote the comprehensive training of students in these areas, either through the inclusion of artistic and cultural subjects in the curricular content or through the implementation of extracurricular courses.

- b. On the other hand, it could include the organization of workshops, events and cultural and artistic activities for the community, with the objective of fostering appreciation and knowledge of these areas. The virtualization of practical arts and culture education would improve access to these educational programs. It is important that these businesses have a team of trained professionals specialized in these areas, as well as adequate pedagogical, operational and economic planning to ensure their success and sustainability.
- c. Official institutions should encourage creativity and innovation in the community in this area by organizing cultural and artistic events, offering consulting services for cultural and artistic projects, creating an online platform to share educational resources on art and culture, and offering graphic and web design services for artists and cultural organizations.

Tourism development strategies with existing infrastructure

The Figure shows the inventory of historical and cultural infrastructure available for inclusion in the tourism offerings of the municipality of Cataño.

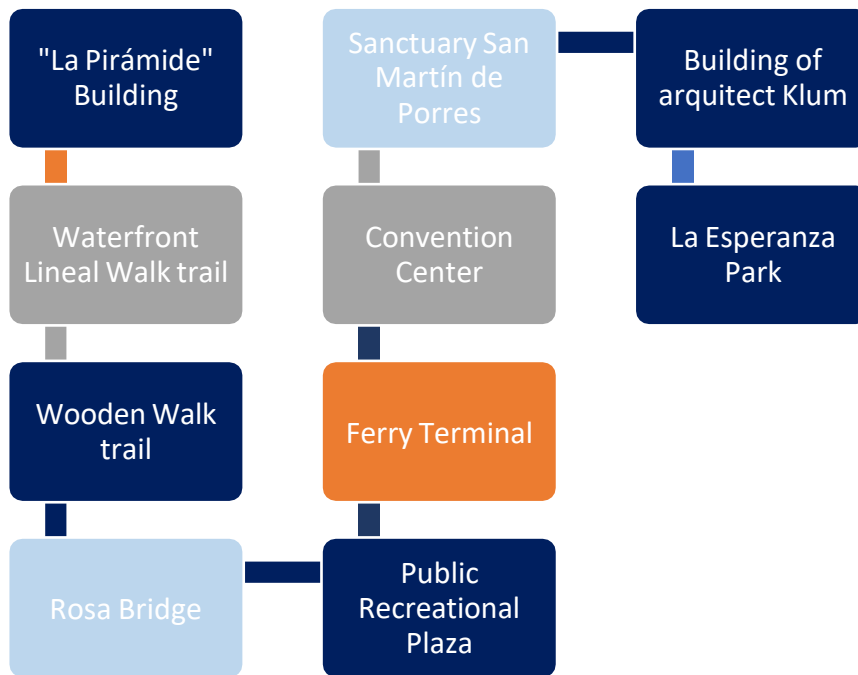


Figure 14-Inventory of historical and cultural infrastructures available to be included in the tourist offerings of the Municipality of Cataño. Source: Field visits to the Municipality of Cataño. Own creation.

Strategies for economic development and tourism offerings

The following alternatives are recommendations as possible developments to be included in the Cataño tourism experience:

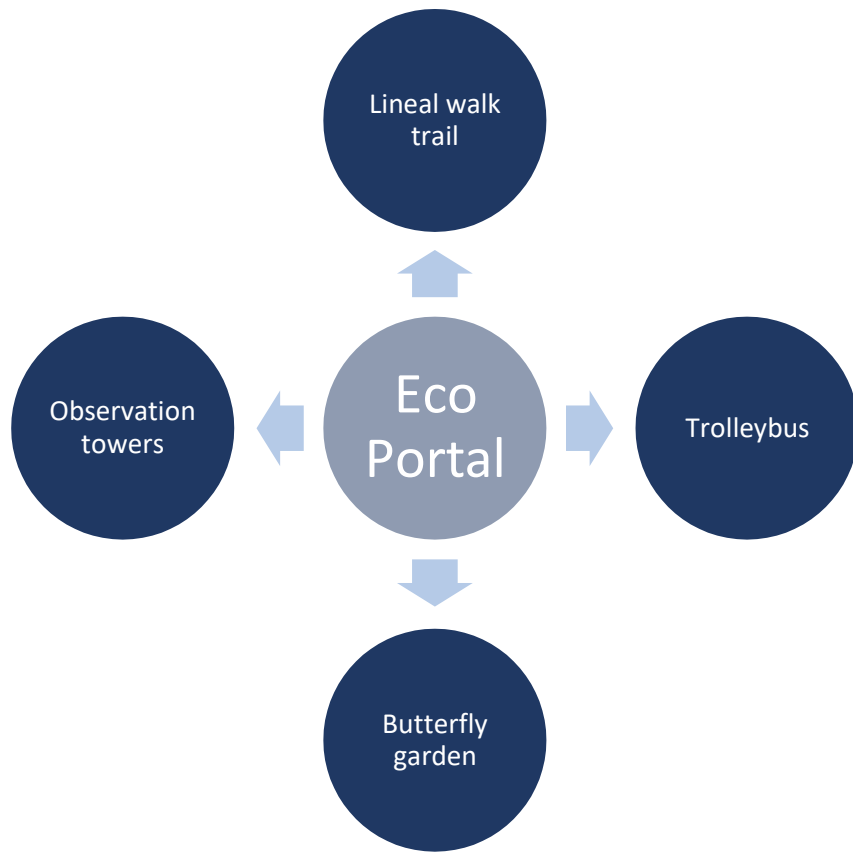


Figure 15- Recommendations as possible developments to be included in the Cataño tourism experience. Source: Own creation.

Other recommendations to be included as part of community economic development and inclusion in the tourism offerings are:

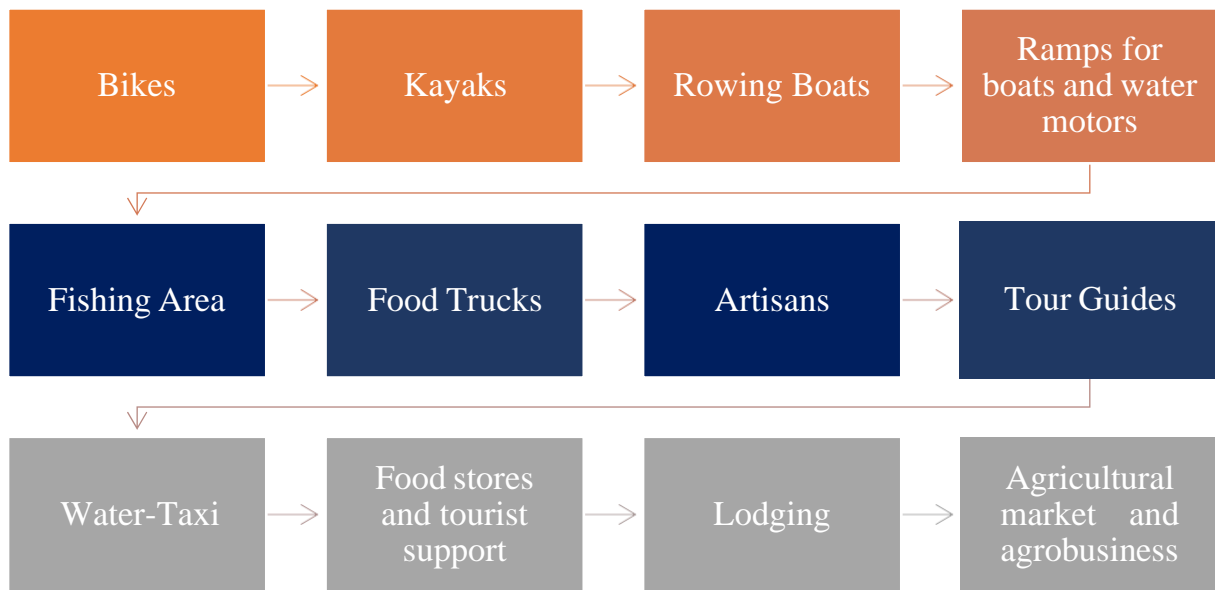


Figure 16-Recommendations to be included as part of community economic development and inclusion in the tourism offer.
Source: Own creation.

The recommended tourism development strategies for the Municipality of Cataño will provide:

1. Increase and improve the potential of Cataño's waterfront to expand economic development related to local and international tourism activities as an economic recovery strategy.
2. Diversify and stimulate a segment of the local economy (restaurants, handicrafts, galleries, concessionaires related to ecotourism activities, among others).
3. Create a space to stimulate local arts and community enterprises, and;
4. Promote visitation and preservation of a unique coastal nature reserve, as Cataño is home to the Marisma Las Cucharillas Nature Reserve, with 1,253 acres of protected land.

The participation of the different actors of the municipality of Cataño consists of:

1. A collaborative partnership network with stakeholders that will include the Bacardi Corporation, the Museum of Contemporary Art of PR, the International School of Architecture and Engineering of UAGM-Gurabo Campus, the PR Tourism Company, the Port Authority of Puerto Rico, and three local community-based organizations: Junta de Residentes Parcelas William Fuertes, Comité Organizado de Líderes Comunidad de Cucharillas, and Comunidades Unidas Contra la Contaminación (CUCCo).
2. The Cataño Planning Office will maintain inventories of historical, cultural and environmental assets in the municipality, as well as needs assessments according to tourists in Old San Juan and those visiting the Bacardi facility in Cataño.

The development of sustainable tourism strategies for the coastal area of Cataño seeks to establish economic resilience initiatives sensitive to the current situation in Cataño. Before two hurricanes hit in 2017, economic indicators were pointing to a recession. Hurricane Irma and Maria and their subsequent devastation aggravated the situation. These strategies seek to develop tourism as a viable economic activity in the municipality and increase economic development. This will help the municipality to recover of the devastation caused by Hurricane Maria and the establishment of infrastructure, follow the recommended strategies plan and activities that can generate economic development in the short and long term. The proposed strategies and activities are directly related to promoting community-based tourism. The development of this concept will allow subsequent activities to catalyze tourism on the Cataño waterfront while developing an economic base for the town. Cataño was devastated

by the impact of Hurricane Maria and its 150+ mph winds, subsequent storm surge and massive flooding that affected 80% of the municipality, leaving 60% of the population temporarily housed in local shelters. In October 2017, damages to municipal infrastructure were preliminarily estimated at \$6,754,354 and in February 2018, the municipality reported 7,720 damaged housing units to the U.S. Federal Government. According to the Puerto Rico Planning Board (2018), Hurricanes Irma and Maria have caused an impact of more than \$19M in the municipality of Cataño, in the loss of public and private infrastructure, loss of income due to the drop in economic activity due to the lack of an electrical system, as well as expenses related to the rehabilitation of operational infrastructure and assistance to families.

The island's economic situation, due to the lack of access to the investment capital market, and the extreme weather events of Irma and María, have exposed the need to diversify the economic development of the municipalities, and not depend on a single economic activity in order to recover effectively after these events. For decades, Cataño has based its economy on the industrial activity generated in the municipality. Because of its proximity to the main cargo port and tourist activity of the island, Cataño was the strategic area to locate one of the two poles of major industrial activity in Puerto Rico, dedicated to the distribution and storage of food, clothing, medicines, automobiles and miscellaneous, among others. According to the municipality's finance reports (2010-2017), this activity generates 80% of municipal revenues as inventory tax. In fact, the majority of jobs in Cataño's industrial sector come from the following: transportation and warehouse (2,344); wholesale trade (1,749) and manufacturing (814). As a result of the 2017 hurricanes, Cataño experienced a 25% decline in its economy. In addition, new proposed tax changes on the island now put 80% of municipal revenues at risk. The slow economic recovery of the municipality, as well as the changes proposed by the state government in patents and special

taxes, in order to have a better inventory of items before and during events such as these, make it necessary to evaluate other sources of income for the municipality to diversify its sources and maintain a healthy and resilient economy. The Municipality's proximity to the main tourist port, where more than 1,401,866 tourists arrive annually on cruise ships, and the connection with the historic center (Old San Juan) of the Island through a 5-minute ferry ride; the remodeling of the boardwalk, which serves as a walkway and area for the development of socio-cultural activities; the location in the municipality of one of the most visited destinations in Puerto Rico, the Bacardi rum distillery, which receives more than 120,000 tourists a year; and the Bacardi Reserve, which is located in the municipality. Natural Ciénaga las Cucharillas, which is part of the San Juan Bay Estuarine Reserve, the only tropical estuarine system under the EPA's National Estuary Program, are key elements for a potential economy derived from tourism activities in the municipality. In fact, tourists visiting Bacardi facilities do not engage with the local economy outside of Bacardi. This is due to the lack of a strategic plan for the Cataño waterfront, inadequate infrastructure, and local attractions that could create the synergy to promote tourism and the subsequent economic development of the area. The same is true for tourists coming to Old San Juan.

Despite the capital investment (\$ 27M) made in 1999, for the improvements of the Cataño boardwalk, in order to activate the economy through local and international tourism, this economic activity has not been able to be boosted due to the lack of a concerted plan among the stakeholders , in which a short, medium and long term vision is established, and which delimits the necessary actions to be able to concretize the economic activity, taking advantage of the existing tourism potential in a sustainable and resilient manner. Capital investments (\$5M) to improve the infrastructure of Cataño's promenade, as well as the development of socio-cultural activities in the area, in late 2017 and early 2018, have resulted

in a 3% increase in commercial activity. activity in the urban core and have generated a 7% increase in municipal sales and use tax revenue. These changes could continue to increase, if a strategic plan for sustainable tourism is established in which community groups and relevant agencies can concretize an action plan that promotes tourism activities sustainable development on the Cataño waterfront as an opportunity to diversify municipal economic activity.

To develop the strategies, it is recommended that a network of strategic alliances and interested organizations be established. The following are recommended:

1. The Mayor's Office of Cataño and the Office of Planning and Economic Development: working group, appointed by the mayor, to achieve the project's objectives. They have the role of acquiring information about the needs, the infrastructure inventory, property title, public open space, maps, plans, socio-economic data, commercial activity inventory, and state and municipal regulations.
2. Community organizations Junta de Residentes Parcelas William Fuertes (JRPWF), Comité Organizado de Líderes Comunidad de Cucharillas (COLCC) and Comunidades Unidas Contra la Contaminación (CUCCo), will serve as spokespersons for their communities in identifying their needs. They will propose community economic development activities that can be part of the local economy of the Cataño waterfront.
3. Museo de Arte Contemporáneo de Puerto Rico (MAC) - is a non-profit institution founded by artists and benefactors of civil society, whose vision is to promote multidisciplinary experiences open to all expressions of

contemporary art and culture. The community outreach programs implemented by the MAC provide the citizen with tools to acquire and strengthen skills that help them become aware of their environment, strengthening their formative capacity and enriching their social, cultural and spiritual base. They have been proponents and we actively collaborate with initiatives that have been accepted by the State Government as part of its cultural tourism program. These include the ArteSanturce alliance, an initiative that works to make the Santurce sector the arts district for all of Puerto Rico, and the recently designated Sacred Heart Historic Zone in Santurce, to through which the architectural and historical value of the area is recognized and promoted as part of the island's tourism offer.

4. Bacardi Corp, Visitor Center- is the largest rum distillery in Puerto Rico and receives more than 120,000 tourists annually. It is the most popular place for international tourists arriving on cruise ships in San Juan Bay or at the international airport. Their participation will be important to identify their needs, to make the experience more attractive for local and international tourists entering their facilities. They will also assist in identifying infrastructure needs, commercial activities and other amenities that can facilitate the tourist's transportation from the Old San Juan Ferry to the Bacardi facilities through the Cataño promenade.
5. Port Authority of Puerto Rico- is the state entity responsible for maritime transportation connecting Old San Juan with Cataño. They will have an important role: to evaluate, design strategies and act to improve the use of the ferry. They will also identify needs and opportunities to improve its facilities.

6. Puerto Rico Tourism Company, is the state agency responsible for coordinating and implementing the strategy to improve local and international tourism activities on the Island. Its role will be to address the Agency's initiatives, increasing the tourism experience of tourists visiting Old San Juan and San Juan Bay.

The development of these strategies for the coastal area of Cataño seeks to establish an economic resilience initiative that is sensitive to the current situation in Cataño. Before the two hurricanes hit last year, economic indicators pointed to a recession, also observed in other areas of the island. Hurricane Maria and its subsequent devastation exacerbated the situation. This responsive economic resilience initiative seeks to integrate the community in the planning and all subsequent steps to develop tourism as a viable economic activity in the municipality. This project will establish responsive initiatives that will guide future projects in the municipality and increase its resilience; a board that will maintain a communication network between key project stakeholders; renovations and development of structures that respond to the reality of waterfront projects (e.g., "kiosks" that can be stored and utilize solar energy); and the development of a long-term plan for the area that examines short, intermediate and long term will help the municipality recover from the devastation caused by Hurricane Maria in the area. The proposed timeline is as follows:

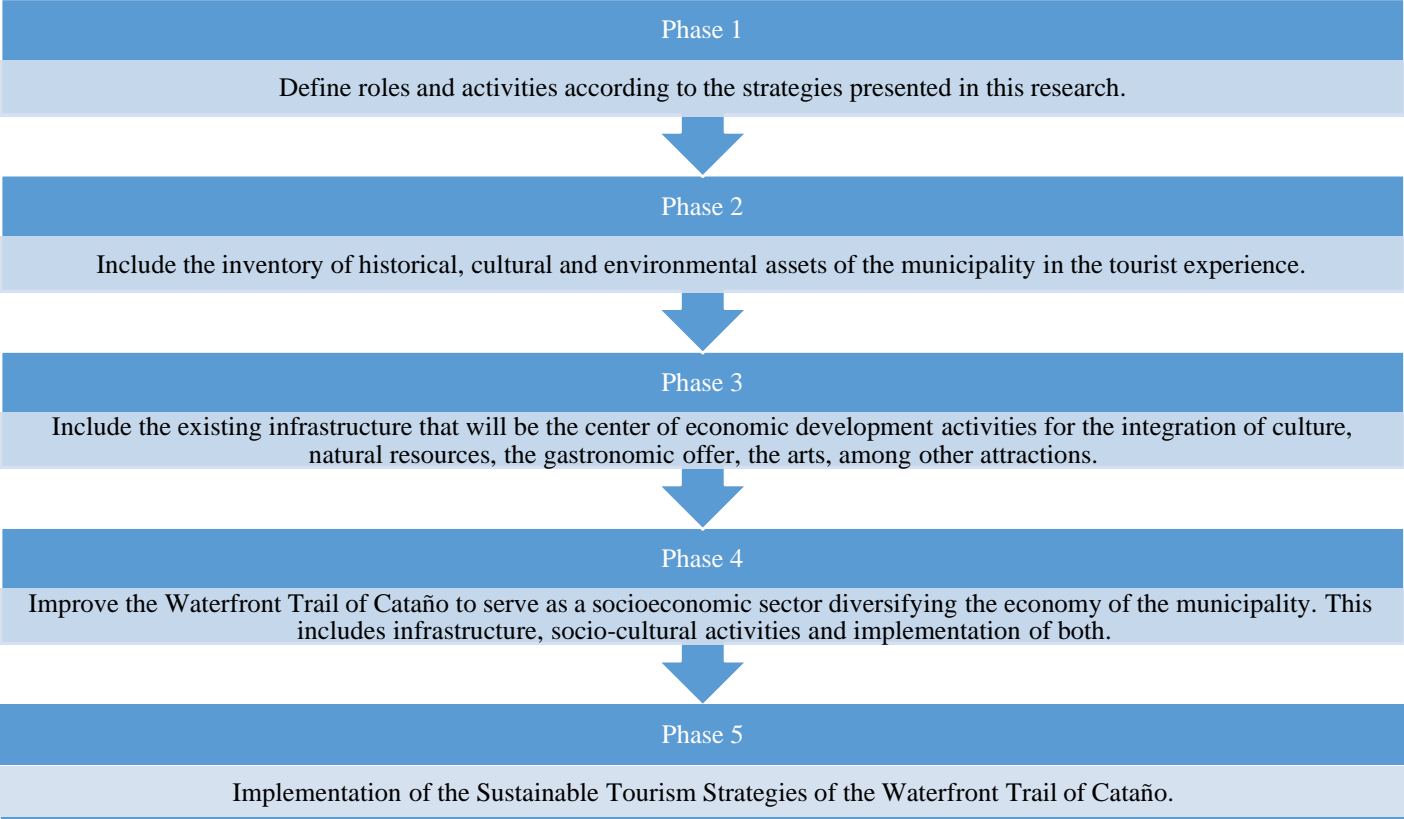


Figure 17-Proposed timeline for the implementation of the proposed strategies. Source: Own creation.

The implementation of the Sustainable Tourism strategies of the Cataño Boardwalk will help generate new employment opportunities in Cataño and surrounding municipalities. Figure 17 shows the Eco-Portal: Natural Landscape Sensory Park. This initiative is expected to help create 500 to 800 direct and indirect jobs through the creation of restaurants, bars, galleries, lodging, and tourism-related activities. Similar projects developed in non-depressed economic areas help improve the economy and diversify employment opportunities in other areas. One example is the transformation of Sausalito in California, which in the 1970s was an underdeveloped, highly industrialized area with a limited economy. Since then, through a socio-economic development plan taking advantage of its location

The area has undergone a social and economic transformation that has turned it into one of the most important tourist destinations in the area. This process favored the development of thousands of direct and indirect jobs, through the development of art galleries, restaurants, cafeterias, concessions and other tourism-related businesses. This plan will have a regional economic impact at the tourism level, as it expands the tourism offerings that can be offered to international and local visitors who visit the San Juan metropolitan area. The implementation of the plan, as well as the development of businesses derived from this tourism activity, will benefit the region's economy.

Eco Portal: Parque Sensorial del Paisaje Natural



Figure 18-Eco-Portal: Sensory Park of the Natural Landscape. Source: Abruna & Musgrave Architects (2017).

As part of the development of the Cataño waterfront between the La Pirámide building and the Bacardí Distillery, it is recommended to stop a series of tourism offerings for the local and international tourist community. The activities are with the purpose of creating a waterfront for passive recreation and at the same time activities that promote the economic development of the communities of Cataño. The facilities will be equipped with a pavilion with paid public restrooms to ensure hygiene and cleanliness and a maintenance and gardening building, as shown in Figure 17. The areas will be illuminated with solar posts and bollards that will not pollute the dark skies. Site security will be provided by a sculptural breakwater and a camera system with 24-hour remote monitoring, municipal patrols, and a corps of volunteer guards selected by the community.

1. Outdoor Amphitheater with Moon Screen
2. Area for lifting chiringas
3. Drone rental and flying area
4. Observatory of the Moon and Stars
5. Acoustic pedestals to hear the sea
6. Low speed recreational cycling
7. Circuit with several exercise stations
8. Meditation Mandala
9. Traffic circles for walkways
10. Rainwater station to address emergencies and droughts
11. Solar recharging station for cell phones during emergencies and power outages
12. Pet recreation area (dogs and cats)
13. Observation Tower in the Wetland area

14. Night light lighthouse to mark the coastline in counterpoint with the Morro lighthouse.
15. Community Garden by and for the schools and neighbors of the sector.
16. Boardwalk for walks on the wetland
17. Hammock bridge between the East (Bacardi) and West (Pyramid) sectors.
18. Funnel of breezes for the operation of melodic bells
19. Food Truck Park, Farmers' Market and Crafts Market
20. Micro-algae farm for biofuel production; revenues will help sustain project
21. Dock for a bay walker and/or Kayak rentals

Strategies for the training of community and local tourism professionals.

Finally, and for us the most important and innovative thing that should be done for the development of community tourism in Cataño, would be the training of tourism professionals in the municipality. In the general context of tourism education, it would seek to provide knowledge of the basics of the industry, as well as the skills and knowledge necessary to succeed in various functions.

A specific curriculum could be developed, based on the assessment of tourism industry needs and created by local educational institutions. This curriculum should include a wide range of topics, such as the history of tourism, the development and evolution of tourism needs, the current situation, skills for market analysis and for effective communication with a wide range of stakeholders. In addition, it should provide practical experience. Working in the community setting offers students the opportunity to gain a deeper understanding of the local industry, as well as develop the networks and connections that are critical to tourism education today.

The ideal would be to implement strategies that involve both the tourism community and higher education institutions linked to the municipality through agreements. It is important that all training be based on a humanistic, critical and historical-cultural approach that trains professionals with integrity who contribute to the development of tourism and benefit both residents and visitors.

Limitations

The limitations of this study are primarily because it is a case study focused on a single municipality. While this approach allowed for a detailed examination of the specific context and factors in this particular location, it also means that the result may not be generalizable to other settings. Therefore, it would be valuable to conduct similar studies in other municipalities to establish comparisons and determine the extent to which the findings can be applied more broadly. Additionally, the sample size of this research was limited, which may have affected the representativeness of the results. Future research could aim to expand the sample size to increase the statistical power of the study and enhance the generalizability of the conclusion.

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APPENDIXES

Appendix 1- Respondent Questionnaire

"Strategies for the development of community-based tourism in the municipality of Cataño, Puerto Rico, after the passage of Hurricane Maria".

We are developing a study aimed at the development of community tourism in the municipality of Cataño in Puerto Rico, adapting it after the consequences of Hurricane Maria. This study has the purpose of knowing their opinion about the impact of community tourism in four (4) dimensions: socio-educational, ecological, economic, and tourism.

This analysis is intended to be a systematic process in order to obtain information for the improvement of tourism. The participation of the stakeholders for the development of community tourism in Cataño will be the respondents. The information obtained will be very useful for the process and will be reviewed to establish the ideal tourism activities for the municipality. These will be based on supply, demand and geographic space in order to develop diverse local tourism experiences and opportunities.

The participation of the respondents in the process is very important for the study, for this reason we request their collaboration by completing the questionnaire available in the attached link. The answers are anonymous, the reports will only contain aggregate data and in no case will the identity of the respondent be known.

Respondent Information

Genre:

Male Female Prefer not to answer

Age:

Less than 30 Between 31 and 40 Between 41 and 50 Between 51 and 60 Over 61

School Level:

High School Bachelor's Degree Master's Degree Ph.

Nationality:

Puerto Rican (a) American Other _____

Marital Status:

_____ Single _____ Married _____ Divorced _____ Widowed

Current Employment Situation:

Part-time employment Full-time employment Unemployed

Self-employed Self-employed Retired Student

Socio-Educational

1. Am I proud to belong to this community?
2. Am I interested in the preservation of your customs and traditions?
3. Do I want tourists to come to my community?
4. Will the presence of tourists change my way of life?
5. Is alcohol abuse a serious problem in my community?
6. Is lack of jobs a serious problem in the community?
7. Is migration a serious problem in the community?
8. Are property disputes common among residents?
9. Las Cucharillas marsh, La Mano lagoon and the resources of the
Are the natural resources in the community heavily polluted?

Environmental

1. Is wildlife preservation fundamental to tourism?

	<ol style="list-style-type: none"> 2. Are the preservation of Las Cucharillas marsh, La Mano lagoon and the natural resources of Cataño very important for tourism? 3. Is preserving cultural and historical sites very important for tourism? 4. Can tourism ensure that the municipality of Cataño's natural and cultural resources are rescued and developed in harmony with the environment?
Economic	<ol style="list-style-type: none"> 1. Is public safety going to improve when tourists come? 2. Will there be better public transportation if tourists come? 3. Will tourism generate more jobs for the local population? 4. Is tourism going to generate more local businesses and other trades? 5. Will tourism lead to agribusiness development in the community?
Tourist	<ol style="list-style-type: none"> 1. Will a tourism project benefit the community? 2. Is participating in tourism initiatives and projects convenient for the inhabitants of Cataño? 3. Would I like Cataño to be a tourist destination?

Appendix 2-Legend for Chi-Square and Cross Tabulation Tests

Legend			
Gender		Marital Status	
Man	1	Single	1
Woman	2	Married	2
I rather not say	3	Divorced	3
Age		Widower	
Under 30 years old	1	Current Employment Situation	
Between 31 and 40 years old	2	Self-employment	1
			2
Between 41 and 50 years old	3	Full-time employment	
Between 51 and 60 years old	4	Part-time employment	3
More than 61 years	5	Unemployed	4
Education		Student	
High School	1	Withdrawn	5
Baccalaureate	2	Student and working	6
Master	3		7
PhD	4	Responses	
Nationality		Yes	1
Puerto Rican	1	No	0
American	2		
Other	3		

Appendix 3-Promotional flyer of the survey for social media.



“Estrategias para el desarrollo de turismo comunitario en el municipio de Cataño, Puerto Rico: luego del paso del huracán María”

La Universidad está desarrollando un estudio dirigido al desarrollo de turismo comunitario en el Municipio de Cataño. Este estudio tiene el propósito de conocer su opinión acerca de la repercusión del turismo comunitario en cuatro (4) dimensiones

La participación de los encuestados en el proceso es muy importante para el estudio, por este motivo solicitamos su colaboración completando el cuestionario disponible en el enlace adjunto.

Enlace para participar de la encuesta: <https://forms.gle/R4CWSE1GBXzoY6uE6>

Para información: Olga A. Figueroa Miranda, Ph.D. (c)
Email: olgaafigueroa1979@gmail.com

Appendix 5- Photos of the Municipality of Cataño, Puerto Rico



Photo 1 -Public Square of the star, Cataño, Puerto Rico. Source: Own creation.



Photo 2 -Public Square, Cataño, Puerto Rico. Source: Own creation.



Photo 3- Public Square, Cataño, Puerto Rico. Source: Own creation.



Photo 4- Smallest house located in front the Public Square, Cataño, Puerto Rico. Source: Own creation.



Photo 5—Pink house located in front of the Public Square, Cataño, Puerto Rico. Source: Own creation.



Photo 6-Transportation terminal and Convention Center, Cataño, Puerto Rico. Source: Own creation.



Photo 7-Kiosks, Cataño, Puerto Rico. Source: Own creation.



Photo 8- Gazebos in the waterfront trail, Cataño, Puerto Rico. Source: Own creation.



Photo 9-Restaurant “El Bembe”, Cataño, Puerto Rico. Source: Own creation.



Photo 10-Restaurant “Don Tello”, Cataño, Puerto Rico. Fuente: Source: Own creation.



Photo 11-Indigenous Taina located in the waterfront, Cataño, Puerto Rico. Source: Own creation.



Photo 12-Iconic building with the puerto rican flag, Cataño, Puerto Rico. Source: Own creation.



Photo 13-View from the waterfront trail, Cataño, Puerto Rico. Source: Own creation.



Photo 14-View from the waterfront, Cataño, Puerto Rico. Source: Own creation.



Photo 15-View from the waterfront, Cataño, Puerto Rico. Source: Own creation.



Photo 16-Boardwalk with view towards the San Juan Bay, Cataño, Puerto Rico. Source: Own creation.



Photo 17-Trash can along the waterfront trail, Cataño, Puerto Rico. Source: Own creation.



Photo 18-Bike signs along the waterfront walk, Cataño, Puerto Rico. Source: Own creation.



Photo 19- Cok fight center, Cataño, Puerto Rico. Source: Own creation.



Photo 20-View towards Península La Esperanza, Cataño, Puerto Rico. Source: Own creation.



Photo 21- Recycling bins along the waterfront walk, Cataño, Puerto Rico. Source: Own creation.



Photo 22- View of the walking trail towards La Pirámide Building, Cataño, Puerto Rico. Source: Own creation.



Photo 23-La Pirámide Building, Cataño, Puerto Rico. Source: Own creation.



Photo 24-View of the boardwalk, Cataño, Puerto Rico. Source: Own creation.



Photo 25-Fishing Village, Cataño, Puerto Rico. Source: Own creation.



Photo 26-View from the City Hall, Cataño, Puerto Rico. Source: Own creation.



Photo 27- Park for the children, Cataño, Puerto Rico. Source: Own creation.



Photo 28- Park for the children, Cataño, Puerto Rico. Source: Own creation.



Photo 29-Pink Bridge, Cataño, Puerto Rico. Source: Own creation.



Photo 30-Outdoor theater, Cataño, Puerto Rico. Source: Own creation.

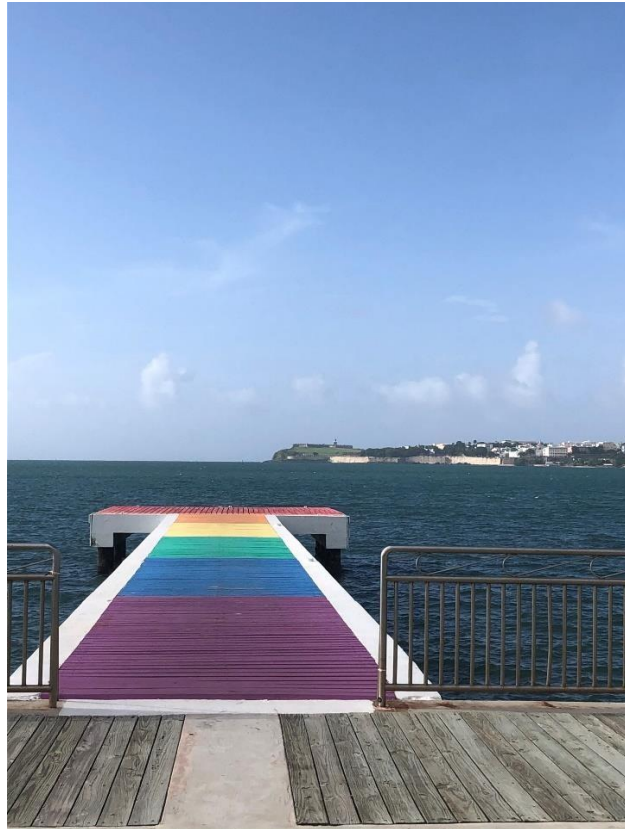


Photo 31-Pride Bridge, Cataño, Puerto Rico. Source: Own creation.



Photo 32-View of the walk trail towards the ferry terminal, Cataño, Puerto Rico. Source: Own creation.



Photo 33-Kayaks in La Puntilla, Cataño, Puerto Rico. Source: Own creation.



Photo 34- Photo opportunity in front of the San Juan Bay, Cataño, Puerto Rico. Source: Own creation.



Photo 35-Photo opportunity in La Puntilla, Cataño, Puerto Rico. Source: Own creation.



Photo 36-Restaurant "La Fiebre", Cataño, Puerto Rico. Source: Own creation.



Photo 37-Casa Cataño, Cataño, Puerto Rico. Source: Own creation.



Photo 38-Bacardí Rum Corp. entrance, Cataño, Puerto Rico. Source: Own creation.



Photo 39-Cemetery Bay View, Cataño, Puerto Rico. Source: Own creation.



Photo 40-Sanctuary San Martín de Porres, Cataño, Puerto Rico. Source: Own creation.



Photo 41-Catholic Church, Our Lady of Carmen, Cataño, Puerto Rico. Source: Own creation.