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VALUE PERCEPTIONS OF CULTURAL-ENVIRONMENTAL SERVICES IN TACOTALPA, TABASCO

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ABSTRACT

This article analyzes tourist perceptions of cultural environmental services, tourism resources and activities as well as the environmental impacts in the tourist area of Tacotalpa, in the state of Tabasco in southeastern Mexico. The mixed methodology combines in-depth interviews of a qualitative nature and the application of a quantitative questionnaire from which a descriptive analysis of frequencies is carried out. Among the results, it stands out that visitors have a positive perception of the quality and aesthetics of natural landscapes in a way they consider inexpensive.

JEL: Z39

KEYWORDS: Environmental Services, Tourism, Economic Valuation, Perception

INTRODUCTION

The qualitative research described in this work analyses the Environmental, Cultural Services (ECS), of historical and socio-anthropological nature, from the premise that ecosystems provide a wide range of opportunities for recreational use in touristic practices, such as ecotourism, adventure tourism, sport fishing and hunting, bird watching, nature photography and water sports (Vázquez Navarrete et al. 2011). Tourism is a primary income-generating industry throughout the world. The World Travel and Tourism Council, in the *Economic Impact Research* of 2009, estimated the touristic sector and inherent activities represented more than 10% of the world Gross Domestic Product and job positions. Beyond the current situation induced by SARS-CoV-2, which, according to the World Tourism Organization, caused a plunge of 65% of the sector activities, tourism had always maintained a constant growth. Even during such an exceptional situation, global institutions and entities detect big potential in domestic tourism, especially towards those modalities less focused on the more consolidated destinations. The World Tourism Organization (2013) highlights that tourism encourages the participation of micro, small and medium enterprises (also known in Spanish as *Mipymes*). This occurs especially in regions with scarce productive alternatives, but with vast natural and cultural attractions, like in Southern Mexico states.

The objective of this research is studying tourists' perception, value bestowed on ecosystems and touristic resources, complementary productive activities and environmental impact in the touristic zone of the municipality of Tacotalpa, in the Mexican state Tabasco. This area, as stated by Alejandro Toledo and Farrera, in his book *Cómo destruir el paraíso* (*How to destroy the paradise*) (1983), suffered a devastating deforestation process. Deforestation was to such extent that nowadays there are just some remains of what it used to be, like the area where this study referenced. In the tropical ecosystems of Mexico the literature on the subject is incipient, there are almost no studies on the subject. The study area is part of the priority

terrestrial regions of Mexico, for the biological richness and its conservation, This new tool makes it possible to internalize the value of ecosystems that must be socialized from all areas, including land managers and those who make and approve public policies. This document is structured as follows. The next section provies a review of the literature on the subject of cultural environmental services (CES). The next section describes the place of study. The following section presents the results of surveys and interviews carried out. We highlight some fundamental issues in the assessment of CES. Finally, the main results are discussed with the data from the desk review, with emphasis on the valuation of tourism.

LITERATURA REVIEW

Environmental Services (SA, initials in Spanish) are the conditions and processes by which natural ecosystems and its species give life to the Planet, satisfying human society's needs, providing health and wellbeing (Braat; De Groot, 2012; Daily et al., 1999; Millennium Ecosystem Assessment, 2005). According to Costanza et al. (2014) and Baniya, Solhoy and Vetaas (2009)**,** the estimated value of environmental services in the world in 2011 was 125 billion dollars. These authors also note a strong deficit due to the loss of ecosystems caused by the extraction and deforestation. For this reason, it is vital to maintain an equilibrated interaction between society, ecosystems and proper resource management, towards a sustainable and desirable future for humankind. Thus, de Groot, Wilson, & Boumans (2002, p. 396) established a detailed classification of 23 functions describing the processes and ES´s components, grouped into four functions: regulation, habitat, production and information. The most accepted ES classification system is Millenium Ecosystem Assessment (2005) that includes four categories. *Regulating* refers to the services that keep the environmental conditions in balance. *Supporting* relates to the basic ecological processes that ensure the proper functioning of the ecosystems and the flow of services. *Provisioning* represents the input supply to people of food, clothing, building, and the production of secondary products. In addition, *cultural* whose components are subject of this research and provide opportunities for cognitive development. Robert Costanza (1997, p. 254) was among the first to detail that Cultural Ecosystem Services (CES) comprise aesthetic, artistic, educational, spiritual and/or scientific values of ecosystems. Following this, the Millennium Ecosystem Assessment concluded that CES are "the nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences" (2005, p. 40).

Conversely, for Galarza and Gómez (2005), value is determined by environmental functions that nature provides and are expressed in terms of price. As noted by these authors, there are functions that society values in a positive way, like those related to the production of economic goods or residues transformation, which can be integrated into the new ecosystem. In this sense, 'natural goods' are those which provide wellbeing for individuals, such as landscapes. Lecca and Huatuco (2015) define economic, environmental valuation as the group of techniques and methods that measure the benefits expectations and derived costs of some actions such as the use of an environmental asset, an improved performance or an environmental damage. The authors point out that availability of individuals to pay for these services comes from the preference of some goods and services over of others.

Machín Hernández and Casas Vilardell (2006) show that natural resource valuation allows to study the benefits that they have for society and it is also useful to improve environmental quality, costs inherent to the different intervention levels and, most of all, the environmental services. Likewise, Bustamante and Ochoa (2014) highlight that value resides in the characteristics of each ecosystem, including cultural valuation, in its spiritual and religious dimensions. Plieninger and Bieling, et al. (2013) suggest that when analyzing the Environmental Cultural Services (ECS) and studying the valuation as it is perceived by residents, the results are relevant to nature conservation and sustainable development of the ecosystems. ECSs is perceived unconsciously and, as such, individuals value them. Therefore, they are items to administrate and preserve in the common ground: Earth (Chan, Satterfield and Goldstein, 2012). For authors such as Kubiszewski et al. (2017) and Martínez-Harms et al., (2015) ecosystem services should be used for

management, conservation and countering ecosystem degradation worldwide. They consider it important to safeguard natural capital for future generations, to provide new opportunities for local economies and the direct and indirect contributions of ecosystems to human well-being.

However, the intangible and incommensurate characteristics of some of the values included in the cultural services category, are a major barrier that hamper their inclusion in concrete proposals of management and planning on the public agenda and in the decision-making (Chan et al., 2012). Following Gallagher's neurocognitive approach to place shaping, Groot (2002, pp. 401–402) highlights that natural ecosystems provide almost unlimited opportunities for spiritual enrichment, mental development and leisure such undomesticated habitat, because the sense of well-being is strongly tied to the experience of natural landscapes and species diversity since the early times of humankind.

Nature is a source of inspiration for science, culture and art. Cultural ecosystem services have been studied in various ways by authors such as Plieninger et al (2015) who shows it is relevant to observe the commitment of rural and urban residents who are committed to the conservation of public and community goods since they represent a cultural value. This value occurs because they carry out various activities from the traditional existing roles of CES such as: providing opportunities for ecotourism and outdoor recreation, promoting gardening and harvesting practices, and stimulating the emergence of collective landscape management. After reviewing a data base of 80 authors (La Rosa et al., 2016, p. 75) concluded that "limited attention has been given to Cultural Ecosystem Services, among different categories of ES, especially considering the relevant benefits that communities and urban planning processes can derive from them". Nonetheless, many authors insist on the importance of these type of analysis given it provides an instrument to preserve and improve human well-being (Aretano et al. 2013; Daniel et al., 2012; Darvill and Lindo, 2016). The most recent research carried out in the coast north of Dublin conclude that the natural environment contributes to subjective well-being and, consequently, on assisting local people in articulating environmental impacts and proposing solutions, which traduces in helping to preserve natural and cultural resources (Bullock et al., 2018).

Vázquez Navarrete *et al* (2011) state that the economic value of services that nature provides is a natural capital of some sort, which should be included in calculations of enterprises and governments, to help protecting them, since they are elements vital to life. Abson *et al.* (2014) point out that touristic environmental services, valuation must consider the existence of resources as well as costs established by service providers. From the position of tourism we mention authors such as (Croes, 2012; Rodzi, Zaki, & Subli, 2013) who point out that tourism brings with it an improvement in the quality of life of the communities and improvement in the economy of the same, reducing poverty and generating employment. This activity promotes and mobilizes services whose production and consumption occur at the local level, allowing the participation of micro, small and medium-sized enterprises (MSMEs) and regions with few productive alternatives, but rich in natural and cultural attractions, such as the southern states of Mexico (World Tourism Organization, 2013). The interest of tourism activity is currently directed towards the search for a healthy environment, a more authentic tourist product, a better distribution of the offer in the territory and incorporation of new spaces for the development of tourism. In this way, the territory will be conceptually addressed with a new tourist perspective: the natural and rural character of the space is valued differently. This search approaches nature in a more direct and active way, but at the same time more responsible, valuing and respecting the natural and sociocultural peculiarities of places visited, gives direction to the emergence of a different tourism (Bringas R. & González A., 2004).

Tourism projects require the direct participation of beneficiaries and others who may be impacted. Endogenous or local development is a process that combines economic and social sustainability, for public and private actors make investment decisions not only to improve the productivity and competitiveness of enterprises, but also to solve problems and improve the welfare of society (Arocena 2001). The argument of Vázquez Barquero (2007) is that to apply local development in a territory there must be a structural

change from the interior, which favors the entrepreneurial capacity and creativity and that must prioritize the vision of human development. A new generation of researchers concerned with finding effective responses to the challenges of poverty eradication, job creation and structural change, has the support of countries and international organizations such as UNDP and ILO, which are committed to sustainable development. For their part, endogenous development policies are supported by international organizations such as OECD, the European Union, the United Nations Development Programme (UNDP), ILO, the Inter-American Development Bank and the World Bank.

DATA AND METHODOLOGY

The Tacotalpa municipality is located in the south part of the state of Tabasco, Mexico. It has a territorial area of 738.52 km2 (Figure 1) and a population of 42,833 people (Instituto Nacional de Estadística y Geografía INEGI, 2016). It has humid-warm weather, with abundant rain throughout the year, an average yearly temperature of 25.6° C, maximum 29.2°C in May and a minimum of 20°C during December-January. The Pueblo Mágico of *Tapijulapa* is located in this municipality, as well as Oxolotán's botanical gardens, convent and museum. Tacotalpa is located in the highland area of the state, with a large amount of fluvial streams (Figure 1). There are more than 30 caverns and archeological areas discovered in the area, some of them are part of the touristic offer of the state.

Figure 1: Location of Tacotalpa, Tabasco, México

The Tacotalpa municipality is located in the south of the state of Tabasco, in the south of Mexico. It has a territorial area of 738.52 km2

In the ecological reserve Parque Estatal de la Sierra there are three types of vegetation: high and medium deciduous jungle, old acahual, 20-to-30-meter-high trees, like ironwood (*Dialum guianense*), zapote mamey (*Pouteria zapota*), naseberry (*Manikara zapota*), cachimbo (*Platymiscium*), mountain chesnut (*Sterculia mexicana*), cedrillo (*Guarea bijuga*), hog plum (*Spondias monbim*), botoncillo (*Rinorea guatemalensis*), wild cinnamon (*Croton glabellus*) and gogo (*Salacia elliptica*). The endemic fauna include lowland paca, gliding snake, chachalaca, hawks, howler monkey and jaguar (Rodríguez Ocaña, Muñoz Zetina; López Hernández, 2009).

The research follows a mixed methodology including in-depth interviews and participative observation, or semiotic analysis of advertising material, with the specificity of quantitative data gathered through questionnaires, to perform a non-representative, descriptive statistics analysis. Qualitative fieldwork was performed in 2016 during 6 months in the municipality of Tacotalpa. The questionnaire was applied to visitors of the Ecological Reserve *Parque Estatal de la Sierra* during June of that year. The questionnaire was conceived with a non-experimental design and as secondary complement to the qualitative in-depth interviews, which are the methodological compass of the research. The questionnaire enabled researchers to make a series of generally explanatory ideas about how subjects consider the current situation and gather perceptions about the values associated with the landscape.

The questionnaire consisted of 27 items and was applied to 100 visitors over the period of June 12th to 25th, 2016. It was administered to one of each 10 people at the entrance-exit of the park, and who showed interest in the research. There are no official statistics about the number of visitors, since records are not kept. According to the *Agenda de competitividad y sustentabilidad*, in 2013 9,347 tourists visited, what is known as Pueblos Mágicos, in the touristic destinations in Mexico (SECTUR, 2013). During the fieldwork, we checked the logs kept by park managers, in which the registered number of visitors were oddly rounded adding up to 12,000. Due to the inability to perform a consistent statistical sampling, we applied 100 questionnaires. The goal was to have even percentages and therefore, less room for errors or misinterpretations of the descriptive and complementary quantitative data. The results of the questionnaire are not analyzed in a statistically significant manner, but in a descriptive one. That is, they were interpreted in light of the qualitative data gathered during the in-depth interviews and the participant observation.

The objective of the research was explained to the interviewees, as well as the context it was performed in. Based on Aretano, Petrosillo, Zaccarelli, Semeraro y Zurlini (2013), the questionnaire is divided into three main sections: 1) personal information (origin, age, occupation and time and cost of travel, 2) respondent's valuation of the characteristics of the landscape, the structure and the changes perceived, and 3) a monetary valuation of the current outlook, according to the Declared Willingness to Pay (DAP, initials in Spanish). The DAP has been used by authors such as Galarza and Gómez (2005); Silva-Flores, Pérez-Verdín and Návar-Cháidez (2010). A Likert scale was used to measure these valuations. A Likert scale consists of a group of affirmative sentences about the opinions of the respondents. The indicators are the answers given, while the options to express those answers become the items of the scale (Hernández Sampieri, Fernández Collado; Baptista Lucio), 2014). In this case, the scale used was highly disagree, disagree, neutral, agree, and highly agree. We also performed an analysis of the semiotic content of the advertising material of the area, like touristic leaflets, books, posters and manuals, as well as content on the web page of the local council, Tacotalpa. We considered videos on YouTube uploaded by the visitors and recorded on their trips and/or sports activities.

RESULTS

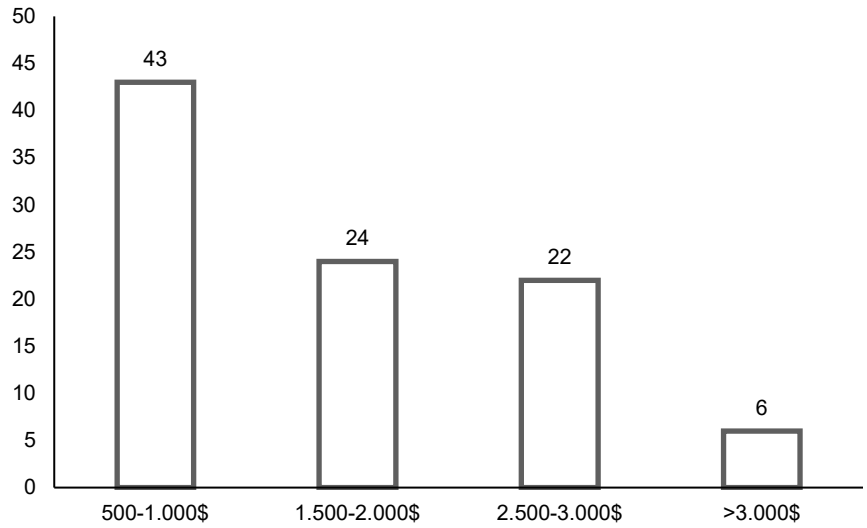
A wide range of scientific disciplines, from biology to ecology, including basic sciences and engineering, as well as economic and social sciences take part in the study of environmental services. For this reason, each environmental service has a degree of progress in its theoretical conceptualization, quantification techniques and practical applications for its anthropogenic use. The results here derive from the application of 100 questionnaires, which were interpreted in light of the qualitative data gathered from the in-depth interviews and the participative observation performed. The origin of the questionnaire respondents indicates that locals mainly visit the area. Seventy-two percent of visitors are locals of Tabasco, while the rest come from the neighboring states of Chiapas and Campeche, and more distant states like Querétaro. During the fieldwork period, on one occasion we had the opportunity to interview a small group of foreign tourists, coming from Costa Rica. The gender distribution indicates that the questionnaires were applied to 59 men and 41 women.

The Parque Estatal de la Sierra is a place where one can take long hikes, where you can perform activities of extreme tourism including jungle trips by bike or on foot. The physical reality is evident in the age of visitors. The average age of the visitor is between 15 and 44 years. The type of touristic activities offered in the place determines this distribution. This is evident in the infrastructure of the park, as well as the analyzed advertising material, where activities like rappelling, camping, adventure hiking and others are promoted. The touristic material revolves around the motto *Adventure in the Highland.* The distribution by education level shows that 44% have a bachelor's degree, 23% have a high school education, 9% a master's degree, 8% a degree in technical education, 9% a junior-high school education and primary school education 7%.

With the data gathered from the questionnaire, we find that 33% of tourists were willing to pay between 200 and 500 pesos for the trip, and 25% were willing to pay 600 and 800 pesos, while 30% were willing to pay up to 900 to 1,200 pesos. Tourists often stay around to eat and buy reasonably priced souvenirs. Thanks to the mixed methodology used, we detected a name for the type of tourist who is not willing to spend a considerable sum of money, and who usually brings food and beverages with them, leaving just trash behind. He is known as *visitant (*visitor). Lastly, 6%, which includes the foreign tourists, stated that they were willing to pay more than 1,300 pesos and that if the infrastructure were appropriate, they would spend the night in the premises.

The next questions address the direct quantification of expense made (how much) during the touristic tours, as well as the trip time (when). The question refers to the trip expense and not to, as in the previous section, to the value of the landscapes they see, the ecosystems or the jungle that they hiked in. Consequently, 43% spent around 500 and 1,000 pesos, which indicated that those tourists came from a nearby location. Twenty-four percent said they spent 1,500-2,000 pesos, which was caused by transportation expenses, indicating the tourists came from more distant locations, and there was a food expense. Twenty-two respondents said they spent around 2,500 and 3,000 for their trip and 6 wer willing to pay more than 3,500 (Figure 2).

Figure 2: Expenses in Touristic Trips in Tacotalpa (in Pesos)



Transformation perception is one of the parameters considered as relevant to determine the valuation of ecosystems, from environmental-cultural services. Tourists were asked if the landscape has changed. This question, and the way it was formulated, confused those who did not know the place. This was evident in the 32% of answers marked as neutral. Fifty-two percent of the survey respondents stated that they highly

agreed or agreed on the landscape having changed, while 16 respondents disagreed or highly disagreed. Table 1 summarizes results of the questions asked of tourists.

Table 1: Percentage Table by Item and Preferences

Tourist Perception of Some Activities	A	SA	N	D	SD
About changes in the landscape	36.00%	17.00%	31.00%	12.00%	4.00%
Deforested landscape	37.00%	16.00%	23.00%	19.00%	5.00%
More farmland	43.00%	21.00%	19.00%	11.00%	6.00%
More natural areas	48.00%	22.00%	18.00%	3.00%	9.00%
Livestock as a 31roblema for conservation	33.00%	15.00%	20.00%	19.00%	13.00%
Tourism as an activity that gives profit	38.00%	45.00%	6.00%	2.00%	9.00%
3Landscapes give value to the community	40.00%	43.00%	6.00%	2.00%	9.00%
Value of ecosystems linked to cultural value and traditions	39.00%	29.00%	15.00%	7.00%	9.00%
The community as a place to meet plants	42.00%	29.00%	11.00%	9.00%	9.00%
Solid waste management	31.00%	13.00%	21.00%	28.00%	7.00%
Contaminated rivers	40.00%	17.00%	20.00%	20.00%	3.00%
Environmental impact drives away tourism	42.86%	27.55%	9.18%	11.22%	9.18%
Interest in being part of tourist activities	39.00%	25.00%	15.00%	15.00%	6.00%

A=Agree SA=Strongly agree N=Neutral D=Disagree SD=Strongly disagree

The questionnaire also addressed the perception of tourists in regard of the level of the landscape deforestation: 37% agreed, 16% said they highly agreed, 19% disagreed, 5% highly disagreed, while 23% answered in a neutral way. About this specific matter, tourists were asked if they observed more agricultural land. The results show that 46% agreed with this statement and 20% highly agreed. This represents 66% respondents who perceive more agricultural land. On the other hand, 9% highly disagreed, 15% disagreed and 10% were neutral. In order to gain additional insights, we asked if the respondent perceived that cattle poses a threat to conservation. Conclusively, and according to the tourist's perception gathered from the questionnaires and confirmed with the interviews and field observations, livestock has a lesser impact than agriculture. Forty-three percent of respondents affirmed they either highly agreed or agreed with this claim, while 57% disagreed, highly disagree were neutral about it.

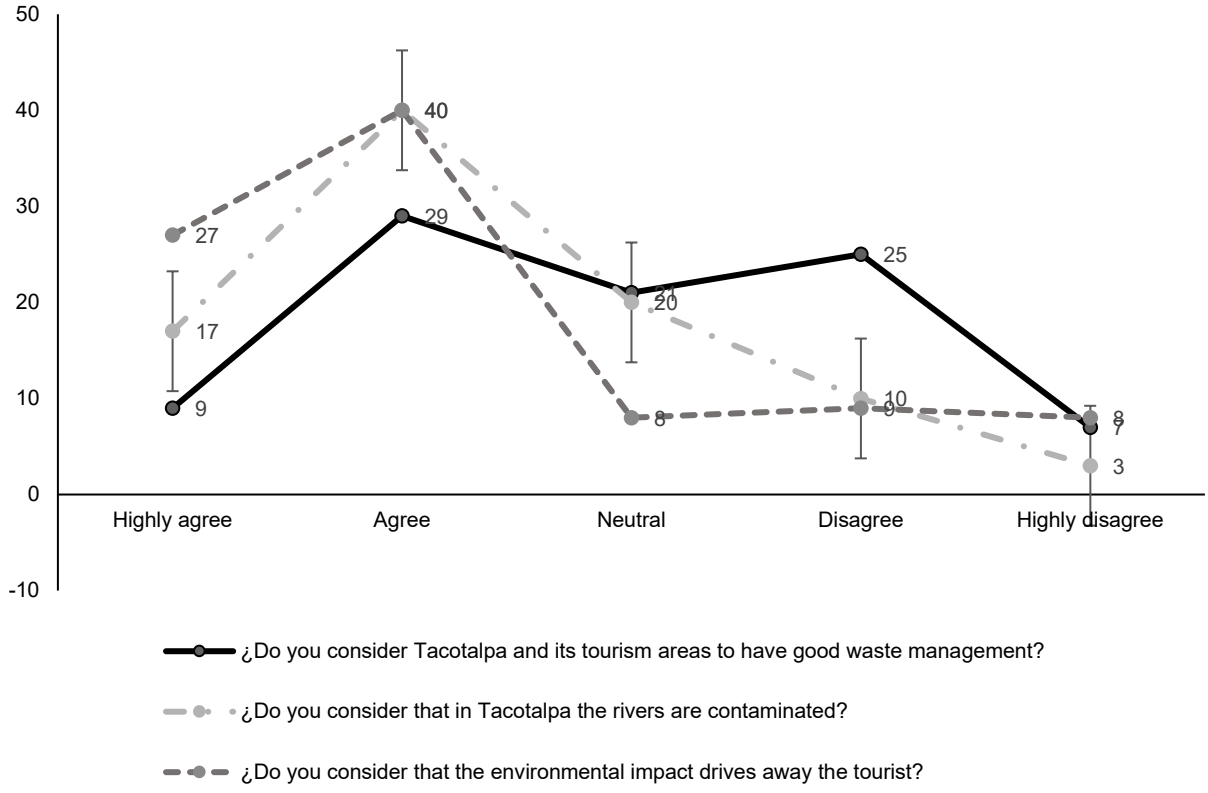
A topic of interest is the perception visitors have about the information that they receive regarding the plants and animals around. Conclusively, 73% of the respondents say they either agree or highly agree on the fact that there are places where detailed information is offered. On the other hand, 18% disagreed or highly disagreed, and 9% provide a neutral response. *El Jardín de Dios* (God's Garden) is a botanical garden with a naturopathic doctor practice, and it is the most popular among tourists. Nevertheless, on a hike around the Park, it is possible to find public and private places that also offer these services, such as Estación Biológica La Florida, which offers its services to schools and research institutions. The tourists center called Kolen Ha, in Villa Tapijulapa, provide expositions of orchids and bromelias.

Studying the effects of tourism is always complex, and even more so, asking about this to people who are doing touristic activities. Therefore, when asking respondents if they considered tourism as an important activity in the territory, 87% stated they agreed or highly agreed. Eighty-five percent said the landscapes give value to the municipality and 72% agree that the value of ecosystems is related to the cultural and traditional values of the local population. With regard to tourist perceptions about the natural landscapes, setting a value to Tacotalpa the response was 85%, from which 47% highly agreed and 38% agreed. This was the highest percentage in the questionnaire. When asking tourists about the landscape value and

ecosystems, and if it is related to the intangible cultural nature that makes up the inhabitants identity, 4% disagreed and 14% gives a neutral response.

Figure 3 shows the answer frequencies about environmental impact in the area of study. Regarding the question *how do you consider solid waste management to be?* Fifty-four percent of the respondents identify a good management, while 37% thinks otherwise. Based on observation and interviews, people from the smaller neighboring communities do not have roads that are adequate for garbage trucks or watercrafts to go in and take the trash out. For this reason, it is common to throw waste into the rivers and lagoons. In the best-case scenario, it is burnt. During our fieldwork, we witnessed several bags and containers are reused. For example, soda bottles are used for water transportation. Some are cut in half and the upper section works as funnel for gasoline while the lower part is used to remove water from fluvial *Cayucos* (rowboats). However, in these communities there is a greater presence of plastic and foil packages, as well as other non-reusable materials, which increases the stacking of this type of contaminants. Tourist perception about river pollution were not positive.

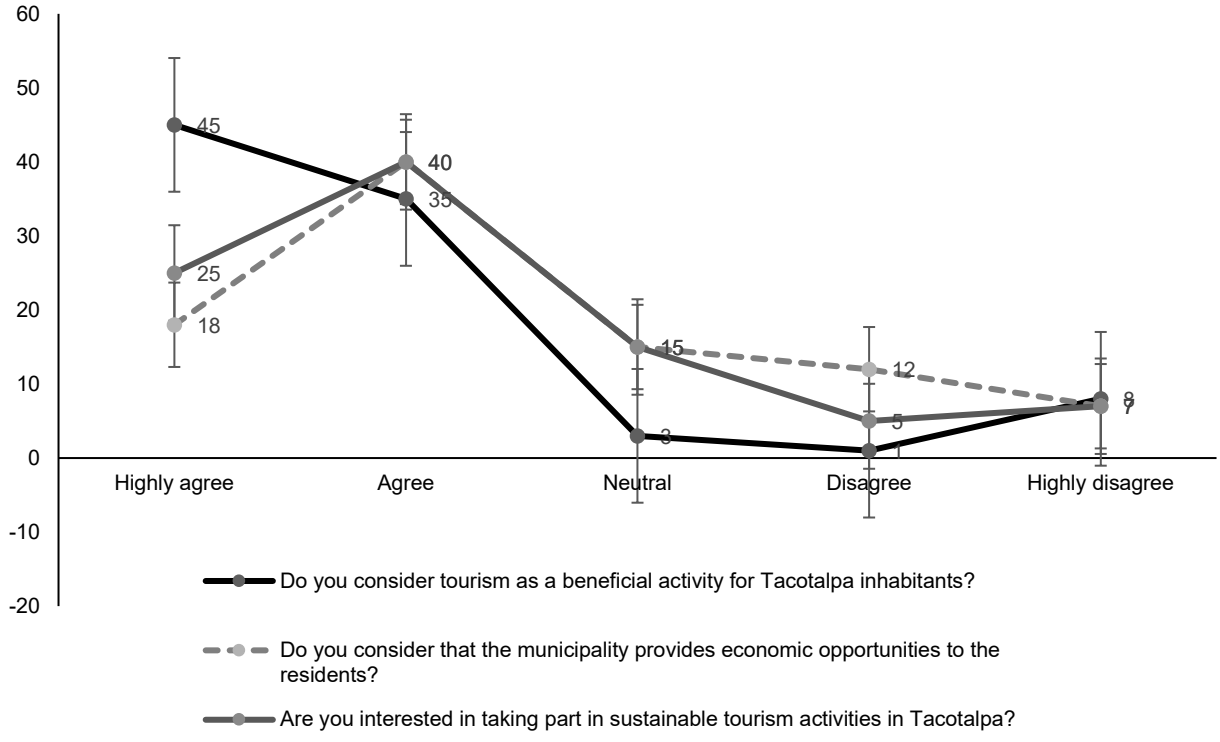
Figure 3: Environmental Impact Perception and Its Relationship with Touristic Activity



Sixty-four percent of the interviewed visitors say rivers are polluted and 22% are neutral (Figure 2). Pollution in water bodies is a rising problem in Tabasco (Barbolla-Sala, De la Cruz, Piña, De la Fuente; Garrido, 2003). For this reason, there have been efforts to try to address this issue. Despite these efforts, no significant results have been achieved. In 2012, a high-technology water treatment plant was built in Pueblo Mágico Tapijulapa and, according to the authorities, it was one of the best in the State. Sadly, the plant only operated for a few days and currently is useless. Thus, the total amount of wastewater from communities and municipality goes to drainage and is discharged directly into the rivers, which is visible during touristic trips. Figure 2 also shows the frequencies of stated perceptions about environmental impact. Results show 72% agree or highly agree on the fact that environmental deterioration is a factor that repels visitors, while

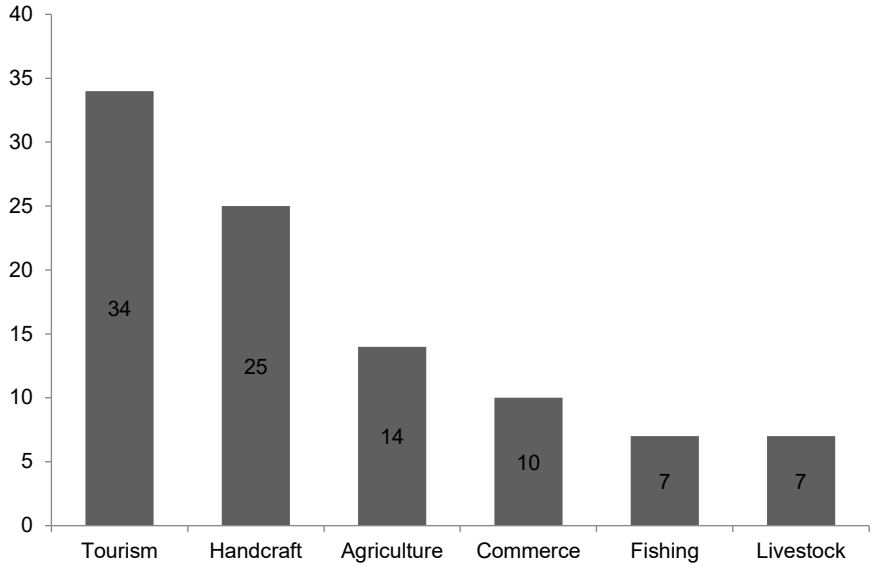
28% disagree or highly disagree. To study touristic activities, a list of them was made. The most frequently mentioned activity (37%) was the sightseeing trip, especially those visiting rivers and waterfalls. Some 24% mentioned trekking as the activity they practiced the most, rappel 16%, cycling and walking 13%. The least mentioned activity was birds and insect watching. To study perceptions of the institutional implication, tourists were asked if they considered the municipality provided Tacotalpa inhabitants the economic opportunities needed. Sixteen percent did not know or did not answer. Sixty three percent stated they agree or highly agreed. The reason for this percentage is that most respondents were local in Tacotalpa and had firsthand knowledge of the work of municipal institutions (Figure 4). The strongest development opportunities listed were, 43% of respondents mentioned tourism, 27% mentioned farming and fish farming activities, 26% said handcrafts and 7% commerce (Figure 5).

Figure 4: Perception About Importance of Touristic Activity



To identify the level of tourists' implication in the touristic development of the territory, respondents were asked if they would take in sustainable tourism activities in Tacotalpa. Seventy-one percent said to highly agree or agree (Figure 4), which highlights the trend of tourists wanting to preserve ecosystems.

Figure 5: Perception About Importance of Touristic Activity



When asking if inhabitants of Tacotalpa municipality should continue transmitting their knowledge, traditions and lifestyle, 80% highly agreed or agreed, and just one respondent said no. Figure 5 shows perception about the importance of touristic activity. The last question was about festivities and other knowledge tourist had about culture. These live expressions are part of the intangible cultural heritage of the area of study. In this context, the answers that stands out are about Pesca de la Sardina (Sardine fishing) (48%), Desentierro del Santo Sepulcro (Exhumation of the Holy Sepulchre) (18%), use of medicinal plants (16%). Even when they are mostly known only in the municipality, other holy days and festivities such as Cambio de Mayordomo en Puxcatán (Butler Change in Puxcatán) (11%), Lavado de Ropa de los Santos en Xiconténcatl (Saint's clothes washing in Xiconténcatl) (7.3%), gather some tourists.

CONCLUDING COMMENTS

The results of this work highlight the fact that a sustainable planning of the touristic use of environmental resources, that has the participation and implication of the local communities, provides a measure that addresses socio-economic effects of the pandemic, especially in least favored areas. Consulted scientific literature and reports from world institutions concur in asserting that local resources are basic elements for achieving human wellbeing. They especially emphasize the importance of identifying tangible and intangible values that each community recognizes as its own, and having these holistically analyzed. Thus, communities can activate strategies that boost local development and, particularly, revitalizes the touristic activity in the territory.

Chan et al. (2012); Plieninger, Dijks, Oteros-Rozas; Bieling (2013) show that when research is carried out on Environmental-Cultural Services and their valuation, results obtained are relevant to preservation of nature and the sustainable development of ecosystems. In this respect, the promotion of sustainable tourism practices could be of great help. Moreover, Barro (2003) points out a close relationship between educational levels and economic growth. Similarly, there is a close relationship between economic income, since they allow tourists to engage in recreational activities. The information collected confirms this correlation between the level of education and the frequency of recreational activities.

This is also the reason for having a large percentage of visitors with a degree. Carbal Herrera, Muñoz and Cumplido (2015) consider the value of an environmental product is the price that people are willing to pay for a service provided by nature, and that influence the quality of life, including leisure and recreation. In

this sense, nature produces an environmental service, which is relevant to tourism since, in addition to rural and cultural values, it creates attractions. These attractions are related to emotions and feelings of tourists and are fundamental and inherent elements of a tourist destination. Tourism in rural areas involves the enjoyment of nature, often including silence and a quiet environment, so individuals must pay for receiving these benefits (Crosby, 2009; Galarza y Gómez, 2005; Robertson y Wunder, 2005; Zoderer, Tasser, Erb, Lupo Stanghellini y Tappeiner, 2016). For Lecca and Huatuco (2015), the Will to Pay (DAP) is based on the goods and services that a person consumes. That is, although it sounds reductionist, the value of a good is measured according to the amount spent for consumption. Research on the economic valuation of environmental services establishes the value of ecosystems in relation to the amount tourists invest in them (Costanza et al. 1997, 2014; Lecca y Huatuco, 2015).

Despite having a high rate of deforestation in the rainforest in Mexico since the 1960s, losing 120,544 hectares per year (CONAFOR, 2019), today there is an ongoing reforestation program in the study area, conducted by federal and state institutions. In this sense, research by Arizpe et al. (1993), Arreola Muñoz et al. (2011) and Toledo (1997), affirm the high evergreen forest has been one of the ecosystems most affected by human activities - mainly agricultural activities, livestock and forestry. This has caused a significant decrease in the primary vegetation of the study site and, ultimately, a negative effect on biodiversity. In our interviews with the local population, we found they consider livestock a cost-effective alternative and, consequently, there are more pastures where farmers can raise their animals, which ultimately represents a saving of money for them. This practice is widely practiced in southeastern Mexico, in places such as the Lacandon jungle and the Calakmul jungle (Gurri-Garía; Vallejo, 2007; Rodríguez Ocaña, 2004).

Issues relating to the natural areas of the area gave rise to a main theme of the questionnaire. On this, 69% say they agree or strongly agree to perceive more natural areas. These data confirm the information provided by government institutions on reforestation carried out by CONAFOR (National Forestry Commission of Mexico) in collaboration with some communities. From the interviews with tourists, we can deduce that they consider the road from the municipal capital to Tapijulapa, passing through the communities Oxolotán, Tomás Garrido and Cuitláhuac, among others, is a charming landscape, since it is covered by a rich vegetation and there are several rivers of great flow. Moreover, when in this jungle ecosystem it is rainy season and dozens of waterfalls are formed.

We find coincidences with the Van Berkel and Verburg (2012) claim that tourism and recreation promotion, over the basis of the characteristics and traditions present in the community, offer development options and allow income generation, which is complementary to agricultural production and, simultaneously, promote the conservation of ecosystems and cultural heritage. We found that, as Robertson and Wunder (2005) points out, that income generated by tourism provides incentives to communities to protect their natural assets, combining their own style of natural resource management. This in turn favors greater conservation. Nonetheless, if tourists perceives that tourism is beneficial to the territory, it is because they see potential in tourism and the local population accepts that possibility. The challenge is to address the lack of collaboration and understanding between institutions related to this activity, so it becomes possible to get better results.

On the other hand, nowadays a lot of importance is given to healthy tourism products (Boo, 1998; Bringas and González, 2004 and Wall 1997). Activities observed in this study area are relevant. In the scientific literature, there is a generalized agreement in asserting that touristic attractions are related to the inhabitants, their identity conscience and the importance given to the aesthetic, cultural, patrimonial and spiritual components of the experience. Not providing sufficient incentives to preserve the cultural landscape provokes territorial degradation, and therefore, degradation of the touristic offering as well (Van Berkel and Verburg, 2012). SECTUR (2014) claims there are touristic activities in which sustainability is privileged, as well as the preservation and evaluation of the environment, in TIS natural and cultural aspects,

which welcomes and sensitizes the travelers. Touristic landscapes must provide beauty and natural richness. Therefore, they must develop environmental services that complement the natural scenic beauty, so ecotourism centered in tropical ecosystems biodiversity can benefit from it.

Authors such as Fennell (2008) and Drumm and Moore (2002), as well as the World Tourism Organization (2017) claim that nature-based tourism is based on experimenting and learning from nature. Hence, it must be ethically managed, so it is low-impact, non-consumptive and locally-oriented. This strategy brings benefits to local inhabitants, protects natural areas, contributes to the preservation of such areas and safeguards cultural values, its diversity and heritage. This matches what is stated by Boisier (2004) who asserts that development of a territory is highly conditioned on the willingness and capacity of local players and it revolves around the value given to local potentialities. It occurs where the human being revalues the environment and its species (Weaver, 2001).

The results of this fieldwork show that 85% of the visitor agreed that natural landscapes have a very high value and were willing to pay a little more for the services that nature provides, such as internal wellbeing, leisure, recreation, adventure, spirituality and cultural identity. Research shows it is everyone's responsibility to find the most adequate strategies to boost this market. Results show that soil and water pollution problems negatively affect touristic development projects. Visitors conclusively reject deteriorated landscapes. Hence, environmental deterioration must be considered a priority of the municipality development plans. UNESCO (2011) asserts that intangible cultural heritage is an important fact to preserve cultural diversity against the increasing globalization.

A human and social dimension contributes to the understanding between cultures and promotes respect towards different lifestyles. It ensures the transmission of knowledge from one generation to the next. The social and economic value of this knowledge transmission is vital for preserving diversity among human groups. Cultural heritage belongs to everyone. Residents who hold that legacy must manage and care for it, for they are symbols of their people and give them a unique character and personality (Alvarado Rosas, 2015; Rodzi, Zaki and Subli, 2013; UNESCO, 2011). In this sense, other players and sectors manifested during the research. A sustainable tourism strategy has to necessarily be based on in these services and on the ecosystems they nourish from. It is the responsibility of all the parties to act on the wrongly managed productive activities, which according to the respondents, have provoked the improper use of natural resources and landscape transformation. Sadly, poverty rates, which persist in many communities of Tacotalpa, prevent the search of other economic and educational development opportunities that ease the pressure on the natural resources.

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