Making your spring break sustainable: Can tourism be a driver for positive environmental change?

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Abstract: The Riviera Maya's rapid development due to increased tourism has stressed ecosystems and cultural sites. With ongoing tourism demand, effective management solutions are vital. Puerto Morelos aims for sustainable tourism based on its assets. As a new municipality, it shapes policy afresh. This approach can advance climate, economic, and ecosystem sustainability (Goals 1, 8, 10, 13, 14, & 15). Through interviews and surveys, this study gauged stakeholders' alignment with sustainable practices. Barriers exist, including policy-community disconnect causing mismanagement. Tourists value responsible tourism but don't act on it. 'Archaeologists Without Borders' initiative by Manejo Cultural A.C. forms partnerships to combat mismanagement and promote responsible tourism. Public/private partnerships offer a model for sustainable tourism, enhancing community input and reducing top-down regulation.

Keywords: Tourism ; Sustainability; Heritage; Tourism management

Resumen: La Riviera Maya ha experimentado un rápido desarrollo en las últimas décadas debido al aumento del turismo, lo que ha ejercido presión sobre los ecosistemas circundantes y los sitios culturales. Dado que la demanda de turismo no muestra signos de disminución, existe una necesidad cada vez mayor de soluciones efectivas de gestión. El pueblo de Puerto Morelos se esfuerza por promover un turismo sostenible basado en sus recursos naturales y culturales. Como nuevo municipio, tiene la oportunidad de dar forma a políticas desde un lienzo en blanco. Este enfoque puede contribuir a los objetivos de desarrollo sostenible relacionados con el cambio climático, el desarrollo económico y los ecosistemas marinos y terrestres (Objetivos 1, 8, 10, 13, 14 y 15). A través de entrevistas y encuestas, este estudio evaluó la alineación de los interesados con prácticas sostenibles. Existen barreras, incluida la desconexión entre políticos y comunidades que genera una mala gestión. Los turistas valoran el turismo responsable, pero no actúan en consecuencia. La iniciativa 'Arqueólogos Sin Fronteras' de Manejo Cultural A.C. forma asociaciones para combatir la mala gestión y promover el turismo responsable. Las asociaciones público/privadas ofrecen un modelo para el turismo sostenible, mejorando la participación comunitaria y reduciendo la regulación autoritaria.

Palabras clave: Turismo; Sostenibilidad; Patrimonio; Gestión turística.

1. Introduction

The travel and tourism industry is a quickly emerging, multi-trillion-dollar industry (World Travel and Tourism Council, 2018). For the last several years, the travel and tourism sector has consistently outpaced the growth of the economy as a whole, and in 2017 was the fastest growing industry globally industry (World Travel and Tourism Council, 2018). The growth of this industry has been

a boon for many developing nations, which have been able to leverage much of their natural and cultural assets. Tourism has also been intertwined with conservation initiatives for decades and has been thought of as a practical solution for conserving biodiversity and/or historical and cultural heritage. However, the rapid pace at which this industry has grown has been a double-edged sword, leading to overtourism and the destruction of these very assets (Higgins-Desbiolles, F. 2018).

The Mesoamerican region is the second most biodiverse region on the planet, second only to the Tropical Andes in species endemism and diversity. It houses three biomes, 20 life zones, and 33 eco regions. It's wide variety of micro-climates and geological features gives rise to a diverse array of plant and animal life (National Commission for the Knowledge and Use of Biodiversity, CONABIO. 2009). In Quintana Roo on the Yucatan Peninsula of Mexico, such unique features include the Mesoamerican Reef, la Selva Maya, endemic species such as Jaguar and Quetzal, and several species of mangrove trees (Figure 1). The region also contains a wealth of cultural resources, from megalithic structures that are touted as tourist attractions such as the pyramids of Chichen Itza; to the multitude of ruins that have yet to be discovered (Fund CEP. 2004). (Figure 2). It is because of these exciting resources, that this region is experiencing a sharp increase in urbanization and development. Since the 1970s, the town of Cancun has grown from a small Chiclero village of around 40 people, to its current population of about 400,000, all to accommodate a touristic boom (Walker C.J., 2009). This exponential rise in touristic development has put incredible pressure on Quintana Roo's natural and cultural resources. According to Mexico's National Institute of Statistics and Geography (National Institute of Statistics and Geography INEGI). 2014), Mexico has lost over a third of its forest cover and about one out of every six of its aquifers is overexploited.

The town of Puerto Morelos (Figure 3), situated on the Cancun-Tulum corridor between the popular tourist destinations of Cancun and Playa Del Carmen, until now has managed to escape the mass development that has affected both of these towns Schulman B. 2014. The town has recently become its own municipality to be able to have more autonomy over its natural and cultural resources – which are in fact the lifeblood of its economy (National Institute of Statistics and Geography INEGI, 2014). As future development in this small town is inevitable, Puerto Morelos hopes to forward sustainable tourism based on its natural and cultural assets and avoid the mass tourism that has affected other parts of the Riviera Maya. As a new municipality it has the chance to shape policy from a relatively blank canvas. They hope to find a balance between the benefits future tourism can bring, and the important ecosystem services that the environment can provide (Rodríguez-Martínez RE. 2008).

2. Materials and Methods

The following questions were used to guide my research: Who are the key stakeholders in the Puerto Morelos area, and do they see sustainability (in tourism and otherwise) as a primary issue? What are the expectations of tourists vs. their experiences, and is there evidence to think they are

competing? And what types of management are most successful within a sustainable tourism framework?

To address these research questions, I worked with Manejo Cultural A.C, a cultural heritage non-profit based in Quintana Roo, Mexico, as a research assistant to help launch their newest initiative, Archaeologists Without Borders. The aim of Archaeologists Without Borders is to bring together experts from across several disciplines in an effort to use a broader and systems-based approach to the conservation of heritage. Through this collaboration, Archaeologists Without Borders hopes to find a way to use archaeological and ecological tourism as a hub of sustainable development within communities. To gain an understanding for the different management frameworks and how successful they are in achieving sustainability criteria, my research consisted of three main components: a thorough literature review, multiple qualitative interviews of key stakeholders in the Cancun area, and a survey of tourists who visited the area.

For the literature review several case studies were compiled so as to understand more about Mexico's Natural Protected Area system, and their laws in regard to protection of the environment and heritage. I also became familiar with Cancun's development as a tourist destination over the last several decades so as to understand what policies and regulations exist in regard to sustainability and tourism, and whether they have been effective thus far. I compared these case studies with others around the world, to have a more complete picture of tourism management frameworks that have been successful and those that have not; and how it can be applied to Mexico's unique situation. I also familiarized myself with existing sustainability criteria within the travel and tourism community, the most prevalent being the Global Sustainable Tourism Council and the World Tourism Organization which operates under the auspices of the UN and their sustainable development goals.

I conducted twenty-two qualitative interviews with key stakeholders I identified in the Puerto Morelos/Cancun area. These stakeholders included academics, tour operators, government officials, local residents, and NGO administrators. While each of my interviews was tailored to the expertise of each individual, I asked several questions about tourism in Mexico and their opinions about sustainability and management. To gain a clearer understanding of how subjects defined and prioritized sustainability, I asked all of my interview subjects their opinions on their definition of sustainability, and subsequently asked each to choose between two competing models of sustainability (Figure 4). The first model, the nested dependencies model, depicts each aspect (economy, society, and the environment) as dependent on the one in which it is nested, with the environment being on the bottom. This model puts primary importance on the environment, depicting that without the environment we cannot have a society or our economy. The three pillars model shows these three aspects as equally balanced and shows sustainability as being an equilibrium among the three. It was first and foremost important to determine how stakeholders and key decisionmakers define sustainability and whether they see it as a priority before defining what the most successful way to sustainability is (Farrington, J. & Kuhlman, T. 2010).

Lastly, I conducted a survey of tourists via an online form. I used google forms to conduct the survey and I posted the survey on a popular travel site that helps tourists book tours to Mexico. The survey was performed online rather than in person so as to collect the most responses for a sufficient data set in a short amount of time. While in-person surveys tend to be preferred over online surveys by many researchers to be able to ensure the accuracy of responses collected, online surveys are more likely to receive the most honest responses due to the potential for social desirability response bias that is likely to be inherent in this type of survey. For instance, many respondents may feel social pressure to say that they believe eco-friendly tours are important when asked face to face, when they perhaps do not place much value on it when choosing a vacation destination.

The main objective of the survey was to ascertain whether or not the experiences of tourists align with their stated desires or expectations. The survey was designed to be as short as possible as tourists are a notoriously difficult demographic to obtain surveys from, and to attract as many respondents as possible. It includes nine questions about tourists' behaviors and preferences while on vacation, and the importance of socially and ecologically friendly practices in this industry.

3. Results

3.1. Top-down regulation is not the answer

While Mexico in fact has robust environmental laws on its books, these laws are not actually enforced with any regularity. While Mexico has a vast amount of land that is actually designated as protected, many of these areas are "paper parks," where they are protected in name but have no actual resources for conservation designated to them (Rodríguez-Martínez RE. 2008). There is no actual enforcement mechanism to punish those who violate environmental laws, and those who violate laws are often government officials themselves (Pickrell, E. 2018). Widespread corruption within the Mexican government has also led to mismanagement of funds and lack of accountability. Federal agencies that make laws are often similarly responsible for enforcing these same laws. One interviewee, Ivan Batun, said of Mexico's National Institute of History and Anthropology, "this is like being the author of the test, and then also grading your own test. You will always get an A". Another interviewee, Manuel Ricardez, who works as a tour operator in the region explains that many of the regulations that exist for private industry are not communicated effectively and are not easily accessible which leads many people to break them, and to operate outside of the law.

3.2. Disconnection is a key problem

Those who make laws within the federal government, i.e., policymakers and regulators; are often very disconnected from those who are actually responsible for implementing such policies. For example, government employees who are responsible for administrating parks have often never visited, visit infrequently, or are responsible for many other parks (Rodríguez-Martínez RE. 2008). Individuals who administrate natural areas are often politicians and bureaucrats and are not experts in any sort of environmental or social science field (García-Frapolli E, Ramos-Fernández G, Galicia E, Serrano A. 2009). Much of Mexico's natural protected areas occur on privately owned land, and when this land is declared as protected land, most often the existing population continues to

reside there but is not consulted about the protected area status (García-Frapolli E, Ramos-Fernández G, Galicia E, Serrano A. 2009). Due to their lack of expertise, government officials often prioritize economic growth in the management of tourist sites but do not account for things like carrying capacity, or reinvestment into the site (Enseñat-Soberanis, F., Frausto-Martínez, O., & Gándara Vázquez, M. 2018).

3.3. Archaeological ruins are the source of many conflicts

As the Yucatan Peninsula was primarily inhabited by the Maya civilization from 1000 BC until the 1500s, archaeological ruins are abundant in this area of Mexico (Sharer, R., & Traxler, Loa P. 2006). It is not uncommon for people to find ancient artifacts in their backyards, or to even discard them not knowing their importance, as was communicated to me in an interview by archaeologist Mariza Carrillo at Mexico's Universidad de Oriente in Valladolid. Archaeological ruins are some of the biggest tourist attractions in Mexico, which makes them not only important culturally but economically. The law in Mexico states that no matter where archaeological ruins are found, they are automatically the property of the Mexican government, to be regulated by them. This can cause confusing conflicts about jurisdiction, and who has authority over what land, especially when significant artifacts are found on private property. Many people choose not to report that they have found archaeological ruins in fear of getting their property seized, or that the artifacts will be mismanaged. This was communicated to me in several interviews and by many members of the Puerto Morelos community, but due to very strict trafficking laws and fear of legal retaliation, I am not able to disclose these names.

3.4. Tourists want to be helpful

In a survey of 196 tourists, when asked if they researched the sustainability habits of their hotel or tour company prior to coming only about ⅓ said 'yes'. However, when asked if they would come back to their hotel if they found it was harming the environment or local people, over 80% said 'no' (Figure 5). The results did not differ for international or domestic tourists. (Table 1). While tourists may not be actively seeking out more sustainable alternatives on their vacations, it is clear that tourists are looking to put their dollars into action in a way that is more ecologically and socially responsible.

When asked if they prefer a less crowded destination, over 90% of international tourists said yes. Domestic tourists comparatively were not as certain. 76% said yes while 21% did not mind. When asked if they prefer more popular destinations to less popular; 60% of international tourists said no, and domestic tourist were evenly split between Yes, No, and Not Sure. While we can reasonably conclude that most tourists prefer to visit destinations that are less crowded, if tourists value an experience that is less crowded, they may be willing to either pay more so that pricing mechanisms or visitor caps can be implemented at certain destinations so that they are not overwhelmed by too many visitors; or they may be willing to consider alternative destinations, rather than the more popular attractions (Table 1).

Over 80% of all travelers view companies more favorably when they respect the culture of local employees, make sure the community benefits from its presence, and buy commodities such as produce and art from locals (Mandala Research, 2018). On average, sustainable travelers compared to all other travelers, usually spend more money on their vacations overall (Mandala Research, 2018).

3.5. Non-traditional conservation practices are springing up within many communities

In an effort to both attract tourist dollars, and conserve ecological and cultural assets for future generations, many private citizens have started their own tourist initiatives in Quintana Roo. Several ejidos, or private landowners who have joined their land with others to form a community, have opened their land to tourists for unique and eco-friendly experiences; often offering experiences such as birdwatching, ziplining, and even swimming with crocodiles (Figure 6). In Tulum, fisherman have started a co-operative where they use their fishing vessels part time for tours. On the Islands of Holbox and Isla Mujeres, tour operators make a living taking tourists to view wildlife such as flamingoes and whale sharks. Jesus Aguirre, one of the whale shark tour operators I had the opportunity to speak with expressed that while there are regulations to protect wildlife and the ecosystem at large, this is largely an honor system carried out by the tour operators and tourists themselves. The operators must balance their own financial needs with the well-being of the wildlife that supports their businesses, often relying heavily on tourist education as their main tool. While these initiatives began as a way to protect nature and the culture of Quintana Roo, these are fast becoming some of the most sought-after experiences by travelers in the Maya Riviera, and without more strict management, are in danger of becoming a victim of their own success and becoming overrun with too many tourists. These places do not have the infrastructure or investment to support large amounts of people (Enseñat-Soberanis, F., Frausto-Martínez, O., & Gándara Vázquez, M. 2018). Many of these places also have the opposite dilemma in that they offer a unique experience for tourists but have trouble marketing themselves and bringing in enough revenue, as was stated by Elisa Guillen, a professor at the Technical Institute of Cancun who works with many of these small tourist enterprises to help them find ways to market themselves while also staying sustainable.

3.6. Smaller community initiatives may be less sustainable in the long run

While smaller tourist initiatives may have a somewhat smaller impact individually, the impact of all of them operating at an unsustainable level can be staggering. Small scale initiatives may suffer from the efficiency dilemma, in that they have trouble competing with large resort tourism, so they feel they must attract many more customers. They may also take much more cost cutting measures such as using more single use products or neglecting environmental or safety regulations. Many of these small operations may fear raising prices or enforcing guest codes of conduct (i.e., interacting with wildlife, wearing sunscreen, or climbing on ruins) for fear of alienating future customers (Caust, J. & Vecco, M. 2017). On the Island of Holbox, which has typically marketed itself as an

undeveloped, ecotourist paradise which does not even have paved roads, many of the islands' residents are now in favor of building an all-inclusive resort which many experts agree would significantly undercut future investment (Naidoo R, Adamowicz, W.L. 2005).

3.7. Sustainability is an equity issue

Of the twenty-two people I interviewed, all of them responded that sustainability had environmental, economic and social aspects that must be considered and balanced equally. When interviewees were presented with competing models of sustainability (Figures 4), all the interview subjects chose the three pillars model of sustainability, which represents these three aspects in equilibrium to achieve sustainability (Farrington, J. & Kuhlman, T. 2010). One interviewee stated that "people cannot really focus on the environment if we are starving", indicating that true sustainability cannot be achieved without an emphasis on equity, as we cannot expect people to focus on long term sustainability if their short-term basic needs such as food, water and shelter cannot be met. All of the interviewees come from varying economic, educational and ethnic backgrounds.

4. Discussion

4.1. In countries that struggle with political instability and corruption, traditional conservation measures cannot be relied upon

While Mexico has several policies in place to protect the environment, corruption and lack of resources leads to a lack of enforcement. A study conducted by the University of Cambridge over three decades and in several countries to understand different drivers of biodiversity concluded that the number one factor determining the success of conservation measures is strong governance (Amano, T., et al. 2017). Many traditional conservation measures rely on government policy change, nature reserves, and enforcement mechanisms to be successful, which explains why this particular study found that OECD countries have particularly successful conservation measures. In countries where political corruption and instability are the norm, this indicates that for conservation measures to succeed within Mexico, "strong governance" must rely on other forms of management other than top-down federal regulation. Strong governance may take the form of local governments, NGOs, private investment, or grassroots local initiatives as is evidenced in several other case studies. The wildlife conservancy model employed in Africa relies heavily on private investment, and is able to fill the enforcement gap through private security measures (Walpole, M.J., & Leader-Williams, N. 2001).

4.2. To create a sustainable tourist destination, there must be effective partnerships

While governments must be involved in the regulation of travel and tourism to some degree, as they ultimately have the final authority; the interests of communities, travelers, and the environment can be better served when interested stakeholders are given more authority to manage, and they communicate effectively with one another. Private interests and NGOs can bring funds and attract more people with skills to help fundraise, administrate and invest back into tourist destinations. Academics can give pertinent information about the development of these sites, and local people are typically the most in tune with day-to-day happenings and are typically the ones most

responsible for enforcing laws and codes of conduct. For a site to be sustainable there must be effective communication between these important groups, and effective administration and delegation of responsibilities, which is what many sites lack. A public/private partnership framework in which the government would contract out the administration of certain sites to NGOs and private investors, as has been similarly employed in Belize for the conservation of cultural and natural heritage has potential to be successful in Puerto Morelos and other parts of Mexico as it does not rely on top-down regulation (Cummins, A., *et al.* (2017). With more efficient management practices, more revenue can be brought in, which equates to fewer tourists, and less impact on the environment. Research also shows that when local people have more control over their own resources, that they are much more prone to protect them, and make better long-term decisions (Mountjoy, Whiles, Spyreas, Lovvorn, & Seekamp. 2016). One interviewee, Rosa Rodriguez stated that in her work trying to implement protections for coral reefs in Puerto Morelos, she saw the most success when she appointed leaders in the community and gave them the responsibility to protect the reef. They began to see the reef as their own and began to be very vigilant about protecting it. The aim of Archeologists Without Borders is to create a framework that stakeholders can use to work together with the government to co-manage sites in a way that is beneficial to all and foster effective community partnerships. Laureano Gonzalez, an engineer in Puerto Morelos, has been pushing for a model similar to the port system in Mexico as it may be a way to introduce an effective management strategy that maintains federal authority while allowing for more local autonomy, and flexibility with more public/private partnerships.

4.3. Tourism management and sustainable development goals

Managing tourism more effectively gives us the opportunity to make tangible progress on several UN Sustainable Development Goals. First and foremost, it allows us to bring more people out of poverty (Goal 1), create more reliable work (Goal 8), and reduce inequality (Goal 10). As was discussed in the previous findings (see 3.7), sustainability is an equity issue. If we do not focus on these issues in our tourism management framework, we cannot bring about sustainability in an environmental sense. By changing the fundamental way in which we regulate tourism via public/private partnerships, we can incentivize communities to take better charge of the ecosystems in which they live and work by better dictating the number of tourists that visit, and how these tourists interact with wildlife. This also allows us to better enforce the environmental regulations that already exist. Through these improved relationships between tourists, locals and wildlife, we can make significant progress on sustainability in our communities (goal 11), climate action (goal 13), and the conservation & improvement of our marine and terrestrial ecosystems (goals 14 &15).
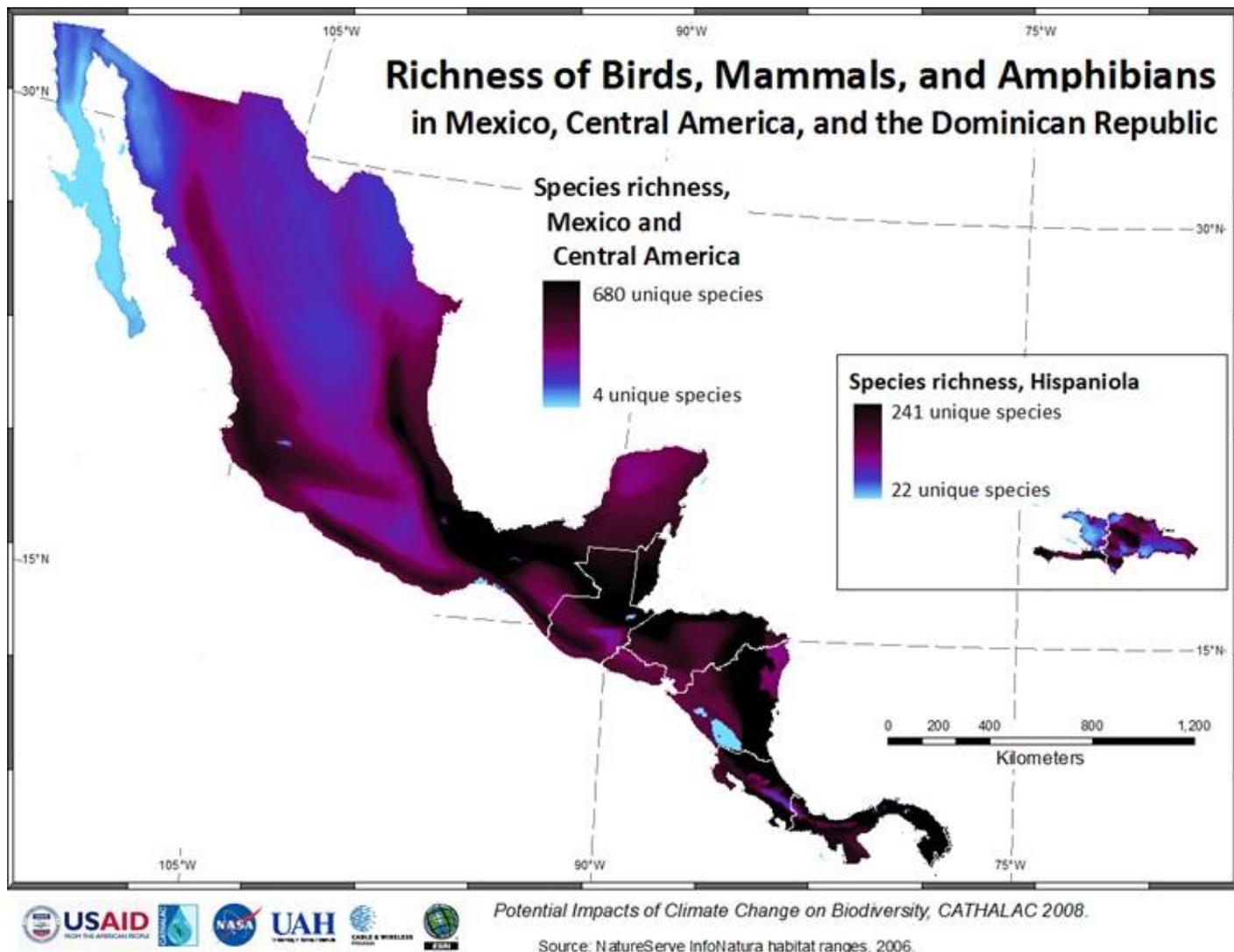
Figure 1. This map showcases species richness within Mexico, which contains only 1 percent of earth's landmass, but 8 percent of all terrestrial species.

(**a**)

(**b**)

Figure 2. Pyramids and other archaeological ruins, like those pictured here at Cobá (a), and Teotihuacan (b) are some of Mexico's most attractive tourist destinations.

Figure 3. A map of the Yucatan Peninsula. The state of Quintana Roo contains popular tourist destinations such as Cozumel, Playa del Carmen and Cancun. Puerto Morelos is located in the Riviera Maya.
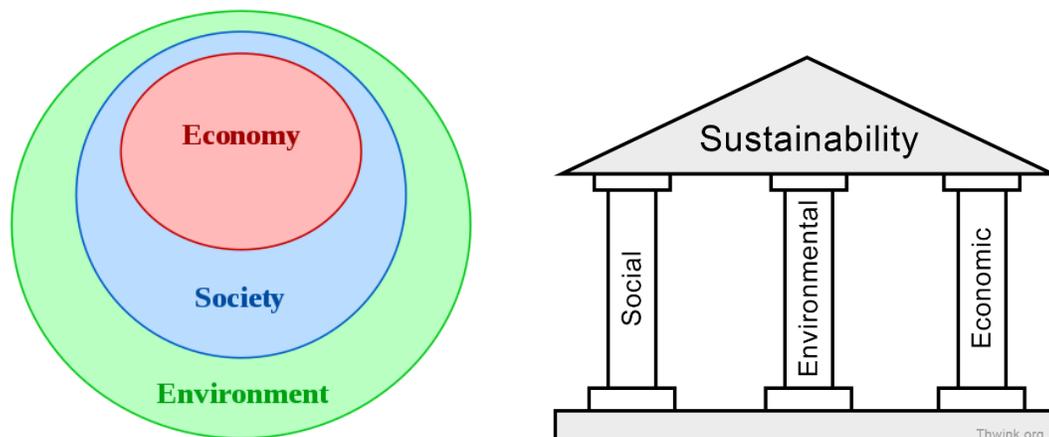

Figure 4. I asked interviewees to choose which model they thought was a better representation of sustainability – the nested dependencies model on the left or the three pillars model on the right. All respondents chose the three pillars model on the right.
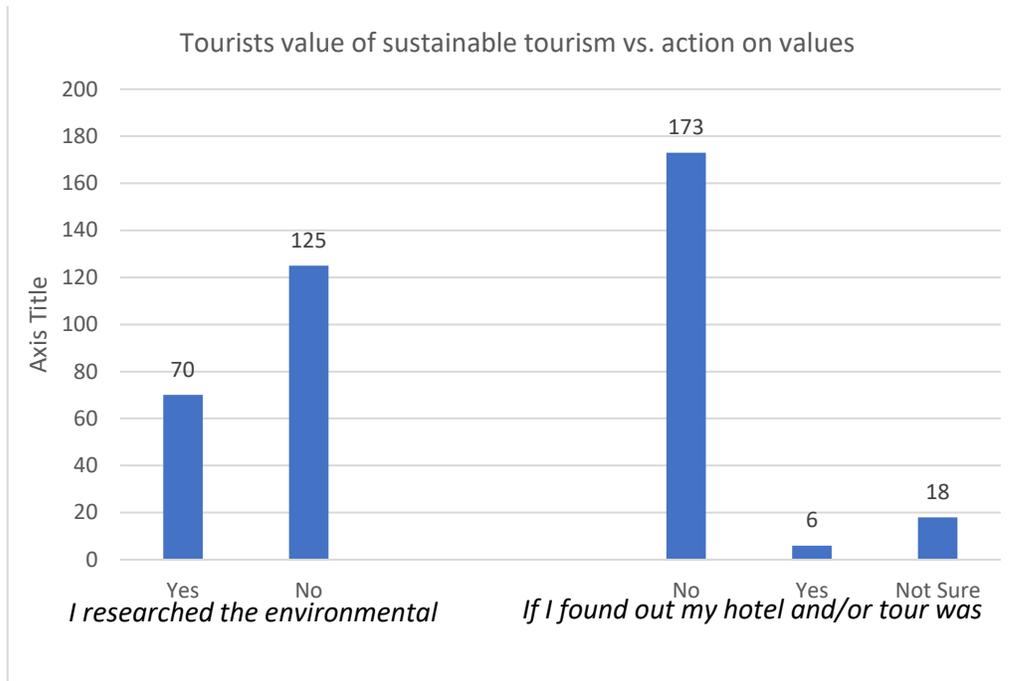
Figure 5. This graph shows that while tourists are not actively pursuing eco-friendly resorts or tours, they are willing to take action on those values.

Figure 6. This sign at Uxuxubi reserve directs people to the crocodile lagoon, where they can swim with crocodiles in cages.

What generation are you a part of?	1945 and previous [5]	1946-1964 [78]	1965-1976 [38]	1977-1995 [31]	1996-Present [3]			
What region do you currently reside?	USA/Canada [126]	Europe [9]	Asia [0]	Africa [1]	Australia/New Zealand [2]	South America [1]	Central America [1]	Mexico [14]
What is the primary attraction of this vacation destination?	Beach [91]	Cultural Destinations [16]	Nature [16]	Something else [32]				
I researched about my hotel and/or tour company before coming to find out if they are contributing to the local economy or harming the environment at all	Yes [56]	No [97]						
If I find out that my hotel and/or tour company is hurting local people or the environment, I will not want to come back	Agree [135]	Disagree [4]	Not Sure [16]					
I prefer to go to a vacation destination or tour that is less crowded	Agree [144]	Disagree [9]						
I want to see the more popular destinations while I am here vs. the less well-known attractions	Agree [26]	Disagree [93]	Not Sure [36]					
I like to experience local culture, or learn new things on my vacation	Strongly Agree [110]	Agree [39]	Neutral [5]	Disagree [0]	Strongly Disagree [0]			
I will likely post on social media about my vacation	Yes [124]	No [29]						

Table 1. Mexico Tourism survey responses; English version

What generation are you a part of?	1945 and previous [0]	1946-1964 [5]	1965-1976 [12]	1977-1995 [23]	1996-Present [2]			
What region do you currently reside?	USA/Canada [1]	Europe [1]	Asia [0]	Africa [0]	Austraila/New Zealand [0]	South America [0]	Central America [0]	Mexico [40]
What is the primary attraction of this vacation destination?	Beach [18]	Cultural Destinations [8]	Nature [10]	Something else [6]				
I researched about my hotel and/or tour company before coming to find out if they are contributing to the local economy or harming the environment at all	Yes [28]	No [14]						
If I find out that my hotel and/or tour company is hurting local people or the environment, I will not want to come back	Agree [38]	Disagree [2]	Not Sure [2]					
I prefer to go to a vacation destination or tour that is less crowded	Agree [32]	Disagree [1]	Neutral [9]					
I want to see the more popular destinations while I am here vs. the less well known attractions	Agree [13]	Disagree [15]	Not Sure [14]					
I like to experience local culture, or learn new things on my vacation	Strongly Agree [29]	Agree [11]	Neutral [2]	Disagree [0]	Strongly Disagree [0]			
I will likely post on social media about my vacation	Yes [33]	No [9]						

Table 2. Mexico Tourism survey responses; Spanish version

Tables 1 &2.   These tables represent the responses from an online survey of tourists visiting Mexico. Table 1 was a survey given in English, and Table 2 was the same survey given in Spanish to be able to represent both international and domestic tourists. The English survey received 155 total responses, while the Spanish survey received 42 total responses, for a total of 197 total responses. In the Spanish version of the survey, question 6 has three possible answers (Agree, Disagree, Neutral) rather than two (Agree & Disagree) as in the English version. This is the only difference in the two surveys besides them being given in different languages.

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