Monitoring tourism development

The case of Puerto Cortés, Honduras

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Le seul véritable voyage, le seul bain de Jouvence, ce ne serait pas d'aller vers de nouveaux paysages, mais d'avoir d'autres yeux, de voir l'univers avec les yeux d'un autre, de cent autres, de voir les cent univers que chacun d'eux voit, que chacun d'eux est.

Marcel Proust, La Prisonnière, 1923

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LIST OF ACRONYMS AND ABBREVIATIONS

ACS – Association of Caribbean States
AIEST - International Association of Scientific Experts in Tourism
ECLAC – Economic Commission for Latin America and the Caribbean
EIA - Environmental Impact Assessment
ENP – Empresa Nacional Portuaria – Honduras (Honduran National Port Authority)
ENTS - Estrategia Nacional para el Turismo Sostenible (National Strategy for Sustainable Tourism)
ERP – Estrategia de Reducción de la Probreza (Poverty Reduction Strategy)
GDP - Gross Domestic Product
HDI - Human Development Index
HIPC - Heavily Indebted Poor Countries Initiative
IHT – Instituto Hondureño de Turismo (Honduran Tourism Institute)
IMF - International Monetary Fund
INE – Instituto Nacional de Estadística – Honduras (National Institute of Statistics - Honduras)
INFOP - Instituto Nacional de Formación Profesional (National Vocational Training Institute)
JAA – Junta Administradora de Agua – Puerto Cortés (Puerto Cortés Water Management Board)
LAC - Limits of Acceptable Change
OECD – Organization for Co-operation and Development
PEDM - Plan Estrategico de Desarrollo Municipal 2007 – 2009 (Strategic Plan for Urban Development 2007-200)
PSR - Pressure-State-Response
QTC – Quality Tourism for the Caribbean
TOMM - Tourism Optimisation Management Model
UGA – Unidad de Gestión Ambiental (Environmental Management Unit)
UIFP - Unidad Investigación y Formulación de Proyectos (Research and Project Development Unit)
UNCED - United Nations Conference on Environment and Development
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNICEF - United Nations Children's Fund
USGS - US Geological Survey's Earthquake Hazards Program
UTM – Unidad Municipal de Turismo (Municipal Tourism Unit)
WTO – World Tourism Organization

Abstract

This study has sought to establish, through an explorative and qualitative approach, a set of sustainability indicators in order to assess the impacts of tourism development in the municipality of Puerto Cortés, Honduras. The intention was to deepen the understanding of tourism's effects and to propose a mechanism that once incorporated into local planning processes has the potential to allay some of the unintended consequences of tourism development while maximizing the desired positive outcomes. The first indicator results demonstrated that given the extreme seasonality and the initial stage of tourism development, the activity's effects have not yet reached alarming levels in Puerto Cortés. Nevertheless, the development of tourism might intensify pre-existing environmental deterioration processes. Recommendations arising from this study include the enhancement of local data collection and management processes so to support tourism planning decision-making.

Résumé

Cette étude utilisant une approche exploratrice et qualitative a établi un ensemble d'indicateurs de développement durable pour mesurer les impacts du développement du tourisme dans la ville de Puerto Cortés en Honduras. L'objectif est d'accroître la connaissance des impacts du tourisme pour pouvoir ainsi développer des outils pouvant être incorporés dans le processus de planification de Puerto Cortés. Si mis en œuvre, ces outils ont le potentiel de réduire les impacts indésirables du tourisme, tout en maximisant les effets positifs. Les premières évaluations des indicateurs démontrent que les impacts négatifs du tourisme n'ont pas encore atteint un niveau inquiétant puisque le tourisme est saisonnier et en n'est qu'à ses débuts. Le développement de cette industrie pourrait cependant accélérer le pas de la dégradation environnementale. Il est recommandé de bonifier la cueillette de données ainsi que les procédés de gestion pour améliorer la prise de décision pour la planification touristique.

Resumen

A través de un enfoque exploratorio y cualitativo, este estudio ha buscado establecer una serie de indicadores de sostenibilidad orientados a la evaluación de los impactos del desarrollo turístico en la municipalidad de Puerto Cortés, Honduras. El objetivo final ha sido profundizar en la comprensión de los efectos del turismo proponiendo un mecanismo que, una vez incorporado a los en procesos de planificación local, tenga la capacidad de mitigar algunas consecuencias indeseadas del desarrollo turístico maximizando así los efectos positivos. Los primeros resultados de la aplicación de los indicadores han demostrado que, dada la estacionalidad extrema y la etapa inicial en que se encuentra el desarrollo turístico, los efectos de la actividad aún no han alcanzado niveles alarmantes en Puerto Cortés. Sin embargo, el crecimiento del turismo podría intensificar el proceso de desgaste ambiental ya existente en la zona. Las recomendaciones surgidas de este estudio incluyen el perfeccionamiento de los procesos de recopilación de datos locales y su posterior manejo para apoyar, eficientemente, la toma de decisión de la planificación turística.

1. INTRODUCTION

The unprecedented growth of the international tourism industry over the past few decades, along with its related economic benefits, has aroused the interest of countries, regions and cities around the world in pursuing tourism as a lucrative economic activity. Tourism, however, is a very peculiar industry, as it transforms the natural resources and socio-cultural aspects of tourist areas into vendable commodities (Meethan, 2006, p. 2). Tourism is also distinct on account of its ephemeral and multifaceted nature. It can rapidly flourish or suddenly decline according to oscilations, for instance, in the global economy or media attention (Butler, 1980). Its multifariouness is evident both by the fact that it encompasses several economic sectors, and that it has a wide range of effects on tourist areas.

These distinct characteristics of the activity, however, are often overlooked due to the possibilities of quick profit. Tourism's effects on destinations differ from those occasioned by conventional economic sectors where products are exported to be consumed in the customer's milieu. These consequences can include the over-use of valuable economic and natural resources and interferences in the local social structures.

Tourism can bring positive and desired changes for destinations. The potential benefits, however, tend not to be realised in destinations where planning and managing authorities are not proactive and do not provide the appropriate conditions for these to occur. In the same way, the lack of preparedness for tourism's negative impacts can undermine its potential benefits and expose the destination to undesirable transformations (Telfer & Sharpley, 2008, p. 200; Wall & Mathieson, 2006, p. 308).

Several authors have argued that the lack of awareness of the dynamics of the tourism industry and its effects on destinations further contributes to its negative impacts (Miller & Twining-Ward, 2005; Telfer & Sharpley, 2008; Wall & Mathieson, 2006; WTO, 2004). Therefore, this study's general purpose is to deepen the understanding of

tourism's effects in Puerto Cortés, Honduras and to contribute thus to more effective planning.

Puerto Cortés' beaches have attracted visitors from neighbouring regions for several years, but it was only in 2007 that the dependency on the traditional port activities became a concern and influenced the municipal decision to pursue tourism as a means of diversifying the city's economic base. Based on this context, the two main questions guiding this research are: what are the outcomes of tourism development in Puerto Cortés and how can they be monitored over time and be integrated into decision-making in tourism planning and management practices?

This report is structured in seven chapters, the first being this introduction. Chapter 2 presents a theoretical overview on the nature of the tourism phenomena, its consequences on destinations and its relationship to sustainable development. The need for an appropriate framework to deal with the activity's multidisciplinary and rather unpredictable nature is recognized and the growing use of a systems perspective for the analysis of the tourism phenomenon is discussed. The chapter also encloses a review of planning and management for the sustainable development of tourism, stressing the importance of comprehensive and adaptive approaches which employ monitoring processes to minimize the uncertainty of planning and management decisions. Finally, the chapter concludes with an overview of sustainability indicators, which is the monitoring tool selected for application in Puerto Cortés.

The third chapter provides background information and an overview of tourism planning in Honduras and in Puerto Cortés. The fourth chapter accounts for the detailed description of the methodology used throughout the course of this work. In the fifth chapter, the selected sustainability indicators are presented, together with the results of their first application attempt. In the following chapter, these results are discussed, recommendations are drawn and a framework for the maintenance of the monitoring system in Puerto Cortés is suggested. Chapter seven presents final comments on the sustainable development of tourism in Puerto Cortés, recognizing the study's limitations

and identifying areas for further research. Finally, supplementary material and the detailed description of the issues and indicators can be found on Appendixes A through E.

2. LITERATURE REVIEW

2.1. The relevance of tourism

Over the past half century, technological advances and the rise in average incomes in developed countries, coupled with new policy frameworks have rapidly transformed tourism into one of the most important segments in international trade (Burkart & Medlik, 1974; Page & Connell, 2006). According to the World Travel and Tourism Council, worldwide employment directly generated by the tourism and travel economy grew by 60% between 1988 and 2008, reaching 78 million employees in 2008 (World Travel and Tourism Council, 2008) and also was estimated to account for 3.4% of total global GDP in 2008 (World Travel and Tourism Council, 2008, p. 6).

Rather than being a single industry in the conventional sense, tourism is, in fact, a multi-tiered and multi-disciplinary industry. The founders of the International Association of Scientific Experts in Tourism (AIEST), Swiss researchers Walter Hunziker and Kurt Krapf conceptualized tourism as "...the sum of phenomena and relationships arising from the travel and stay of non-residents, in so far as they do not lead to permanent residence and are not connected with any earning activity" (1942 in Burkart & Medlik, 1974, pp. 39-40).

The economic relevance achieved by tourism cannot be denied; it is evident that it involves the movement of a great amount of financial resources. Nevertheless, tourism does not present the same production patterns as traditional economic sectors. While in the case of manufacturing industries, for example, goods are shipped away to reach consumers, in tourism the final product is a place-specific destination and the ones travelling to reach it are the consumers themselves (Telfer & Sharpley, 2008, p.146). The phenomenon's magnitude and peculiar nature make it imperative to identify and understand its elements, dynamics and consequences.

2.2. Rationale for tourism's attractiveness

Tourism's fast growth rates in the recent decades have contributed to its image as a safe investment option. The strength of the tourism industry can be partly explained by the fact that it is composed by multiple sectors. Transportation, accommodation, tour operation, food services and increasingly, e-commerce, represent its main pillars. Its potential multiplier effect can thus stimulate the diversification of the local economy and attract new economic activity (Burkart & Medlik, 1974, p. 63). In addition, tourism is considered to be a labour intensive industry, becoming an important source of employment (Telfer & Sharpley, 2008, p. 27).

The advantages of tourism over other forms of development are especially appealing for the so-called developing countries[1]. In a large number of tourism destinations, the main attractions are the local natural resources and wonders that have traditionally been considered as possessing no intrinsic economic value and which can be explored with little or no initial investment. Under a simplistic and short-term perspective, these attractions are considered 'free'. The minimum or nonexistent initial investment needed to profit from them is a decisive element for financially deprived local governments. Furthermore, from a global trade perspective, tourism is not constrained by barriers imposed by countries or regions willing to protect their internal economies, a difficulty often faced by developing countries (Burkart & Medlik, 1974, p. 63; Telfer & Sharpley, 2008, pp. 17-20).

The general expectation is that substantial foreign currency earnings through tourism will rapidly help improve local living standards. In addition to direct visitor's expenditure, their presence can help economically justify and maintain amenities that

[1] The terminology referring to countries' wealth and social well-being is the object of considerable discussion among scholars. The term Developing Countries will be used throughout this study to refer to countries which share features such as economic dependence on traditional agricultural sectors, low standards of living, high population growth, high unemployment and underemployment, fragile economy characterized by high rates of national debts, and limited or unstable socio-political structures (Page & Connell, 2006, p. 458; Telfer & Sharpley, 2008, p. 11). Countries with opposite conditions will be referred to as Developed Countries. The author recognizes that these labels are an over-generalization and they do not take into account the disparities existent within each category. However, for the purpose and scope of this study, they are considered to suffice.

the local community itself would not be able to sustain, such as road networks, transportation services and a variety of food services. Another attraction for developing countries lies in the fact that the majority of the jobs created through tourism do not require highly skilled workers. Several of the basic skills needed in the tourism industry can be quickly learned by low-skilled population groups. In addition, the activity is also occasionally seen as a means of wealth redistribution. Tourist spending and external investments in infrastructure can be considered as wealth which is transferred from more affluent to poorer regions or countries.

Even though the tourism industry seems very alluring at first sight, the extent to which it is an adequate option for development is highly dependent on the pre-existing conditions of the destination. Critiques of the unquestioned advocacy of tourism development have gained force since the eighties when the overexploitation of resources became visible in mass tourism destinations around the world (Miller & Twining-Ward, 2005, p.29; Telfer & Sharpley, 2008, p.31). Nevertheless, tourism is still generally perceived as a quick solution to stimulate national or local economies. Some of the common changes related to tourism development are presented in the following section.

2.3. Changes in tourism destinations

Changes occasioned by tourism development are destination-specific and cannot be easily generalized. As the nature of the transformations vary in scope and intensity and tend to depend on the type of tourism in place, on particular community characteristics and on the kind of host-guest interactions that occur in the particular destination (Wall & Mathieson, 2006, p. 65). Even so, it is possible to identify patterns of change in similar destinations around the world. The discussion presented in this section focuses on coastal destinations with the intent to provide background information for the study of Puerto Cortés, Honduras. It cannot, thus, be considered an extensive review covering all tourist destinations.

2.3.1. Economy

Economic development is generally the first reason for any destination to invest resources in the tourism sector. As was noted in section 2.2, from a national point of view, potential foreign exchange earnings and their contribution to the balance of payments are very attractive characteristics. At the local level, the generation of income from tourists' direct expenditures in local businesses and the increase in tax revenues for local governments are important economic benefits. The demand and income generated by the tourism industry, in turn, creates new demands and income from these local businesses, expanding the reach of the economic benefits in what is generally referred to as the *multiplier effect*. Tourism also stimulates the creation of small enterprises, such as handicraft and food commerce, in addition to the generation of employment in businesses such as travel agencies or tour operators.

On the other hand, tourism also has substantial economic costs, which are often under-evaluated. The most important cost associated with it is the foreign exchange leakage resulting from the increase in the tendency to import foreign products to satisfy tourism sector demands. Added to that is the fact that in developing countries, hotels and tour operators are very often foreign-owned and resulting profits are sent overseas. The increased demand for goods and land can cause inflation and raises the cost of living in the destination. Tourist activities also tend to escalate infrastructure costs, such as garbage collection, traffic management, crime prevention and health services. In addition, it is common that destinations with few resources, or which pursue tourism as a means of overcoming an economic crisis become over-dependent on the industry and thus vulnerable to its typical demand oscillation cycles. The seasonality of tourism normally also generates a cost. It overloads the destination's physical and organizational infrastructure for a short period of year, but facilities and services (at least most of the public services) must be maintained throughout the whole year. Similarly, it induces the creation of short-term jobs resulting in unemployment during the low season, with

associated economic and social costs (Telfer & Sharpley, 2008, p. 183; Wall & Mathieson, 2006, pp. 149-150).

2.3.2. Built environment

Urbanization and sprawl are considered by several authors as visible consequences of tourism development (Cohen, 1978, p. 226; Wall & Mathieson, 2006, p. 200). In the case of coastal destinations, the high value attributed to waterfront properties can lead to the continuous search for new areas to develop. As tourism thrives, the area tends to become economically attractive, also giving birth to new settlements in its surroundings. Tourism itself becomes the attraction and not the natural or cultural features which first brought visitors to the area (Miossec, 1976, pp. 59-60), encouraging an ever-increasing urban sprawl.

As the original tourist-focused town grows it also incorporates a wider range of functions becoming progressively more similar to a traditional urban centre. At this stage a process of spatial specialization can be identified (Miossec, 1976, p.59). Stansfield & Rickert (1970 in Hall & Page, 2006, p.300) have explored how tourism tends to give birth to a specialized center which encompasses commercial activities targeted on tourists, such as restaurants, food stands, souvenir shops and nightclubs. The spatial specialization brings about another process common in tourist destinations, i.e., spatial segregation between host population and visitors. As mentioned earlier, the growing demand for land tends to increase prices in the areas adjacent to tourist attractions. Residents are thus pushed away and small scale buildings are normally substituted by more intensive uses, such as high-rise hotels or apartment buildings.

The expansion of tourism also risks overloading existing infrastructure. Increases in wastewater and solid waste generation and in water and energy use can lead to water and soil pollution and interruptions of water or energy supply. In addition, congestion is a common problem faced by destination areas due to the large number of visitors. Finally, another impact of tourism on the built-up environment which is often

mentioned in the literature is architectural pollution. The maximization of land use often leads to the construction of large and high-rise buildings in the area surrounding tourist attractions. This kind of development is frequently criticized for the physical barrier it creates and for its unattractive design. It is very common that the latter follows internationally standardized architectural concepts at the cost of harmony with local architectural traditions and biophysical environment (Wall & Mathieson, 2006, p. 203).

2.3.3. Biophysical environment

The biophysical environment constitutes the most valuable tourism resource in several destinations. Scenic views, unspoiled water bodies or exotic fauna and flora are very often the most popular local tourism attractions. Advocates of tourism posit that the interest of visitors helps create awareness about natural attractions and contributes to their conservation. As nature is the product visitors look for, it tends to be protected from other economic uses that could destroy it. In addition, tourism is also seen as the provider of the economic means to conserve natural resources (Powell & Ham, 2008, p. 484; Wall & Mathieson, 2006, p. 159).

The positive effects of tourism on the conservation of natural resources, however, still lack a consistent body of research to receive larger academic support (Powell & Ham, 2008); thus, the focus of the literature is normally placed on the negative impacts caused by the use of natural areas for tourism purposes. The following description is based on the interactions between tourism and the distinct ecosystems existing in Puerto Cortés.

2.3.3.1. Coastlines and marine ecosystems

Coastline areas and marine ecosystems are generally the most affected by tourism. The range of tourism activities in these ecosystems is broad, from accommodation and infrastructure construction to boating, bathing, snorkelling, and scuba-diving. All of them, however, place a strain on the ecosystems.

Coastal and dunes erosion and shoreline recession are typical consequences of coastal construction. Furthermore, the development of these areas and their infrastructure needs also causes underground water pollution. The drainage or reclamation of marshlands and mudflats, as well as the clearing and dredging of mangrove forests for the construction of marinas alter water levels and nutrient concentration changes, disturbing and in some cases eliminating wildlife habitats and the associated species (Wall & Mathieson, 2006).

Waste and untreated sewage disposal, coupled with oil and combustion products from recreational vehicles cause the death of aquatic plants and animal life in marine ecosystems, as well as causing health risks to the tourists and locals alike. Sea water pollution also damages fragile coral reefs which are critical to the continued existence of a very large number of marine species and suffer from tourists who walk on them or take pieces as souvenirs (Wall & Mathieson, 2006).

2.3.3.2. Mountains

Erosion and destruction of vegetation along trails and on camping sites are the most evident consequences of tourism on mountain ecosystems. Even if the activities such as trekking, mountain biking or camping normally only having localized effects the destruction of the vegetation automatically modifies wildlife's habitat, while accelerated erosion occasions the transfer of sediments and pollutants to neighbouring water bodies. In addition, the circulation of tourists in remote areas with little or no infrastructure leads to litter accumulation (Wall & Mathieson, 2006).

Logically, in cases where tourist activities have a mass component, such as ski resorts, the intensity and the scope of the impacts are much larger. The construction of roads can change drainage patterns and interrupt wildlife's migration paths. Infrastructure development brings deforestation, pollution of underground water supply, and the generation of considerably large amounts of waste (Wall & Mathieson, 2006).

2.3.3.3. Tropical rainforests

Tropical rainforests are increasingly receiving more attention from tourists. The consequences so far documented relate to the circulation of tourists in the forests and to their interaction with the native wildlife. As has been noted in the case of mountains, the creation of paths for tourist's circulation destroys vegetation and alters the habitat of small animals. The eroded and compacted soil induces the introduction of new flora and fauna. The introduction of new species, in turn, can alter the balance of the local food chain (Wall & Mathieson, 2006).

2.3.4. Society and culture

It is widely recognized that the effects of tourism on society and culture tend to be broader and more intense when the destination is located in a developing country. The reason for this trend is the greater economic contrast between the tourists, generally coming from more affluent countries, and the host population. It is important to note, however, that ongoing and world-wide structural changes have progressively exposed communities around the world to external economic and social forces. Tourism intensifies some of these trends, but it is not always their direct cause. In addition, a certain level of social change is often one of the desired outcomes of tourism in these communities. For this reason, it is hard to arrive at a consensus on the definition of positive and negative social changes brought by tourism (Telfer & Sharpley, 2008; Wall & Mathieson, 2006).

The improved social conditions generated by the larger number of employment opportunities are probably the most desired social consequence of tourism. However, this expectation can sometimes be frustrated when better positions and salaries are taken by an imported labour force or when seasonality induces the creation of only short-term jobs only. Often, locals become servants to businesses or in second-homes owned by affluent groups who arrive with tourism development. It is not uncommon that the ratio between the number of visitors and residents is higher than one, meaning that the local population becomes a minority in their own territory.

The aspiration for a better quality of life can also take the form of imitation of tourist's behaviour or dress style in a process which is generally referred to as the demonstration effect. Furthermore, the attractiveness of the tourism industry can also lead to the abandonment of traditional industries such as fishing or agriculture. The young population migrates from rural areas towards the city, increasing the disparity between poor rural areas and urban affluent ones (Telfer & Sharpley, 2008; Wall & Mathieson, 2006).

Even if there is little available data, a general belief exists that tourism can play a role in the increase to crime rates and prostitution. In certain destinations, such as Thailand and the Philippines, sex tourism has indeed become a problem and the arrival of tourists has also been shown to attract criminals and drug dealers to tourist destinations. In some cases, the effects on the local society can be so serious that they may lead to hostility against the tourism industry. Finally, tourism can induce the demand for traditional rituals and handicrafts, providing work for local artisans. On the other hand, the same demand, if not well managed, can lead to the mass production of standardized souvenirs (often made in foreign countries), or to the commoditization of traditional and religious rituals which are presented only for tourist's entertainment (Telfer & Sharpley, 2008) .

As it has been shown, tourism development can, indeed, have negative consequences on destinations. On the other hand, it can also bring positive and desirable change. The balance between the two seems to be the key goal in any destination trying to combine sustainable development and tourism. For this reason, a few aspects regarding sustainable development will be introduced before continuing with the tourism-specific concerns.

2.4. Towards sustainable tourism development

2.4.1. Sustainable development

Attempts to precisely define sustainable development have been made by numerous scholars since the expression became wide-spread through the Brundtland Commission report entitled *Our Common Future*. The report conceptualized it as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 37). Sustainable development, however, continues to be an unclear concept, broad enough to be interpreted according to particular ideological views.

Telfer & Sharpley (2008, p. 36) synthesize the discussions started by the Brundtland Commission report by defining three core principles of sustainable development: *holistic approach, futurity* and *equity*. The holistic approach refers to the recognition of the interdependency among global economic, ecological and social issues. Futurity refers to the need for long term objectives which ensure the endurance of the global ecosystem and its continuance for future generations. Equity, in turn, deals with the provision of equal opportunities of access and use of resources.

Despite the general lack of clarity on the definition of sustainable development, the debates it has encouraged on the relationship among ecology, economy and society have left an important legacy on the understanding of the rationale behind changes in our ecological and social systems. One of the theories those debates have helped to disseminate is that of *systems thinking* (Miller & Twining-Ward, 2005; Murphy, 1985). Systems thinking as an area of study dates back to the fifties (International Society for the Systems Science, 2009) and it is used to study and analyse complex systems formed by highly interdependent elements (Wilson, 1981 in Murphy, 1985, p. 173) . The notion of complex systems implies that any given system's element can only be understood if its linkages to other elements are taken into consideration. A complex system is, in this

sense, more than the simple sum of its parts (Miller & Twining-Ward, 2005; Murphy, 1985; Page & Connell, 2006).

The application of systems thinking to sustainable development helps to debunk the belief that the latter is a state of equilibrium which can be indefinitely maintained once it is achieved. Conversely, there is the recognition that periods of equilibrium in our natural ecosystem are interrupted by abrupt, unexpected occurrences (Holling, 1978, 1986; Gleick, 1987 in Miller & Twining-Ward, 2005, p. 10). At each of these events the system adapts itself to the new conditions generating a new equilibrium instead of returning to its original state. The process of development is thus not linear; it absorbs changes and is constantly evolving to new, more suitable, states.

The importance of this concept lies in the notion that sustainable development is not a state to be achieved, but rather a process of continuing evolution (Miller & Twining-Ward, 2005, p. 16; Telfer & Sharpley, 2008, p. 30). Thus, if development is to be sustainable, it needs to be constantly monitored and evaluated so actions can be taken to ensure its evolution in line with the desired principles (Holling, 1993 in Miller & Twining-Ward, 2005, p. 16). The same logic applies to sustainable tourism development as will be discussed in the next section.

2.4.2. Sustainable tourism development

The concept of sustainable tourism has gained force following the increasing recognition of sustainable development principles and the rising consciousness regarding tourism's destructive potential (Telfer & Sharpley, 2008, p. 31). So far, however, there is no consensus on the exact use of the expression. Some authors consider sustainable tourism as the final purpose that should ideally be pursued by the stakeholders involved in the field (Miller & Twining-Ward, 2005, p. 35). A second group of authors use a narrower definition referring to sustainable tourism as an industry-based concept including it among new forms of tourism proposing alternatives to mass tourism such as ecotourism or community-based tourism.

An exhaustive discussion on the terminology is beyond the scope of this study. The intention in this section is to clarify and provide a background for some of the principles of sustainable development which have been applied to tourism. The expression sustainable tourism in this study refers to the industry-related concept which is considered an alternative form of tourism (more on alternative forms of tourism can be found at the end of this section). Sustainable tourism development, on the other hand, is used as the broader concept involving the intersection of sustainable development principles and tourism.

Tourism was not specifically mentioned on the 1987 Brundtland report. The first discussions on the application of sustainable development principles in tourism only took place during the *Globe '90* Conference in Vancouver, Canada. Nevertheless, it was included in the *Agenda 21*[2] as an activity whose effects on the environment and society should be monitored and controlled.

In 1995 the *Charter for Sustainable Tourism* was produced during the World Conference on Sustainable Tourism in Lanzarote, Canary Islands, Spain. The document, adopted by the UN General Assembly, highlights the role of tourism as an "element of socioeconomic and political development" bound by sustainable development principles. At the same time, it recognizes that the activity "...can contribute to the degradation of the environment and the loss of local identity" (*Charter for Sustainable Tourism*, 1995). Based on this framework, the adoption of eighteen principles and objectives is suggested. These cover the aforementioned basic principles of sustainable development (holistic approach, futurity and equity) and, in addition, give emphasis to the need for integrated planning as a means of implementing them.

According to the *Charter for Sustainable Tourism,* tourism should contribute to sustainable development through: respect for a balanced approach to the environment

[2]The Agenda 21 is an action plan for the implementation of sustainable development adopted at the United Nations Conference on Environment and Development (UNCED) held in 1992, in Rio de Janeiro, Brazil (UNCED, 1993).

in sensitive areas, positive contribution to local economic development, support of destination's cultural heritage, local stakeholder participation and equitable distribution of tourism's positive and negative effects, among others. For these objectives to be achieved, the *Charter* stresses the need for the dissemination of information about sustainable tourism development and the implementation of planning and management tools such as the monitoring of achievements, production of reports on results and the exchange of experiences among stakeholders (*Charter for Sustainable Tourism*, 1995; Miller & Twining-Ward, 2005, p. 33).

The principles mentioned in the *Charter* set a framework for the current understanding of sustainable tourism development. However, like the concept of sustainable development, these principles are criticized for having little connection with the reality of tourism. The difficulty in translating vague concepts into actionable guidelines allowed for the emergence of scattered initiatives to alternative tourism, or new tourism, each one with its own understanding of sustainable tourism development. Common labels include ecotourism, sustainable tourism, fair-trade tourism, community based tourism and more recently, pro-poor tourism. These initiatives tend to prioritize small-scale developments and share concerns on environment conservation, heritage protection and local stakeholder's participation in tourism. However, the intensity with which these goals are pursued and the approach used for their achievement are not consistent and often turn out to be marketing strategies rather than a true commitment to sustainable tourism development.

The Pro-Poor Tourism Partnership is one of the most recent initiatives and differentiates itself from other alternative forms of tourism by focusing specifically on the reduction of poverty in destinations located in developing countries instead of prioritizing a holistic approach. Its goal is to deliver net benefits to the poor through tourism development (Pro-Poor Tourism Partnership, 2009). The commitment of the initiative is not questioned here; however, if analysed in a broad context of sustainable tourism development, the recent emergence of such an initiative suggests that existing

alternatives have not yet been able to successfully redistribute the economic benefits generated by tourism (Telfer & Sharpley, 2008, p. 54).

The limited scope and the apparent failure of alternative tourism in conveying sustainable development principles into effective, widespread practices in the tourism industry have stimulated the exploration of other, more comprehensive approaches to sustainable tourism development. Systems thinking (see section 2.4.1) has been applied in tourism management since the eighties (Murphy, 1985, p.174) and has lately been receiving increased attention.

Systems' thinking seems to be especially suitable to the understanding of tourism dynamics due to the latter's unpredictable nature. Tourism activities are extremely dependent on factors external to destination's control, such as world-wide pandemics, terrorist attacks, financial crises or political instability. Recent examples of such events occurred in the first semester of 2009 and include the influenza H1N1 pandemic, which drastically reduced the number of tourists travelling to Mexico and the political instability in Honduras, which had as prompt consequence the cancellation of several international flights to that country. McKercher (1999) and Hall & Page (2006) argue that the isolated study of tourism does not provide sufficient background to understand its complexities and the kind of unpredictable events to which destinations are vulnerable. Under this perspective, an approach which takes into account the relationship between tourism and external systems and which recognizes that these relationships do not follow a linear structure is more likely to provide support in case of unexpected changes and facilitate the regeneration of destinations.

The systems approach also seems to provide an appropriate framework to study and analyse tourism's multi-sectoral nature. According to Russell & Faulkner (1999), by interpreting tourism through a systems perspective it is assumed that a small and apparently irrelevant change or disturbance in the tourism area can originate a chain reaction that will lead to substantial changes in the local development dynamics. The

authors use this concept to explain how local entrepreneurs can have a decisive role in the development and consolidation of tourism destinations.

The reinterpretation of sustainable tourism development through a systems perspective has influenced the tourism planning and management practice opening space for new approaches. As Farrel & Twining-Ward (2004) argue, for tourism development to be sustainable it needs to be planned and managed through a *comprehensive, stakeholder-driven* and *adaptive* approach. Comprehensiveness, according to the authors, denotes a perspective beyond sectoral boundaries. They assert that the effects tourism have on the destination are part of the tourism activity itself, and not outcomes which should be treated separately. Likewise, the local resources used by it, such as fresh water or energy supply should also be integrated and managed as part of the tourism system.

Participation of local stakeholders, in turn, is a concept inherent to the sustainable development's principle equity of opportunity, and thus has an important bearing on sustainable tourism development as well. The only way for any initiative to be truly locally-legitimated is through the input of all the stakeholders directly and indirectly involved in it. In addition, participatory decision-making can increase the awareness of the local population, stimulate the sense of responsibility for the problems and reduce the uncertainty of planning and management decisions.

Finally, the use of adaptive management as the most appropriate approach to deal with the unpredictable nature of tourism is suggested. Conceptually, adaptive management is based on the assumption that existing knowledge of systems is partial and therefore their changes cannot be predicted (Miller & Twining-Ward, 2005, p. 47). To minimize the effect of this uncertainty, iterative processes of continuous experimentation, monitoring and learning are needed (Holling, 1978). In practice, this concept is translated into planning and management approaches which are flexible enough to test responses and build upon their own failures, improving techniques through the accumulation of knowledge about systems' behaviour.

The key challenge to the suggested approach lies in its implementation. The same flexibility and lack of linear structure which is the main advantage to a comprehensive vision and adaptive management can be challenging to implement in hierarchically structured decision-making processes, as is generally the rule in the case of local governments. It requires a deep organizational restructuration to accommodate a continuous flow of information which does not follow a simple top-down direction, but includes a transversal flow interacting with several domains. In addition, it necessitates that the decision-making process is continuously evaluated, and that mistakes are exposed so that lessons are learned for future situations. Successful and effective participatory processes are also not easy to implement. Achieving a fair representation for all stakeholders and ensuring their equal participation in decision-making can be a long, complex and costly process, reducing the ability of the management system to respond to local concerns.

Nevertheless, these limitations do not invalidate the proposed comprehensive, stakeholder-driven and adaptive approach to tourism planning and management. The acknowledgement that an analysis restricted to tourism only does not allow for the full understanding of its complexities seems to be an essential notion in dealing with tourism development. It justifies, thus, the effort to improve planning and management approaches derived from it. Sustainable tourism development is more likely to become reality once tourism's multifaceted and discontinuous nature is reflected in the methodology used for its planning and management.

2.5. Overview of tourism planning and management practices

The potential positive consequences of tourism tend to not take place in destinations where planning and managing authorities are not proactive and do not provide the appropriate conditions for their occurrence. In the same way, the lack of preparedness for tourism's negative impacts can undermine its potential benefits and expose the destination to undesirable transformations (Telfer & Sharpley, 2008, p. 200; Wall & Mathieson, 2006, p. 308).

Several authors have pointed out the need for tourism to be planned and managed as a means to ensure that its benefits are optimized and its negative effects neutralized as much as possible. The distinction between planning and management is well drawn in tourism literature. Planning is defined by Wall & Mathieson (2006, p. 293) as "...the process of making decisions about future desired states and how to attain them". It involves a long-term, comprehensive vision for the entire destination. Management, in turn, refers to short-term processes through which the broad vision is implemented (Telfer & Sharpley, 2008, p. 200; Wall & Mathieson, 2006, p. 293).

There are, however, few examples of successful comprehensive tourism planning. In most cases where there is an effort to plan for tourism development, the activity is incorporated into an existing urban or regional planning structure without full understanding of its own dynamics. Thus, specific management tools are built-in to the existing framework to deal with tourism-related issues. The principal shortcoming to this common approach is its lack of comprehensiveness. As tourism is not recognized as a system with its own dynamic, it is all too often merely seen as an agent of change when it causes noticeable interference to other systems. Common examples refer to the effect of tourism on the local biophysical environment. It is not rare that management actions are taken to address untreated sewage disposal, for instance, only after related illnesses reach alarming numbers. Furthermore, given the lack of broad tourism planning policies, when management actions are undertaken, they tend to focus only on the activity's specific outcomes, while ignoring the underlying causes and their interconnections with other factors.

The recognition of the importance of a comprehensive and integrated approach to planning and management of human settlements – whether they are tourism destinations or not – emerged with the aforementioned discussions on sustainable development and the subsequent *Agenda 21*. The latter has also reinforced the conviction that to ensure sustainable development over time, sound information to support decision-making is needed, and changes must be constantly monitored.

The trends set by debates on sustainable development and *Agenda 21* have stimulated the discussion on how to glean accurate information about tourism's consequences and monitor them over time. Monitoring is especially important in tourism given the activity's volatile and inter-sectoral nature, which makes its planning a challenge and increases the importance of the availability of accurate information. The establishment of a monitoring program assists governments in tracking a progress of changes on the destination and of their own efforts to manage them. A continuously evolving measurement system also tends to improve the overall knowledge of sustainable tourism development issues among municipal bodies and the general public. Several authors argue that one of the problems for effective tourism planning and management is the lack of understanding of the dynamics of the tourism industry (Miller & Twining-Ward, 2005; Wall & Mathieson, 2006). In addition, the reporting of information on tourism consequences can generate dialog among citizens and help create partnerships among stakeholders (New Economics Foundation, 2003 in Miller & Twining-Ward, 2005). Under this perspective, several methods have been proposed to assess the consequences of tourism and provide data to support planning and management processes. *Environmental Impact Assessment* (EIA), *Carrying Capacity Calculations*, *Limits of Acceptable Change* (LAC), and *Sustainability Indicators* are the most disseminated tools and are discussed in greater detail below.

Environmental impact assessments (EIA) have been long used to maximize positive while minimizing negative consequences to specific development projects. Their goal is generally to reduce the undesired impacts of a project while protecting the public interest. EIAs have become a requirement for most large-scale development proposals submitted to municipal planning departments around the world. If well conducted, they can provide valuable information on environmental, social and economic consequences of a project. In practice, however, the tool is often not used to its maximum potential. Its scope is frequently limited to the duality of environmental protection and economic development, focusing on physical impacts. It is also often criticized for its subjectivity.

As with most other techniques, the impacts evaluated in an EIA can be subject to data manipulation (Wall & Mathieson, 2006).

The main critique to the use of EIAs in tourism development however refers to the general lack of structure in its implementation. As they are targeted on the impacts of a single project, the overall change brought by tourism development remains uncontrolled and unassessed. In addition, their enforcement is highly dependent on political will and their results are normally not monitored over time, turning them into a one-time static estimation which is never revaluated. These difficulties end up reducing the tool's effectiveness especially when the intention is to manage the impact of a highly dynamic and multi-faceted industry such as tourism (Mowforth & Munt, 2009, p. 113; Wall & Mathieson, 2006, pp. 301-304).

The concept of carrying capacity was created during the sixties. It refers to the level of use a given area can accommodate without suffering deterioration or reducing the quality of visitors' experience (Hall & Page, 2006). Different types of carrying capacities can be measured: physical, economic, ecological, socio-cultural and psychological. The physical carrying capacity of an area consists in the number of visitors it can support without suffering adverse effects; economic carrying capacity deals with the use of the economic resources available in the area (Pigram & Jenkins, 1999; Coccossis, 2004 in Hall & Page, 2006, p. 148); ecological capacity refers to the number of activities the site can support before irreversible ecological damage sets in; socio-cultural capacity establishes the limit of socio-cultural interference the local community can support. Psychological capacity, in turn, refers to the quality of the visitors' experience, and their tolerance to the congestion typical of tourist sites.

The main critiques to the carrying capacity tool are on account of its subjectivity and arbitrariness. There is no consensus on how these capacities should be defined and calculated, resulting in arbitrarily drawn-up standards. Furthermore, the establishment of a single quantitative limit to the use of a site is of little help when one considers that the impacts of tourism depend on a variety of independent and dynamic elements such

as site conditions, visitor's behaviour, season of use, management techniques in place and so on (Ceballos-Lacuarain 1996, p.131 in Hall & Page, 2006, p. 148; Telfer & Sharpley, 2008, pp. 201-202). Despite its weaknesses, the concept and the methodology used in carrying capacity calculations have provided positive contributions to the dissemination and development of tourism management tools.

The Limits of Acceptable Change technique (LAC) has emerged as an alternative to the traditional carrying capacity calculations. It was developed to manage visitation of wilderness areas in the US during the eighties (Stankey et al., 1985 in Miller & Twining-Ward, 2005, p. 131). The limit established is not based on the quantification of the site's use, but on the changes the area can support. Monitoring of indicators is used to identify when site conditions reach an established limit, independently of what particular use has caused the limit to be reached. Selected management responses are then put in practice. The approach includes the possibility of stakeholder involvement and tends to be flexible rather than regulatory (Prosser, 1986 in Hall & Page, 2006, p. 151). Despite its inherent advantages, the LAC has not been widely disseminated. Its use has been restricted to natural park areas, and stakeholder involvement has not been consistent (Hall & Page, 2006, p. 151). Its methodology, however, has contributed to the application of sustainability indicators in tourism, which will be discussed in detail in the next section.

2.6. Sustainability indicators

2.6.1. Definition

Indicators have long been used to measure and monitor progress and development (Meadows, 1998). Their dissemination is attributed to the introduction of the Gross Domestic Product (GDP) as a measure of economic development during the late forties. The GDP has rapidly been generalized and became a popular measure of a country's prosperity. With the rise of sustainable development debates the use of well-being standards based on measures of economic development has been heavily criticized, and

new and more holistic instruments have been proposed giving birth to the so-called sustainability indicators (International Institute for Sustainable Development, 1997; Miller & Twining-Ward, 2005). The latter differs from traditional economic indicators by incorporating other dimensions of well-being and reflecting the holistic notion of sustainable development.

Thus, indicators do not have a single definition, as the purpose and the area of their use determine their conceptual framework and the approach to be applied in their construction. The World Tourism Organization (WTO) defines indicators in the context of tourism as "... measures of the existence or severity of current issues, signals of upcoming situations or problems, measures of risk and potential need for action, and means to identify and measure the results of our actions" (WTO, 2004, p. 8).

Sustainability indicators are characterized by their integrative, forward-looking and distributional nature (Maclaren, 1996). They are integrative by providing measures which combine aspects of social, economic, physical and psychological needs of human beings (Maclaren, 1996; Sirakaya, 2001 in Miller, 2005, p.114). One example of an integrative indicator which was developed by Sustainable Seattle (1998) and which is relevant to both environment conservation and economy is the number of wild salmon returning to spawn compared to the overall salmon runs in local rivers.

To be effectively forward-looking, indicators should ideally be linked to a pre-established goal or threshold. They can also refer to mathematical models with predictions, such as population growth rate. Finally, to be distributional, sustainability indicators should avoid population or geographical generalizations. They should take into account, for example, a poverty pocket inside a well-off area, or percentages of pollution which is not produced by the affected community (Maclaren, 1996).

Another essential characteristic of sustainability indicators highlighted in the literature refers to their development process, in which local stakeholders have a critical role. If

development is to be sustainable, it should be adapted to local conditions and address local aspirations (Maclaren, 1996; Miller & Twining-Ward, 2005).

2.6.2. Strengths

There is a general consensus that the lack of relevant information to support tourism planning and management is one of the key reasons for the recurrent negative impacts of the activity in destinations around the world (WTO, 2004). To address this limitation, several authors recommend the use of sustainability indicators to monitor tourism development and its consequences on the destinations (Hall & Page, 2006; Miller & Twining-Ward, 2005; Wall & Mathieson, 2006; WTO, 2004). When properly developed and implemented, sustainability indicators provide a holistic and evolving framework to monitor how tourism affects the community, differing in this sense from the narrower scope provided by carrying capacity or limits of acceptable change calculations and the one-time assessment performed through EIAs.

Effective sustainability indicators can bring a series of benefits to planners, managers, the tourism industry, community organizations, and citizens. In the management process, sustainability indicators can help in the establishment of priorities. In the tourism planning process, in turn, indicators can be used to monitor progress towards pre-established goals. According to the objective for which they are developed and to the individual characteristics of the selected indicators, they can be valuable in a range of situations. The monitoring of trends through early-warning indicators can help forecast and prevent negative consequences of tourism allowing for corrective action before the trend becomes a problem. The use of indicators of stresses on the system, such as congestion levels, can be used as limits for tourism development. Indicators can also measure management efforts and results. They can help monitor infrastructure costs originating from tourism or the effectiveness of policies, such as the reduction of congestion after the implementation of a new public transportation route.

Sustainability indicators can also have an important educational and integrative role. If the population is invited to participate in the selection and development of indicators and monitoring results are systematically released, a valuable learning opportunity about the dynamics and consequences of tourism development is created. In addition, indicator development processes often work as catalysts. The open debate about issues, concerns and challenges in the destination can create the ideal environment for collaborative behaviour, putting together stakeholders with different perspectives and allowing for the establishment of partnerships. Logically, the direct `exposition to contradictory ideas can also exacerbate conflicts. In this case, as Miller & Twining-Ward (2005, p. 84) argue, the early warning for possible challenges will help planners and managers define priorities.

2.6.3. Approaches

It is important to bear in mind that sustainability indicators are, in fact, simplified signals of complex phenomena. As such, they provide a limited understanding of a given event, and cannot be analysed individually without broad contextual information and a group of related indicators (Clarke, 1994; Whorton & Morgan, 1975 in Maclaren 1996). Thus, the selection of appropriate indicators should be based on a clear framework, ensuring that they provide a meaningful and comprehensive collection, rather than individual assessments. The decision on what approach to use to organize sustainability indicators depends on the nature of the monitoring program, the type of data available and on the abilities and objectives of its users. A number of frameworks can be drawn from the literature; these include domain-based, pressure-state-response , issue-based, goal-matrix and combination frameworks (Maclaren, 1996).

In the domain-based approach, the measures are categorized according to the dimensions of sustainable development; the most commonly considered being economy, society and biophysical environment. In sustainable tourism development indicators initiatives, often another category related to culture or institutional arrangements is included. Because it uses well-known and easily understandable

categories, the domain-based is probably the most commonly used framework to select and organize sustainability indicators. It has been criticized, however, for using an extremely conventional sectoral division, not stimulating the linkages among the different dimensions of sustainability and not being directly connected to any local sustainability goals (Maclaren, 1996; Miller & Twining-Ward, 2005).

The pressure-state-response (PSR) approach, in turn, breaks sectoral barriers by basing the selection of indicators on a cause-effect relationship. Human activities which affect any aspect of sustainable development are measured by pressure indicators. State indicators will assess the condition of these particular aspects, while response indicators evaluate the effectiveness of policy and societal actions to alleviate the pressures (OECD, 1985 in Maclaren, 1996; OECD, 1998 in Miller & Twining-Ward, 2005). The PSR is perhaps the framework which provides the most integrated vision of sustainable development. Its main weakness is the complexity in establishing consistent and reliable causal relationships between pressures and states. The amount of research and expertise needed to avoid misleading assumptions makes the effective implementation of this approach difficult (Maclaren, 1996).

The issue-based approach relies on local concerns related to sustainable development to organize the indicators. Its main benefit is its popular appeal which facilitates the implementation process as indicators are designed based on issues which are already familiar to the local community. However, the lack of a defined framework can lead to an incomplete list of indicators leaving aside elements which could also have an important impact on destination's sustainable development (Maclaren, 1996). Another alternative framework is the goal-matrix. In this case, indicators measure the progress towards pre-established goals related to sustainable development, which should ideally be defined through discussions on a broad planning process (Maclaren, 1996; Miller & Twining-Ward, 2005). Finally, the aforementioned frameworks are not set in stone and can be combined to minimize the limitations of the sustainability indicator's initiative. The "combination approach" can bear effective results as long as the final goal remains

the same: to come up with a coherent, representative and integrated set of sustainability indicators (Maclaren, 1996).

2.6.4. Selection criteria

An adequate framework is not the only hurdle during the indicators development process. Once priority issues are selected based on the conceptual framework, it is necessary to prioritize the indicators themselves to avoid the creation of an infinite and unfeasible list of measures. The characteristics of 'ideal indicators' have been described by a number of authors (Maclaren, 1996; Meadows, 1998; Miller & Twining-Ward, 2005; WTO, 2004). However, the same authors also recognize that scientifically ideal indicators are most often not the ones whose implementation is feasible. The establishment of criteria for the selection of indicators should thus facilitate the task of selecting a few coherent and feasible measures from a large range of possibilities.

According to criteria frequently cited on the literature, ideal indicators should be:

- Responsive to change: they should reflect the measured phenomena on an appropriate scale. They should not be under or over aggregated, but sensitive enough to provide results when significant change happens (Maclaren, 1996).
- Relevant to the need of potential users and to the issue itself: the information provided by the indicator should effectively represent the measured phenomena and also be helpful and practical for their final users (Maclaren, 1996; Meadows, 1998; WTO, 2004).
- Based on accurate and accessible data: it is important that the data used for the indicator come from reliable sources which are respected by their users (Maclaren, 1996; WTO, 2004).
- Based on data that is available over time: indicators should not be a one-time exercise, they should be measured over time so trends can be identified (Maclaren, 1996). Similarly, the intervals between data collections should not be too long (Meadows, 1998).

- Understandable by potential users: indicators must be clear enough in meaning and in value to be readily understood by theirs users (Maclaren, 1996; Meadows, 1998; WTO, 2004).
- Cost effective to collect and use: the cost of data collection, processing and releasing should become part of the budget of the institution responsible for the indicator's implementation (Maclaren, 1996; Meadows, 1998; WTO, 2004).
- Comparable with other jurisdictions: ideally, indicators should allow for comparison among different areas (Maclaren, 1996). Most importantly, however, is that the data collected should be comparable over time in the same community (WTO, 2004) .

2.6.5. Challenges

Despite having become very popular in sustainable tourism development debates, sustainability indicators are still criticized in several aspects. The limitations of the method are highlighted by various authors (Meadows, 1998; Miller & Twining-Ward, 2005; Mowforth & Munt, 2009) and the challenges to their effective operation can be observed in several implementation attempts. Nevertheless, the same authors recognize it as one of the most comprehensive monitoring tools, thus justifying the need for continuing studies and implementation efforts.

Most of the existing theoretical criticism refers to the nature of indicators themselves. As it has already been mentioned, indicators are an abstraction of complex systems, and thus, are susceptible to individual interpretations. In other words, the selection of what is representative of a given phenomenon is highly subjective and gives margin to misleading conceptions or manipulation as is the case in other measurement methods. Composite indicators can be seen as a way to provide a complete measure and overcome this weakness giving birth to complex indexes such as the GDP (Maclaren, 1996). However, the over aggregation of an excessive number of variables in one single measure creates abstract measures which are difficult to incorporate into the planning and management agendas (Meadows, 1998).

Once the indicator's program is established and data on a given issue is systematically produced, the danger is that the procedure becomes so automatic that the actual phenomenon being measured is forgotten. This can create a false sensation of confidence, leading managers and planners to believe that if there is no negative trend on the indicator, there is nothing to be concerned about. Logically, this is the ideal situation. However, even if developed with scientific accuracy, indicators can be based on mistaken assumptions or can be less representative of an issue than managers and planners would expect. Thus, it is necessary that other variables not included in the official indicators list, are not forgotten. One classical example for a partial analysis of indicators is the stock market index, which is considered by many as an indicator of economic vitality. However, a highly positive trend on the stock market does not necessarily reflect the economic health of a society (Meadows, 1998, p. 4).

Another difficulty commonly faced in sustainability indicators initiatives, especially the ones focused on tourism development, is the need for coordination among different departments. As has already been discussed, the consequences inherent to tourism development are scattered among several domains. Attempts to effectively monitor tourism development require the connection among different administrative bodies, each one with its own specialization and methodology (Murphy, 1985). Depending on the articulation existing inside the organization, the joint work can be a challenge.

Finally, indicators' programmes are often subject to organizational changes or political disputes which can risk their continuity and credibility. It is often forgotten that they are only effective if a series of data, which can be compared over time, is produced. In this sense, if indicators are not inserted into a broad planning context and seen as a long term commitment, the initiative will likely become a one-time exercise.

2.7. Final comments

The complexity inherent to the tourism phenomena has not been an obstacle to the recent extraordinary growth in the industry. On the contrary, it seems to be one of the

factors contributing to its growth. The fact that tourism involves a variety of economic sectors, from transportation to hospitality services, does represent one of its strengths and helps to maintain its image as a 'great opportunity for economic development'.

The discussion on sustainable tourism development has shown that a more holistic understanding of the phenomena is needed to allow for successful tourism planning and management processes. To be effective, the planning system must support the unpredictability typical to tourism without collapsing. Systems thinking has been increasingly used as a theoretical framework to analyse the tourism phenomenon, influencing new trends on tourism planning and management. These include adaptive approaches based on monitoring processes. By observing the behaviour of selected phenomenon over a period of time, information can be generated to improve the efficiency of planning and management decisions.

One of the most comprehensive monitoring tools used to measure sustainable tourism development is that of sustainability indicators. The indicators can work as catalysts, provide information about trends and changes, support decision-making and guide the development of policies. It is critical to bear in mind, however, that they are not the final result of a process. Instead, they can be a useful tool as long as they are integrated in the planning process on a regular basis, emphasizing the need for accurate background information before any decision is taken.

3. CONTEXT PLANNING

3.1. Honduras

3.1.1. Background

Bounded by the Caribbean Sea on the North and the Pacific Ocean (Gulf of Fonseca) on the South, Honduras has borders with Guatemala, Nicaragua and El Salvador. It is considered a country with medium human development levels and medium to low income[3]. In 2007, 45.6% of the 7,176,000-inhabitant population lived in extreme poverty (ECLAC, 2009).

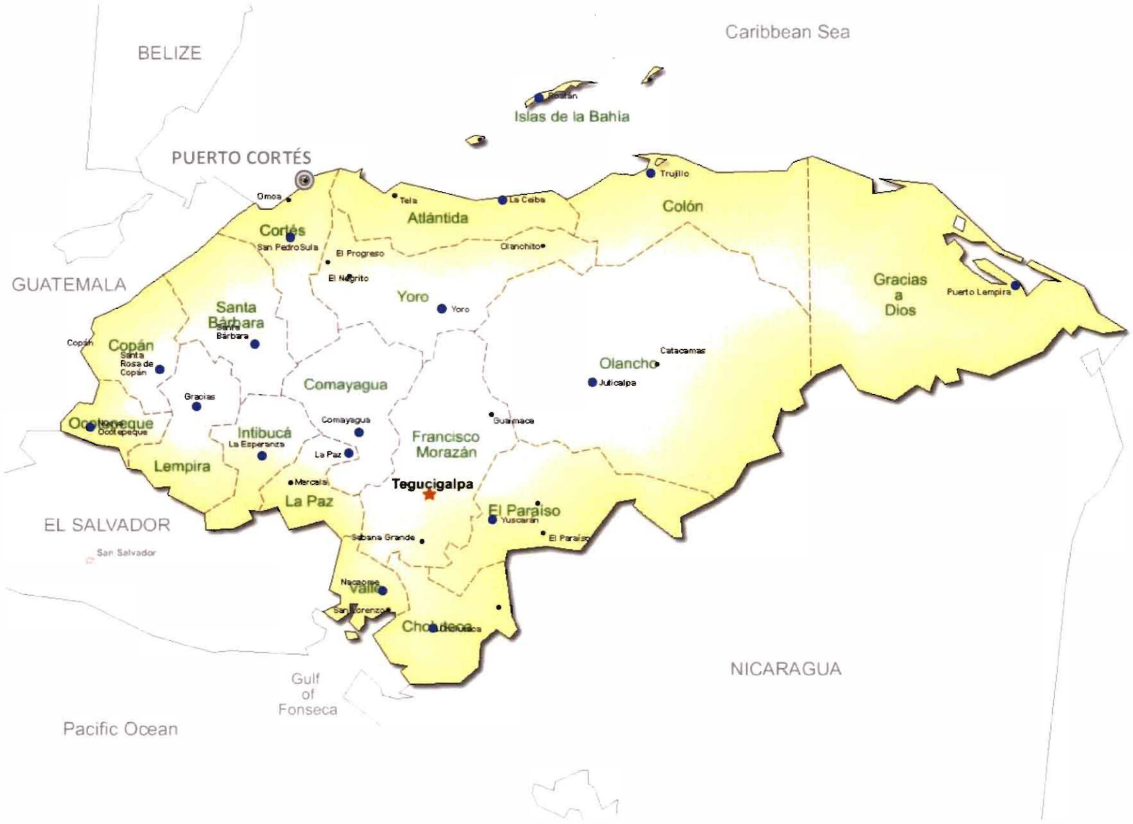


Figure 1 - Map of Honduras - Source: This is Honduras, 2009

[3] According to the UNDP 2009 Human Development Report (based on 2007 data), Honduras Human Development Index (HDI) is 0.732 and it is ranked 112 out of 182 countries. Its GDP per capita (purchase power parity) is US$ 3,796 (UNDP, 2008).

The Honduran economy has traditionally relied on the export of agricultural products, specially banana and coffee. The economic importance of both products, however, has been consistently decreasing over the years. Currently, remittances from relatives living overseas (mostly in the US) are the main source of earnings in the country, reaching US$ 2,594.60 million. Remittances are followed by the maquiladora industry, which generates US$ 1,227.10 million and tourism and is responsible for US$ 545.60 million (Instituto Hondureno de Turismo, 2008, p. 39).

The country has a history of natural disasters. Hurricane Mitch, in 1998, killed more than 5,000 people, affected one third of the highway network and flooded more than 29% of the agricultural land used for export crops production (ECLAC, 2003). Ten years later, in 2008, 200,000 Hondurans have again been affected by severe flooding caused by heavy rains (UNICEF, 2008). Finally, on May 28th, 2009, a 7.1 Richter degree earthquake hit the country's northern coast leaving seven fatal victims and significant infrastructure damages (USGS, 2009).

Following Mitch, foreign aid agencies have participated in initiatives to help the country overcome the losses. Additionally, in 2000, Honduras was included in the Heavily Indebted Poor Countries Initiative (HIPC) and became eligible for special assistance from the International Monetary Fund (IMF) and the World Bank (UNDP, 2006). A large part of these resources have been used in a nation-wide project to reduce poverty (ERP).

Over the course of 2009, conflicts have dominated the country's political scene. Members of the country's military forced the elected President Manuel Zelaya out of the country, allegedly for having violated the Honduran constitution. A new de facto government was subsequently established, but has not been recognized by the international community. Presidential elections were held five months after the establishment of the de facto government. Mr. Porfirio Lobo was nominated the new head of state to serve the term starting January 2010.

3.1.2. Tourism in Honduras

Honduras presents a complete set of tourist attractions, including coral reefs, beaches, Mayan ruins, colonial cities and tropical forests. The most popular international destinations include the Islas de la Bahia and the archaeological site of Copan Ruins. The former is a group of islands on the Caribbean offshore of Honduras, privileged by its proximity to the southernmost part of the Mesoamerican Barrier Reef System. The latter is one of most important sites of the Mayan civilization, declared UNESCO World Heritage in 1981 and located close to the Guatemalan border. In addition, tourism is also increasingly developing on the North coast of the mainland, from Omoa to Trujillo. The region includes scenic landscapes with rich indigenous, garífuna and colonial heritage.

Since the seventies, enforced legislation has directly or indirectly influenced tourism development in Honduras, especially through the incentives for foreign investments in the country. It was only in the nineties, however, that most of the existing tourism-related policy framework was created. One of the Government's strategies for national reconstruction after Hurricane Mitch was also the development of tourism. The *Tourism Incentive Law*, enforced in 1999, exempt of taxes the importing of several goods and equipment related to the implementation of tourism projects. In 2001, a project for the sustainable development of tourism on the North coast and on the Islas de la Bahia was approved by the World Bank. The project's objective was to create an enabling environment for the development and management of sustainable coastal tourism and to enhance livelihood. It included environmental planning, improved land security and human resource development as elements of a sustainable coastal tourism strategy (World Bank, 2001a).

The current *Estrategia Nacional para el Turismo Sostenible* (ENTS -National Strategy for Sustainable Tourism) was enforced in 2005. With the long-term goal of turning Honduras into the regional leader in tourism by 2021, it defines strategic guidelines and policies for the incentive, development and management of sustainable tourism in the

country. The document provides a comprehensive framework of economic, socio-cultural, environmental, promotional and institutional objectives. Emphasis is given to employment generation, an increase in tourists' expenditures and overnight stays, reduction of leakages, improvement of local infrastructure and services and development of both local and regional economies (Instituto Hondureño de Turismo, 2005).

The ENTS recognizes the transversal nature of the tourism sector and the need to coordinate a top-down implementation framework with the local agenda. The country is divided into tourist regions, which have development prioritized in short, medium and long term frameworks. Finally, the ENTS implementation is organized in three main development axes: to enhance specific tourism attractions, to boost tourism demand and to promote investments and increase competitiveness (Instituto Hondureño de Turismo, 2005).

The efforts to develop the tourism sector in Honduras have so far brought outcomes in line with those objectives set on the ENTS. Between 2004 and 2007, the number of international tourist arrivals increased 23%, reaching 1,336 million visitors. In addition, tourism profits grew 14.3% in 2008, against a 4% rate of national economic growth. Tourism was responsible for a total of US$630.8 million in profits. During the same year, the sector represented 5.3% of the country's GDP and estimates point to 155,535 people employed in the sector (Instituto Hondureño de Turismo, 2008).

To achieve the holistic goals set by the ENTS, it is important that the growth of the tourism sector is accompanied by the development of physical infrastructure and institutional capacity. A number of challenges still exist in Honduras, such as the weak capacity and lack of assets to manage natural resources, as well as the limited application of local planning tools to effectively manage tourism's effects (World Bank, 2001a). Furthermore, the broad coverage of the current political crisis on the global media has the potential to undermine long years of work to create Honduras' attractive image as an enjoyable holiday destination. Airline companies have offered their

customers who had booked flights to Honduras the chance to reschedule or reroute these flights without cost. The Honduran Tourism Institute (IHT) has promptly reacted, engaging service providers in a special promotion mostly focused on local and regional tourism (IHT, 2009). The damage to Honduras' image as a tourism destination however, will likely demand extra efforts to be overcome.

3.2. Puerto Cortés

3.2.1. Background

Located on the north coast of Honduras, Puerto Cortés' development has been connected to its port's activity. The city was also the starting point for the Honduran National Railway, whose construction started in 1869. Since then, and with the peak of banana production in the beginning of the 20th century, the port of Puerto Cortés became the main corridor for the product export (Nolasco, 2002, p. 46). The port, which is currently being expanded, is responsible for 70 to 80% of the import and export activities in Honduras and has the largest maritime traffic in Central America (Consorcio Conash y Marshal, 1998).

Figures 2 and 3- Naval Base seen from Coca-Cola beach and Aerial view of the port

The port activities are managed by the Honduras National Port Authority (ENP) and are thus beyond the municipality's control. Despite that, the port's spin-off effects drive the local economy. The transportation infrastructure has attracted industrial development

not only to Puerto Cortés, but to the ten cities of the metropolitan region called Valle de Sula. Headed by the city of San Pedro Sula, located 55 km from Puerto Cortés, is the region in Honduras with the fastest economic, population and income growth (Consorcio Conash y Marshal, 1998, pp. 18-19). In addition, the construction of the 'Canal Seco' (Dry Canal), a Central-American transportation corridor connecting the Pacific and Caribbean coasts, has the potential to stimulate even more the region's industrial development after its completion.

The primary sector, especially animal husbandry and fishing, employs 10% of the population in Puerto Cortés (Consorcio Conash y Marshal, 1998; Instituto Hondureño de Turismo, 2009). The growth of plantain, banana and increasingly African palm are also common within the municipality's boundaries. Finally, tourism also plays an increasing role in the city's economy during the summer. Together with Omoa, a small coastal town located 20 km west, Puerto Cortés serves as a weekend and summer holidays gateway especially for 'sampedranos' – citizens from San Pedro Sula – and Guatemalans, whose border is only 50km away (tourism development in Puerto Cortés will be further discussed in section 3.2.4).

Despite presenting relatively good living standards within the Honduran context, Puerto Cortés still faces social challenges typical to cities located in developing countries. In 2006, the average per capita income was US$ 3,464, against US$ 4,502 in San Pedro Sula and a national average of US$ 2,665. On the other hand, the number of illiterate adults has been the target of a recent and successful municipal program and Puerto Cortés has been declared in 2009 the first Honduran municipality without illiteracy (Municipalidad de Puerto Cortés, 2009), while the country's average illiteracy rate in 2007 was 20.4% of the population (Municipalidad de Puerto Cortés, 2007a).

Similarly, Puerto Cortés' urban area is known within Honduras for initiatives related to the provision of urban infrastructure, such as water services and solid waste management. In 1999, the municipal water division was converted into a commercial company, owned by the municipality and the private sector. The successful partnership

increased the quality and coverage of potable water supply and wastewater disposal. Potable water service is nowadays accessible to 96.5% of the city's urban population, while 62.5% of the urban households are connected to the sewage system (Empresa Aguas de Cortés, 2008). Puerto Cortés is also the only municipality in the Valle de Sulla to have a proper landfill for solid waste disposal (Viator, 2009). The provision of these services, however, is limited to the municipality's urban boundary and improvements are needed in the rural area, which is home to approximately 50% of the total population (INE, 2001).

3.2.2. Climate and geography

The coastal location and particular geography makes the 116,271 inhabitant[4] (INE, 2001) city particularly vulnerable to the winds and floods occasioned by hurricanes in the Caribbean region, whose season is typically from May until November. The first settled areas in Puerto Cortés are located on a small peninsula whose marshy lands have consistently been filled to allow for urban development. Nowadays, two bridges connect the old town to the other neighbourhoods which are located on the mainland ('Tierra firme'). The city has suffered the consequences of at least eight hurricanes during the nineteen hundreds, and the recent earthquake offshore Honduras has caused considerable damages to private buildings and public infrastructure. In Puerto Cortés, rainy months are normally September, October and November, while the driest months are considered to be April and May.

[4] Puerto Cortés' population projection for 2009. Projection calculated by the Municipal Research and Project Development Unit (UIFP) based on the Instiuto Nacional de Estadistica (INE) 2001 Census and a 3,7% annual growth rate.

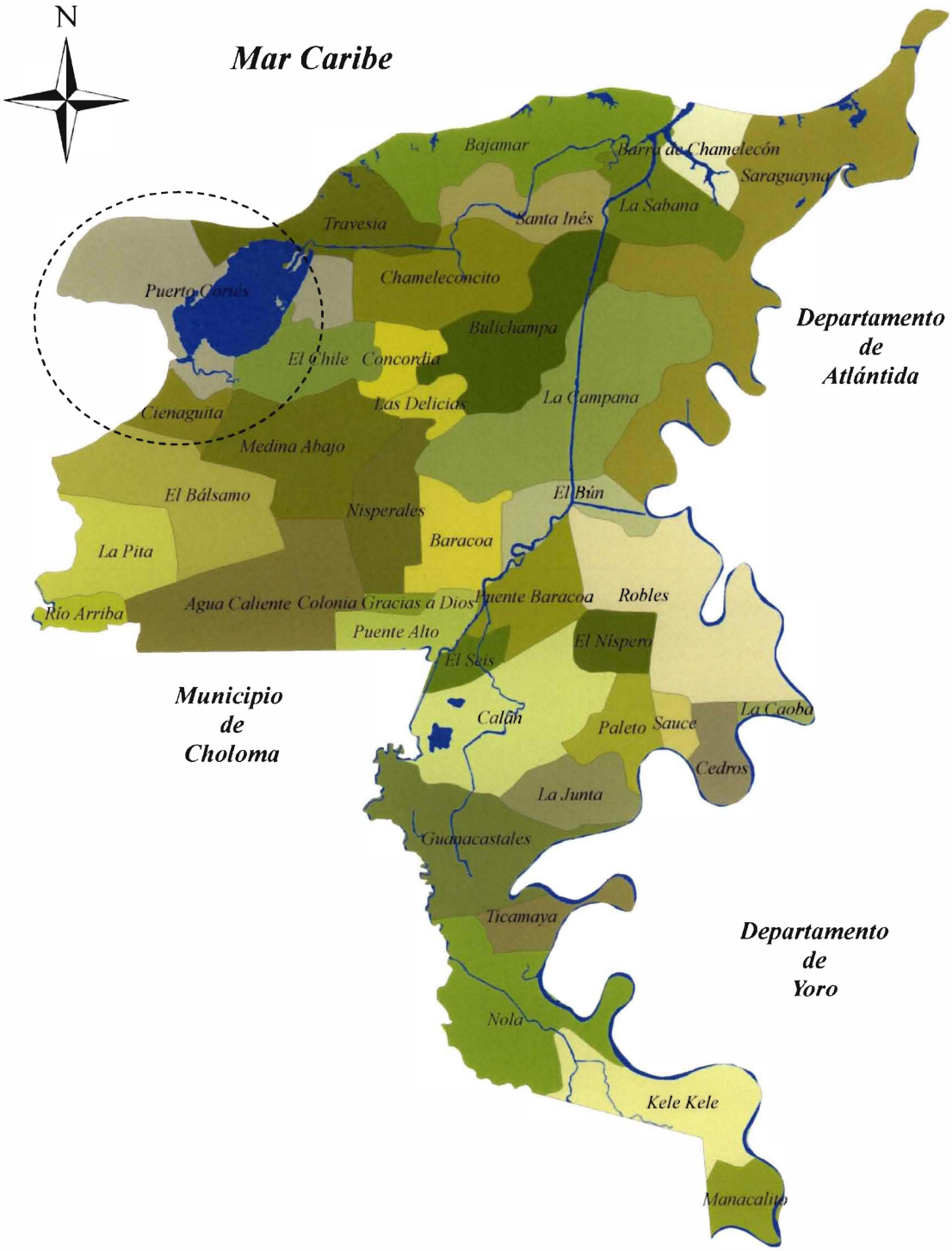


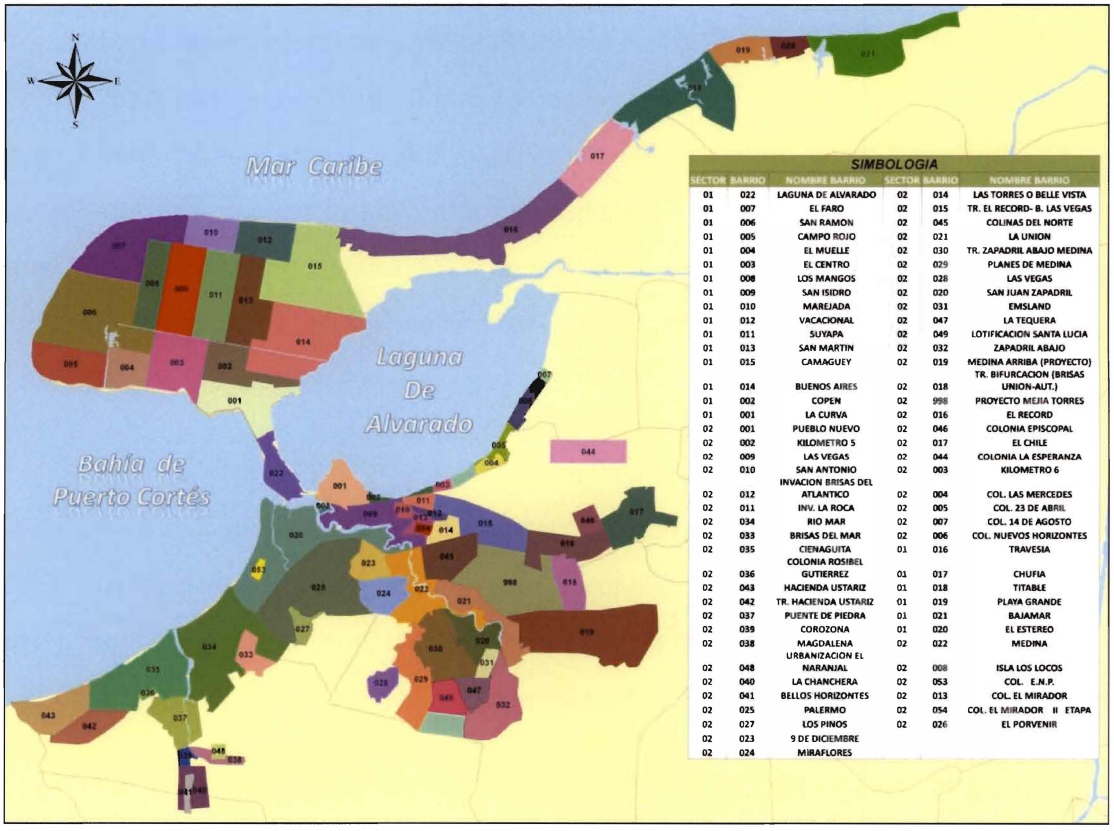
Figure 4 - Municipality of Puerto Cortés – Division by Borough. For highlighted area, see Figure 7. Source: Municipality of Puerto Cortés

Puerto Cortés' natural landscape includes seven different ecosystems: medium mountain (more than 100m above sea level), mountain base (up to 100m above sea level), lagoon/estuary, marsh lands, mangroves, beach and marine. The medium mountains, part of the mountain range called "Sierra del Merendón" reach up to 578m and are a constant background in Puerto Cortés, providing viewpoints for the low lands where the urban area is located. In this mountain range are located the source of the rivers Tulián, Medina and the Cienaguita, which are responsible for the city's water supply. The mountain base ecosystem makes the transition from the mountains to the low lands where Alvarado Lagoon is located, and has suffered significant deforestation due to agricultural cultures and urban development. It covers the area considered to have the fastest urban growth in Puerto Cortés (Municipalidad de Puerto Cortés, 2007b, pp. 19-20).

The Alvarado lagoon's surface area of 8.4 km² makes it very a distinguishing feature on Puerto Cortés' landscape. The canal connecting the lagoon to the sea separates Puerto Cortés' peninsula from the mainland. Around the lagoon a few mangroves can still be found. Most of them, however, have been damaged by water pollution and informal settlements occupying considerable parts of the lagoon's margins. In an attempt to control the environmental degradation, the municipality has declared the lagoon a reserve area. The lack of institutional capacity, however, imposes challenges for the effective implementation of the regulations.

Figures 5 and 6 - Aerial views of Alvarado lagoon and Puerto Cortés bay

Puerto Cortés has approximately 22 km of beaches whose continuity is interrupted by the port facilities. In the northern area of the town are located the open sea beaches referred to as Farol, Marejada, Travesía and Bajamar, which still present sparse urban and tourism development. The beaches located in Puerto Cortés' bay (Municipal or Coca-Cola and Cienaguita) are considered urban beaches due to their infrastructure and the presence of more intense urban development. The latter are the most popular beaches, despite receiving part of the city's untreated sewage and being exposed to contamination due to the high traffic of ships in the port. Finally, close to the Puerto Cortés shore is located part of the Mesoamerican Barrier Reef System, which works as a protection barrier and gives Puerto Cortés' bay the characteristic calm water. The reef barrier, however, is also reportedly affected by water contamination and tourism development (IDB, 2002, p. 8)



SECTOR	BARRIO	NOMBRE BARRIO	SECTOR	BARRIO	NOMBRE BARRIO
01	022	LAGUNA DE ALVARADO	02	014	LAS TORRES O BELLE VISTA
01	007	EL FARO	02	015	TR. EL RECORD- B. LAS VEGAS
01	006	SAN RAMON	02	045	COLINAS DEL NORTE
01	005	CAMPO ROJO	02	021	LA UNION
01	004	EL MUELLE	02	030	TR. ZAPADRIL ABAJO MEDINA
01	003	EL CENTRO	02	029	PLANES DE MEDINA
01	008	LOS MANGOS	02	028	LAS VEGAS
01	009	SAN ISIDRO	02	020	SAN JUAN ZAPADRIL
01	010	MAREJADA	02	031	EMSLAND
01	012	VACACIONAL	02	047	LA TEQUERA
01	011	SUYAPA	02	049	LOTIFICACION SANTA LUCIA
01	013	SAN MARTIN	02	032	ZAPADRIL ABAJO
01	015	CAMAGUEY	02	019	MEDINA ARRIBA (PROYECTO)
01	014	BUENOS AIRES	02	018	TR. BIFURCACION (BRISAS UNION-AUT.)
01	002	COPEN	02	998	PROYECTO MEJIA TORRES
01	001	LA CURVA	02	016	EL RECORD
02	001	PUEBLO NUEVO	02	046	COLONIA EPISCOPAL
02	002	KILOMETRO 5	02	017	EL CHILE
02	009	LAS VEGAS	02	044	COLONIA LA ESPERANZA
02	010	SAN ANTONIO	02	003	KILOMETRO 6
02	012	INVACION BRISAS DEL ATLANTICO	02	004	COL. LAS MERCEDES
02	011	INV. LA ROCA	02	005	COL. 23 DE ABRIL
02	034	RIO MAR	02	007	COL. 14 DE AGOSTO
02	033	BRISAS DEL MAR	02	006	COL. NUEVOS HORIZONTES
02	035	CIENAGUITA	01	016	TRAVESIA
02	036	COLONIA ROSIBEL GUTIERREZ	01	017	CHUFIA
02	043	HACIENDA USTARIZ	01	018	TITABLE
02	042	TR. HACIENDA USTARIZ	01	019	PLAYA GRANDE
02	037	PUENTE DE PIEDRA	01	021	BAJAMAR
02	039	COROZONA	01	020	EL ESTEREO
02	038	MAGDALENA	02	022	MEDINA
02	048	URBANIZACION EL NARANJAL	02	008	ISLA LOS LOCOS
02	040	LA CHANCHERA	02	053	COL. E.N.P.
02	041	BELLOS HORIZONTES	02	013	COL. EL MIRADOR
02	025	PALERMO	02	054	COL. EL MIRADOR II ETAPA
02	027	LOS PINOS	02	026	EL PORVENIR
02	023	9 DE DICIEMBRE			
02	024	MIRAFLORES			

Figure 7 - Puerto Cortés urban area –Division by neighbourhood. Source: Municipality of Puerto Cortés

3.2.3. Planning

Puerto Cortés' dynamic growth has led to concerns with urban planning since the seventies. During that decade, the *Plan Piloto de Desarrollo Urbano de Puerto Cortés* (Pilot Plan for Puerto Cortés' urban development) was enforced. As the city was consistently growing, in 1988 the *Plan de Desarrollo Urbano* (Urban development plan) was implemented with a vision for the year 2000. In 1998, the *Plan de Desarrollo Urbano* was revaluated and a new document was issued, entitled the *Estrategia de Gestión Municipal Integrada* (Integrated Municipal Management Strategy). The latter is a comprehensive document which includes a detailed city profile and recommendations for economic, environment, housing, urban infrastructure and transportation issues. Complementing the document are zoning and building regulations. The 1998 Plan is still the official document providing guidelines for Puerto Cortés' development. In 2006, field-specific and updated planning documents were produced to deal with the city's continuing development. These are the *Plan de Ordenamiento Vial*, a traffic management plan, and the *Plan estrategico de Desarrollo municipal 2007 – 2009* (PEDM, Strategic Plan for Urban Development 2007-2009). The latter has provided an updated investment plan and an operative budget for the referred two-year period. Finally, two diagnostics of the tourism sector with a series of planning recommendations were produced, one in 2006 and another in 2008. These will be further discussed in the next section.

3.2.4. Tourism

The complementary attractions and infrastructure make Puerto Cortés and the neighbouring Omoa one single tourism destination. The region is known as 'El Caribe Porteño' (Instituto Hondureño de Turismo, 2005). Omoa is recognized for its beaches and for the 18th-century Spanish fortress San Fernando de Omoa. Puerto Cortés, in turn, is recognized for its beaches, festivals and larger supply of services and accommodation.

Tourism in both towns is currently highly seasonal: it is limited to summer weekends and to the one-week of the national Eastern holidays. According to the National Transit Department , the region received approximately 226,470 visitors over the 2009 Holy week (Dirección Nacional de Transito, 2009) . In addition, Puerto Cortés has a considerable number of visitors due to three important cultural festivities, the Festival Garífuna de Bajamar (Bajamar Garífuna Festival), which occurs in July, the Noche Veneziana (Venezian Night), in August and the Christmas fair, in December.

It took many years, however, for tourism to be considered a formal economic sector in Puerto Cortés. In line with the recognition of the 2005 National Strategy for Sustainable Tourism (ENTS), which classifies the 'Caribe Porteño' region as an incipient local and regional sun and beach destination where fishing and nautical activities should be encouraged, official efforts have been made to promote tourism development since then. The concern with extreme dependency on the port activity also influenced the municipal decision to pursue tourism as a means of diversifying the economic base in Puerto Cortés. Under this perspective, the Strategic Plan for the City's Development 2007-2009 (PEDM) presents, as one of the objectives under the equitable economic development goal, the following statement: "To potentialize economic activities traditionally little explored in the city, such as tourism, which should become a permanent and not seasonal activity, and provide incentives to ecotourism"[5] (Municipalidad de Puerto Cortés, 2007b, p. 76).

As a result of this objective and with the aim of providing a framework for the development and intensification of tourism activities, two tourism planning documents have been formulated and are gradually being implemented by the newly created Municipal Tourism Unit (UTM). The first document is the *Plan Estratégico Integral del Sector Turístico Puerto Cortés – Omoa* (from now on referred to as *Strategic Tourism Plan*) , a regional tourism plan, which deals with the destination as it has been defined in

[5] Author's translation, the original Spanish version reads as follows: "Potenciar actividades económicas tradicionalmente poco explotadas en nuestro municipio, como el turismo el cual debe convertirse en una actividad permanente y no meramente estacional e incentivar el ecoturismo" (Municipalidad de Puerto Cortés, 2007b, p. 76)

the ENTS, including Puerto Cortés and Omoa. The second document is the *Diagnostico actual de la gestión turísitca de Puerto Cortés*, a *Diagnostic of Tourism Management in Puerto Cortés*, suggesting and detailing actions necessary to implement the tourism development strategy.

The Strategic Tourism Plan lays out the framework within which the sector should be developed. Through a series of community consultation exercises, a vision for tourism development was defined:

> "...in 2016, the Puerto Cortés local authorities and service providers will have consolidated a sustainable and participative tourism development process, respecting cultural and natural heritage, which allows for the effective and efficient use of resources for the improvement of the population's quality of life and guarantees the quality of the visitor's experience."[6] (Cerrato & Peraza, 2007, p. 28)

The values stated in the plan include the preservation of natural and cultural resources; the stimulus for education and training; commitment to local development; stakeholders' collaboration and honesty and quality in tourism services.

The work of the UTM is still in the first stages of organizing and defining roles for a new unit inside the municipality's organizational structure. It has so far focused on promoting a dialog among tourism stakeholders, organizing training programs and raising awareness about the city's tourist attractions and about the UTM itself. The coordination of different stakeholders which have been for decades working individually with little interest from the municipality and which also tend to have a limited view about the dynamics of the tourism sector has shown to be challenging. A first public meeting which attempted to create a Municipal Tourism Council had to be cancelled

[6] Author's translation, the original Spanish version reads as follows: "Para el 2016 las autoridades locales y prestadores de servicios de Puerto Cortés y Omoa, habrán consolidado un proceso de desarrollo turístico sostenible y participativo, con respeto al patrimonio cultural y natural, que permite el aprovechamiento eficaz y eficiente de los recursos para el mejoramiento de la calidad de vida de su población y que garantiza la calidad de la experiencia de los visitantes." (Cerrato & Peraza, 2007, p. 28)

due to the low attendance rate. Similarly, a first phase of training sessions directed to the private sector and whose goal is to create an uniform base of knowledge about a series of tourism aspects, had few of the invitees present.

In addition, an effort is being made to promote Puerto Cortés' attractions and identity. New advertising material has been produced in partnership with private stakeholders, and a new festival, focused on the promotion of Puerto Cortés' cultural identity, was planned to take place on May 30th, 2009. Unfortunately, however, the city was hit by an earthquake two days before, and the event had to be cancelled.

3.2.5. Tourist attractions

Despite the diverse landscapes existing in Puerto Cortés, its beaches are the most popular tourism attraction. Both the Strategic Tourism Plan and the Diagnostic of Tourism Management in Puerto Cortés include in their descriptions a series of other attractions which are currently underused or not explored, with the intent of diversifying the range of options and promote tourism development in the municipality.

3.2.5.1. Bay beaches

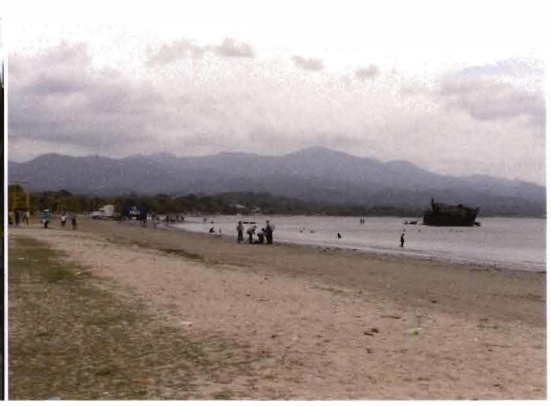
The bay beaches, or municipal beaches Coca-Cola and Cienaguita, are located on the mainland of Puerto Cortés. The calm water and the availability of infrastructure make them the most visited by tourists[7] and excursionists during the weekends and the Holy Week, when a festival takes place on the Coca Cola beach. Both can be accessed by public transit and have had a relatively fast development over the past years, including several hotels and restaurants. The Coca Cola beach, the closest to downtown, has paved access and parking spots for cars and buses. Cienaguita, in turn, is characterized by narrow and gravel roads. During the peak season, due to an agreement with the municipality, lots pertaining to the Navy are used as parking lots. The Cienaguita beach

[7] According to the World Tourism Organization (WTO), tourists are visitors who stay overnight, while excursionists' visits are limited to one single day. In this study the term "visitor" will comprise both overnight tourists and same-day excursionists (World Tourism Organization (WTO), 1995).

has a concentration of second-homes, restaurants and hotels normally frequented by affluent populations.

As it has already been mentioned, the water quality on both beaches is affected by the proximity to the port and by the waste waters which are directly or indirectly disposed in the bay through rivers and the Alvarado lagoon. In addition, the presence of litter on the beach also decreases the quality of the tourist's experience, and the damages to the environment.


Figures 8 and 9 – Coca-Cola beach during the Holy Week

Figures 10 and 11 – Coca-Cola beach


Figures 12 and 13 – Cienaguita beach's traditional character


Figures 14 and 15 – Views of Cienaguita beach

3.2.5.2. Open-sea beaches

Puerto Cortés' peninsula has approximately 18km of open-sea beaches, with stronger ocean currents. These can be divided into four communities: El Faro, Vacacional, Travesía and Bajamar. While the El Faro and the Vacacional communities tend to be avoided by locals due to increasing crime problems, Travesía and Bajamar are considered to have a great potential for tourism development.

Travesía and Bajamar are home to two garífuna communities. This ethnic group originated from West African slaves who mixed with the native population after two English ships sunk in the Caribbean Sea. Garífunas have lived on the Honduran North coast for more than 200 years and still maintain their language, culinary, native dress and other cultural expressions. Traditional activities such as fishing, agriculture and

animal husbandry, however, are consistently being replaced by jobs in other economic sectors (Paredes, 2008b).

Figures 16, 17 and 18 – Garífuna community of Travesía

Figures 19 and 20 – Garífuna community of Travesía

Both communities also still maintain a relatively little urbanized environment. Public transit is not as frequent as in the Municipal beaches, and practically no commerce is available, with the exception of a few convenience stores and restaurants which open for special occasions, such as the Holy Week or the Garífuna Festival in Bajamar. Access to drinking water in both communities is deficient, although improvements are expected with the expansion of the water system which is currently underway. The less intense usage seems to have had its effects both on the sea water quality and cleanliness of the shore. The water is known to be less contaminated, and litter tends to be limited to a few objects brought by the sea.

3.2.5.3. Alvarado lagoon

Despite its beauty, the Alvarado lagoon is rarely used for leisure and recreational purposes. Although a boardwalk and a bike path exist on its south-western portion, both are used for circulation only. Apparent reasons for the lack of recreational use of the boardwalk are its location to heavy-traffic city access and the fear of crime. Artisanal fishing activities are still carried out by part of the population living on the lagoon's margins, but contamination and destruction of the mangroves are reportedly reducing the supply of fish and shrimp in the lagoon.


Figures 21 and 22 – Views of the Alvarado lagoon

3.2.5.4. River basins

The beautiful landscapes along the several river basins existing in Puerto Cortés have the potential to be explored as hiking or mountain-biking destinations. The Tulián River, the Tapón de los Oros canal and the Chamelecón mouth are areas where this kind of activity could be stimulated. The three mentioned water courses, however, present contamination problems which must be addressed to allow for tourism development (Paredes, 2008a, p. 8).

Figures 23 to 27 - River basins in Puerto Cortés rural area

3.2.5.5. Mountains

The mountains surrounding Puerto Cortés also offer good possibilities for tourism development. In the community called Nisperales, one mountain currently used for the installation of communication towers provides a beautiful viewpoint from part of the Vale de Sulla. Also in the high areas of Puerto Cortés municipality, in Agua Caliente community, hot springs can be found. These are located on private property and are currently in an initial phase of tourism development, as infrastructure is being built to receive visitors.

Figures 28 and 29 – Views from Nisperales mountain area

3.2.6. Tourism stakeholders

Four large stakeholder groups can be identified in Puerto Cortés' tourism development context: government, industry, community and visitors themselves. As can be expected, these are not completely homogeneous groups. Government includes several municipal units (Tourism, Environmental Management, Public Services, Transportation and Land-Use Planning) and the National Port Authority, which controls the arrival of cruise ships and is an important stakeholder to the environmental issues concerning the Puerto Cortés bay.

The tourism industry in Puerto Cortés can be divided into accommodation, food-related services, entertainment and tour operators. A total of 64 tourism related businesses can be found in the city: 26 accommodation establishments, 28 bars and restaurants, five entertainment businesses, four souvenir shops and one tour operator. Most of the businesses are locally owned and relatively small. According to the Tourism Unit (UTM), the city has a total of 443 rooms, with the largest hotel offering 62 rooms.

Figures 30 to 33 - On the top: Hotel and Restaurant in Cienaguita beach. On the bottom: Hotel in the Garífuna community of Travesía and Public meeting to create the Municipal Tourism Council

The local residents, in turn, could be divided in three major geographic segments: residents of beach boroughs (Cienaguita, El Faro, Marejada) residents of rural boroughs and residents of the Puerto Cortés downtown area. Finally, the Garífuna community, although being mostly concentrated on the beach boroughs of Travesía and Bajamar, is considered another stakeholder group due to their cultural traditions which are nationally and internationally promoted as important Honduran tourist attractions.

The majority of the visitors arriving to Puerto Cortés and Omoa are from neighbouring areas. They include mostly Honduran, Guatemalan and Salvadorans families and groups of friends who look for a relaxing environment on the beach. The area also receives groups of students whose educational visits normally focus on the San Fernando de Omoa's fortress and on the port (Cerrato & Peraza, 2007, pp. 29-32). Noteworthy is the

presence of groups of North-American volunteers who arrive due to the several development organizations and international aid agencies working in Honduras. Despite being excluded from the traditional visitors' definition because of the purpose of their trip (non leisure-related), their direct expenditure contributes to the local tourism sector. In addition, Puerto Cortés' strategic location also attracts a small number of cruise ships and independent travelers. Both cruise ship passengers and independent travelers use the city as a gateway for one-day excursions to the Copán Ruins (Cerrato & Peraza, 2007, pp. 29-32).

3.2.7. *SWOT* analysis

The following SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis provides a general overview to understand the current status of the tourism sector in Puerto Cortés. The analysis was based on relevant points mentioned in official documents and in author's observations. It was used as support for the selection of priority issues to be monitored using sustainability indicators.

Table 1 –Tourism development SWOT Analysis

Strengths
• Region's position in the regional and national markets as sun and beach destination • Diversity of natural resources/attractions: mountains, tropical forest, mangroves, coral reefs • Natural bays which favour navigation and beach use • Nationally recognized historic and cultural attractions (Fortaleza San Fernando de Omoa, Garífuna communities Masca, Travesía and Bajamar) • Location: proximity to San Pedro Sula, large industrial centre; country's closest port to Copán Ruins; proximity to Belize and Guatemala • Accessibility: good road connection to San Pedro Sula and Guatemala, largest country's port • Good urban infrastructure (road network and water treatment plant) • Positive city image due to the high-quality port infrastructure • Existence of tourism college (technical school) • Good influx of national tourists and excursionists during the summer

Weaknesses
• Litter on the beaches • Land use conflicts between industry and tourism (Omoa's gas spheres) • Water pollution on Chamelecón river (connected to the Alvarado Lagoon and the sea) caused by agricultural and industrial activities • Lack of tourism promotion • Visitor's perception of high prices for traditional seafood • Some attractions lack basic infrastructure to receive tourists • Lack of safety conditions and satisfactory access in the areas designated to the receive cruise ships (inside the port) • Lack of integration with National Port Authority, which manages the port area • Lack of integration among local stakeholders • Lack of skilled workers in the tourism industry • Lack of general knowledge about the local tourism attractions • Lack of tourism culture among locals • Lack of strategy to deal with cruise ship market • Seasonality: tourism highly concentrated during the Holy Week and summer weekends • Reduced opening time of Guatemala's border in Corinto prevents one-day visits from the Guatemalan market
Opportunities
• Puerto Cortés can complement other destinations in the Gulf of Honduras region (Guatemala, Belize and Honduras) • Natural and cultural resources which can be touristically explored • Cooperation agreement with Puerto Barrios in Guatemala (good exchange opportunity with tourist development in Guatemala) • Access to Guatemala's tourism market (due to recent road paving) • International demand for ecotourism and geo-tourism
Threats
• Strong competition with other national sun and beach destinations due to little product differentiation • Lack of effective National Government support (current tourism development efforts concentrated on other destinations) • Destruction of mangroves • Erosion of the shoreline • Increase in crime rates in the city and on the beaches, especially during the summer

(adapted from Cerrato & Peraza, 2007, pp. 15-17; Paredes, 2008a)

4. RESEARCH METHODOLOGY

4.1. Research objectives and strategy

Given that Puerto Cortés community has set the development of tourism as one of its priorities, it is critical that the tourism development process and its consequences are closely monitored, thereby minimizing possible negative effects and maximizing the possible benefits to the local economy, society and biophysical environment. The monitoring of tourism effects is a method commonly used to glean greater knowledge of the activities' impact on destinations and thus allow for well-informed planning decisions. Sustainability indicators, in turn, are monitoring tools recognized by their comprehensiveness, adaptability and educational role and have therefore been selected to be applied in the case-study in Puerto Cortés. Within this context, the objective guiding this study is to develop a set of sustainability indicators to monitor the outcomes of tourism development in the municipality of Puerto Cortés over time.

Puerto Cortés has been selected as the subject of this case study for three main reasons. Firstly, the early stage of tourism development presents an opportune chance to set up a framework for the monitoring of its development, allowing for preventive rather than corrective actions. Secondly, the municipality's interest in the study was imperative. Without the support of the municipality and the willingness to implement the monitoring system, the research would have been meaningless. Thirdly, the pre-existence of a local indicator initiative has also contributed to its selection for this case study. Puerto Cortés is at the forefront of planning practices within the Honduran context; the fact that several of the professionals in the municipality were familiar with the idea of monitoring trends over time using indicators has played a major role in the selection given the short time available to conduct the research.

This explorative and qualitative study entailed five main phases: project design, indicator development, application and adjustment, and a final phase which involved the design of the implementation framework for the indicator set. Several sustainability

indicator models have been used as a reference for this research design including the processes suggested by the WTO Guidebook *Indicators of Sustainable Development for Tourism Destinations* (WTO, 2004) and by Miller and Twining-Ward (2005), the Tourism Optimisation Management Model (TOMM) in Kangaroo Island, Australia, as well as the experience of Sustainable Tourism Development Indicators in Samoa (Twining-Ward & Butler, 2002). Despite following a pre-established sequence, the aforementioned phases are not self-contained. Instead, feedback is continuously incorporated into the flow of activities, and procedures are adjusted accordingly. Figure 34 illustrates the five main phases and their specific procedures, which are described in detail later in this chapter.

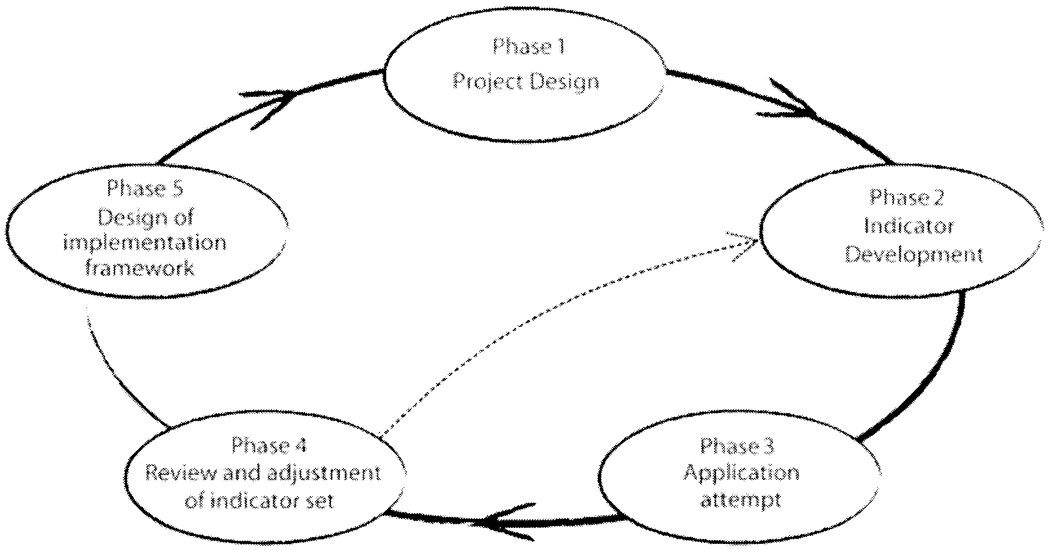


Figure 34 – Research process diagram. Adapted from Butler & Twining-Ward, 2002, p.370.

4.2. Field research

The study involved six-weeks of field work in Puerto Cortés, from April 6th to May 15th 2009, where the author received full support of the Municipality, especially through the Unidad de Investigación y Formulación de Proyectos – UIFP (Research and Project

Development Unit). The period in Puerto Cortés entailed tackling multiple tasks: field visits and observation, review and analysis of secondary sources (local plans, projects and regulations), unstructured or in-depth interviews, and the development of indicators. Rather than following a strict and linear schedule, the flow of activities was adapted to the agenda of field visits in the UIFP and to the continuous incorporation of feedback received during the course of the work, which occasionally demanded the review of new secondary sources. A rough time distribution would account for approximately one week of field visits and observations, two weeks for the review and analysis of secondary sources, two weeks for the development of the indicators and one week of interviews.

The author arrived in Puerto Cortés during the Holy Week, the period coinciding with the highest number of visitors in the city. As the entire week is a national holiday, no government or municipal services were available. Thus, this week was used for the review of local plans and for visual observations. It is worth mentioning that while the author's own condition as a visitor contributed to the observations, it may also have influenced the information supplied to the author by locals.

4.3. Description of research process

The first research phase consisted of the design of the project, and involved a thorough review of the literature on sustainable tourism development, tourism planning and management and sustainability indicators. Preliminary background research on Puerto Cortés was also conducted, allowing for the definition of specific research objectives and procedures.

The second phase of the research consisted of the development of the indicator set. Thus, a careful analysis of the reality of tourism development in Puerto Cortés was made. It is worth mentioning that this phase included the discussion and clarification of the objectives of the monitoring system together with the Mayor, the Head of the Municipal Planning Department and the manager of the UIFP, ensuring that the

research objectives were in line with the expectations of the municipality and that the results would thus be of use within the organization. Following that, stakeholders involved in tourism planning and practice in Puerto Cortés were indentified with the aid of the municipality's staff (UIFP and UTM), local plans and newspapers.

The subsequent task was a compilation of the visions for Puerto Cortés described on the Strategic Plan for the City's Development 2007-2009 (PEDM) and on the Strategic Tourism Plan. The vision for tourism development considered for the development of the indicators was based on community visioning and prioritization exercises which had been carried out for the development of these documents. Both plans, coupled with two diagnostics of tourism development in Puerto Cortés have also been used as references for the SWOT analysis which can be found in section 3.2.7.

In cases where time and financial resources are available, the creation of a system to monitor tourism development may count with a public consultation phase where stakeholders have the opportunity to express their points of view and help on the selection of priority issues (Miller and Twining Ward, 2005; WTO, 2004; Murphy, 1985). These debates can play an important role on the dissemination of knowledge on tourism-related topics and on the improvement of communication among local stakeholders.

Following the selection of priority issues, the indicators themselves have been chosen. An extensive list of issues related to tourism development and its impacts was drawn from the information provided by the PEDM, the regional Strategic Tourism Plan and the Diagnostic of Tourism Management and Development in Puerto Cortés (Cerrato & Peraza, 2007; Municipalidad de Puerto Cortés, 2007b, Paredes, 2008a). To ensure that the list was comprehensive enough, encompassing the basic dimensions of sustainable tourism development (society, economy, environment) and, in addition, destination planning issues, it has been complemented with topics extracted from the literature and from other sustainability indicators cases (Maclaren, 1996; Miller & Twining-Ward, 2005; WTO, 2004). This approach to issue selection is called *combination framework*, as

it combines the issue-based and the domain-based frameworks (see item 2.6.3. for more on approaches to Sustainability Indicators). The selection based on issues which are known for the local community tends to facilitate the acceptance of the indicators proposed later on. The domain-based approach, on the other hand, helps ensuring a holistic coverage of issues (Maclaren, 1996).

The extensive list of issues counted with 58 items. The heads of both the Capital Works and the Planning Department, together with the following sub-units have been asked to prioritize the issues (see questionnaire in Appendix A): Tourism Unit, Environmental Management Unit, Land Use Planning Unit, Transportation Unit, Research and Project Development Unit. The selection of the seven respondents was based on their availability within the existing time-frame. To facilitate the selection of priorities, the list of issues was classified in four categories familiar to the respondents: society, economy, environment and planning. They were asked to select five issues within each of these categories as high priority, and to freely classify the remaining as medium or low priority. As each priority issue was meant to originate at least one indicator, the number of high priority issues was set to five to limit the extension of the resulting set of measures. Respondents were also given the opportunity to suggest other issues that might be included in the list.

The instructions of the questionnaire were not thoroughly followed by all the respondents. Most of them chose more than five high priority issues. Despite this, the issues have been coded in a scale from 3 (*high priority*) to 1 (*low priority*) and ranked. The five largest scores in each dimension have been selected, giving a total of 20 issues which worked as the starting point for the development of a first extensive indicators list. One additional issue has also been selected for each of the dimensions. These were meant to work as alternatives in case the indicator for any of the five key issues was found to be inappropriate or not viable.

Based on the list of priority issues and on the review of other indicator projects for tourism and sustainability, a 'brainstorming' exercise has been conducted by the author

with the intent of creating an extensive list of possible indicators. Given the few resources available, the priority was given to indicators for which data was already available or could easily be obtained within the municipality. The indicators were then evaluated and selected using the following criteria, in descending priority order:

- Relevance of the indicator to the issue it is meant to measure
- Adequacy of the indicator to its final user (municipal employees)
- Availability of the data used for the indicator
- Cost-effectiveness to collect and use the data used for the indicator
- Sensitiveness and responsiveness of data to short and medium term changes (For more on indicators selection criteria, see section 2.6.4.)

The third research phase (Indicator Application), started simultaneously to this evaluation, through an inventory of data sources. After a pre-selection of possible indicators, a series of unstructured interviews was conducted with the professionals who would likely be responsible for collecting the data for each of the possible indicators (see Appendix B for list of respondents and *aide memórie* used for the interviews). Unstructured interviews were carried out because they allow for rich, detailed answers and also because they give the respondent the opportunity to engage with topics which have not been unanticipated by the researcher (Bryman, 2008). By conducting interviews during this stage of the indicator development process, it was possible to discuss the feasibility of the proposed measures and make the necessary adjustments right away. Therefore, often the discussion would lead to a new interview, in what is commonly referred to as a 'snowball' kind of sample (Bryman, 2008).

After completing a total of 18 interviews, a preliminary proposal of 35 indicators measuring 19 issues has been presented for the same group of professionals who helped in the selection of priority issues, and who had also been individually interviewed during the indicator development process. Having incorporated their feedback, a first attempt to apply the indicators in Puerto Cortés was made putting together the available data. Results of this first monitoring exercise have been analysed and used to

adjust the set of indicators, originating the final indicator set presented on Section 5.1. The adjustment, coupled with the analysis of the results of the second indicator application, constituted the fourth research stage. Finally, in the fifth phase of research, a framework was designed for the implementation of the indicator set, connecting its results to management responses. Ideally, once the indicator set is implemented, it should provide continuous input for the improvement of the monitoring system itself, connecting the two ends of the research cycle.

5. FINDINGS

5.1. First indicator selection

As mentioned in Chapter 4, the availability and cost of collecting the data for the indicator's application have played a major role on their selection. Given the limited human and financial resources available for tourism development in Puerto Cortés, the number of indicators making use of primary data was kept to a minimum. Only three indicators in the first selection phase depend on surveys to be conducted specially for tourism development monitoring purposes. Priority was given to indicators whose data was already available or could be easily extracted from ongoing processes within the municipality.

On the following page, the result of a first round of indicator's selection is introduced. The indicators are presented together with the issue originally identified and the objective related to their monitoring. The four dimensions used as guidelines for the compilation of possible issues (biophysical environment, society, economy and destination planning) have been maintained as a means of organizing the set of indicators and facilitating their management. These categories, however, are not fixed boundaries; some of the issues clearly touch more than one dimension. For this reason the dimensions taken into account here should not prevent other issues of being added if they are found to be of importance for sustainable development of tourism in Puerto Cortés.

Finally, the following set of sustainability indicators has been designed targeting government bodies and the tourism industry in Puerto Cortés as their final users. Nevertheless, the information which can be generated through them shall be used to stimulate community debates and increase the population's awareness of tourism development and its possible consequences.

Table 2 – First indicator selection

DIM.	ISSUE	OBJECTIVE	SELECTED INDICATORS
SOCIETY	**Integration among tourism stakeholders**	Encourage collaboration among tourism stakeholders	Representativeness of stakeholder groups in tourism related meetings and events taking place in Puerto Cortés (stakeholder groups attending)
			Participation levels in tourism related meetings and events taking place in Puerto Cortés (% of invitees attending)
	Education for sustainable tourism development	Increase the quality of tourism services and the awareness of the sustainable development of tourism	Existence of joint projects between the Municipality and the tourism program at the Instituto Franklin Delano Roosevelt
			Availability of capacity building programs targeted at tourism professionals
			Existence of tourism related educational initiatives targeting citizens who are not directly involved in tourism activities (such as children and the general public)
			Attendance rates in the tourism related capacity building projects taking place in Puerto Cortés
	Visitor safety	Encourage the control of crime against visitors	Percentage of annual crime happening during the four months of peak visitor arrivals in the city
BIOPHYSICAL ENVIRONMENT	**Waste water treatment**	Encourage the use of appropriate waste water treatment	Percentage of tourism businesses whose sewage reaches the sewage treatment plant
	Solid waste management	Improve the solid waste management, reducing the related environmental and health risks	Percentage of the tourism businesses with regular solid waste collection
			Existence of a solid waste reuse or recycling program in Puerto Cortés
	Drinking water- Quality and access	Improve quality and reliability of drinking water supply	Proportion of tourism businesses connected to the drinking water network provided by Aguas de Cortés and Juntas Administradoras de Agua
			Percentage of drinking water samples complying with National or

DIM.	ISSUE	OBJECTIVE	SELECTED INDICATORS
			QTC8 standards (Aguas de Cortés and Juntas Administradoras de Agua)
	Conservation of local ecosystems	Promote the protection of local fauna and flora	Number of identified specimens in samples of local fauna and flora
			Number of denounces of environmental threats received by the UGA
	Recreational water quality	Promote the conservation of water resources	Percentage of the fecal coli form tests whose result is appropriate for recreational use
ECONOMY	**Tourism contribution to the local economy**	Diversify the local economy	Percentage of the total number of businesses in Puerto Cortés represented by tourism related businesses
			Representativeness of the tourism sector on the total income generated by enterprises registered in Puerto Cortés
	Community investment in tourism	Increase awareness of tourism hidden costs	Inventory of municipal expenditures directly related to tourism development
			Percentage of the total number of businesses in Puerto Cortés represented by tourism related businesses
	Tourism net benefits	Help defining municipal investment priorities	Percentage of total tax revenue represented by the tourism sector
	Tourism generated employment	Ensure tourism generated employment helps increasing the local population's quality of life	Percentage of tourism businesses owned and managed by stakeholders originally from the Cortés Department

[8] See Appendix C for detailed Quality Tourism for the Caribbean (QTC) standards

DIM.	ISSUE	OBJECTIVE	SELECTED INDICATORS
DESTINATION PLANNING	**Harmonious relationship between the natural and built environments**	Ensure new buildings respect the local biophysical environment	Number of buildings not complying with municipal regulations in which the irregularities have been corrected
	Visual contamination	Ensure signage in tourism areas has an harmonious relationship with surrounding built and biophysical environment	Percentage of irregular signs existing in Puerto Cortés' urban area removed or modified to follow the regulations
	Safety of vehicular and pedestrian traffic	Encourage adequate and long term transportation planning, with focus on active transportation	Percentage of traffic accidents happening during peak months of visitors' arrival in the city
			Percentage of the total number of accidents represented by collisions with pedestrians
	Visitor satisfaction	Identify the extent to which tourism products and services meet visitor's expectations	Visitor satisfaction rate (survey)
	Maintenance of a positive image of Puerto Cortés	Promote a positive, tourism-related image of Puerto Cortés on the media	Percentage of visitors who have a positive image of the city (survey)
			Percentage of the media reports related to Puerto Cortés which make positive comments about the city

5.2. First attempt of application

The first attempt at applying the measures described in section 5.1 and producing baseline data on tourism development in Puerto Cortés exposed some of the weaknesses of the indicator set. Main difficulties were related to the availability or reliability of the data and to the indicators' representativeness for the issues they were meant to evaluate. Another concern was related to the challenge of coming up with a comprehensive and at the same time concise and feasible group of measures. Even if data availability was considered a priority when first selecting the indicators, only eight of the 19 issues (or 12 out of 26 indicators, as some issues have more than one indicator) could be assessed by this application exercise. The remaining secondary data needed some kind of processing within the municipal departments where they are generated and could not be obtained in time for the completion of the study.

To incorporate the feedback generated on the first application attempt, the set of indicators was reviewed and adjusted. The criteria used to fine-tune and to select the new indicators prioritized the relevance of the measure for the issue under evaluation, rather than data availability, which had played a major role in the first selection round. In the following paragraphs, the difficulties encountered are discussed, along with the approach used to address them. The adjusted set of indicators can be found in section 5.3, and a detailed description of each indicator, in Appendix C.

Some of the indicators selected first have shown not to be representative of the issue they were originally meant to evaluate. The limitation was identified on the indicators evaluating *Waste water treatment*, *Solid waste management*, *Drinking water- Quality and access*, *Safety of vehicular* and *Pedestrian traffic and visitor safety*. In the case of *Waste water treatment* (*Percentage of tourism businesses whose sewage reaches the sewage treatment plant*), results have shown that the waste water produced by 58% of the tourism businesses in Puerto Cortés reaches the treatment plant. Nevertheless, the figure decreases to 28% when the accommodation businesses are considered

independently. Bearing in mind that registered accommodation represents 40% of the total number of tourism businesses in the municipality and that they produce a significantly larger amount of waste water[9] compared to restaurants or souvenir shops[10], this indicator might give a distorted image of the current status of *Waste water treatment* in Puerto Cortés. To better address the potential pollution risk, it was adjusted to consider registered accommodation establishments only. The new measure, however, is broader in the sense that it also includes septic systems, which are currently used by 36% of the accommodation businesses. It should be kept in mind, though, that several of the accommodation establishments using septic systems are located on low lying areas close to the coast, where the extensive use of septic systems represents a risk of soil and ground water pollution. To provide a holistic vision and a reference value, calling attention to the overall condition of *Waste water treatment* in the municipality, a complementary indicator (*Percentage of total population whose waste water reaches the sewage plant*) was added to the set.

A similar inconsistency was identified on one of the indicators selected for *Solid waste management* (*Percentage of the tourism businesses with regular solid waste collection*). While 98% of the tourism businesses count with municipal collection services and the waste collected is taken to the landfill, a survey conducted in 2002 shows that 74% of the households located within the urban boundary are covered by the municipal collection services, while approximately 25% burned or buried their garbage themselves (INE, 2002). The municipal collection services have undergone improvements since 2002; nevertheless, observation demonstrates that much of the solid waste generated in Puerto Cortés, especially in the rural areas, still ends up in informal dumping sites, in the water bodies or is openly burned by the population.

The lack of recent accurate data about solid waste collection for the city as a whole makes it difficult to produce a comprehensive and useful indicator. Given the

[9] A typical hotel generates approximately 500 liters of waste water per guest (PAHO in Quintero & Vega, 2004)
[10] The list of tourism businesses in Puerto Cortés considered in this study includes 64 businesses and can be found on Annex D

limitations, the strategy was to address solid waste management through issues which can be more easily measured such as the presence of litter on the beaches. The latter is a noticeable problem in Puerto Cortés and is partially attributed to the large amount of debris brought by the sea and nearby rivers such as the Chamelecón. Nevertheless, even if neither the population nor the visitors are the main cause for the problem, both the health risks and negative visual effects can be harmful to the well-being of the local population and to tourism development. Thus, another indicator, relating to the amount of garbage pieces found on the Municipal (Coca-Cola) beach, was added to the core list (see Appendix C for detailed description). It is worth mentioning, however, that the change of the indicator focus in any case reduces the importance of generating reliable and updated data about solid waste management in both urban and rural areas of Puerto Cortés.

One of the indicators selected for the monitoring of *Drinking water- Quality and access* also had its focus changed due to similar situation (*Proportion of tourism businesses connected to the drinking water network provided by Aguas de Cortés and Juntas Administradoras de Agua*). Currently, 100% of the tourism businesses in Puerto Cortés are connected to a drinking water network, provided either by Aguas de Cortés (urban area) or by the Juntas de Agua, community associations responsible for water services in the rural boroughs. Observation has shown, however, that some boroughs, even if connected to water services, face frequent shortage problems. One example is the Garífuna community in Bajamar, where the unreliability of water services was mentioned[11] as one of the reasons preventing the opening of small businesses in the area. Thus, instead of access to drinking water by tourism businesses, service reliability was deemed a more relevant issue to be considered. The indicator's coverage was also extended for the whole municipality, to take into account areas where tourism is not developed yet, such as the aforementioned Garífuna communities. The reviewed

[11] The comment was made by a community member during a focus group conducted on April 30th, 2009 by the UIFP staff as part of an Poverty Erradication Program (ERP) project.

measure, whose details can be found on Appendix C, is the *Number of shortage incidents per year*.

Safety of vehicular and pedestrian traffic is another of the issues which had its indicators adjusted given to representativeness concerns. The indicators first selected were based on the number of car accidents occurring in the periods of the year in which Puerto Cortés receives a larger number of visitors (*Percentage of traffic accidents happening during the four peak months of visitor's arrival in the city* and *Percentage from the total of number of accidents represented by collisions with pedestrians*). Time-based measures had been selected because data on traffic accidents do not allow for the isolated analysis of accidents involving visitors. The first application exercise, however, revealed the difficulty in determining the influence of tourism on the number of car accidents happening over the selected periods. No reference data on tourism arrivals for the same time-periods exist, weakening the indicator's representativeness and reliability. In addition, the fact that tourism is concentrated in specific, small geographical areas of the municipality (mostly along the coast) tends to reduce the area of influence of tourism-related traffic problems. In the particular case of Puerto Cortés, where the port activities generate intensive and heavy-load traffic, a city-wide indicator of traffic accidents would likely be strongly influenced by the problems brought by the latter, rather than tourism.

For these reasons, the indicators regarding *Safety of vehicular and pedestrian traffic* have been removed from the core indicator set, until more specific data regarding tourism and traffic issues can be generated. Instead, an indicator about congestion on the tourism areas has been proposed (*Number of congestion days along the Municipal Beach,* see Appendix C), aiming to provide background information for the improvement of the public transit network connecting the tourist attractions in Puerto Cortés.

Given that the National Police records do not specify crime reported by visitors, the indicator referring to *Visitor safety* was structured on the same time-based periods used on the *Safety of vehicular and pedestrian traffic* issue. As it could be expected, the lack

of data on the number of visitors' arrival to serve as a reference in determining tourism's influence on the issue has also weakened the Visitor Safety indicator. The National Tourism Police, in turn, unfortunately does not count with the minimum resources to provide reliable information. The Tourism Police office is located along the road connecting Puerto Cortés and Omoa, and officers have only one motorcycle to meet their transportation requirements. Both the isolated location and the limited resources reduce their ability to effectively cover visitors' safety. An alternative indicator has thus been suggested, based on the evaluation of the institutional framework existing to address tourist safety issues. The measure uses the validation matrix suggested by the Association of Caribbean States for the monitoring of personal safety in tourist areas (see Appendix C).

In addition to the aforementioned measures, which were adjusted or modified, the overall structure and unity of the indicator set has also been reviewed. While the indicator concerning the percentage of visitors who have a positive image of the city was disregarded, a new issue, *Tourism seasonality*, has been proposed. The former was one out of two measures selected to assess the *Maintenance of a positive image of Puerto Cortes*. Given that *Maintenance of a positive image of Puerto Cortés* is also meant to be assessed by the indicator *Percentage of the media reports related to Puerto Cortés which make positive comments about the city* and that the issue *Visitor Satisfaction* deals with a relatively similar matter (visitor's expectation), *Percentage of visitors who have a positive image of the city* was not considered a priority at first. *Tourism seasonality*, despite being a critical issue in Puerto Cortés had not been considered on the first indicator selection due to the current lack of data to assess it. As the criteria for indicator selection have been adjusted, seasonality has been incorporated to the set.

The first application attempt also raised concerns regarding the large amount of information needed to address all the included issues, which could possibly risk the effective implementation of the monitoring system. To allow for flexibility in the

implementation without compromising the unity of the group of suggested measures, the indicators have been divided in two categories. In the core category are the measures considered current priorities for the sustainable development of tourism in Puerto Cortés. The supporting category includes relevant measures whose monitoring would likely contribute to the planning process but could be implemented in a second phase if resources are limited.

5.3. Adjusted set of indicators

5.3.1. Core indicators

Current priorities for the sustainable development of tourism in Puerto Cortés.

Table 3 – Core Indicators

DIM.	CORE INDICATORS	RESULT	ACCEPTABLE RANGE[12]	PERFORMANCE
SOCIETY	**Integration among tourism stakeholders**			
	Representativeness of stakeholder groups in tourism related meetings and events taking place in Puerto Cortés (percentage of meetings with all the key stakeholder groups represented)	Primary data to be generated	51 - 75%	To be determined
	Education for sustainable tourism development			
	Existence of joint projects between the Municipality and the tourism program at the Instituto Franklyn Delano Roosevelt	Yes (2/2 points)	3 - 4 points	Acceptable
	Availability of capacity building programs targeted on tourism professionals	Yes (2/2 points)		
	Existence of tourism related educational initiatives targeting citizens who are not directly involved in tourism activities (such as children and general public)	No (0/1 points)		
	Visitor safety			
	Evaluation of visitor safety feeling (based on matrix developed by the ACS)	17 points	50 – 56 points	Poor

[12] See Section 5.4. for discussion on acceptable ranges and Appendix C for details on sources and values defined for each indicator.

DIM.	CORE INDICATORS	RESULT	ACCEPTABLE RANGE[12]	PERFORMANCE
BIOPHYSICAL ENVIRONMENT	**Waste water treatment**			
	Percentage of registered accommodation businesses connected to effective waste water treatment systems (secondary or tertiary quality effluent)	64%	81-89% (QTC 103:2001 in Quintero & Vega, 2004, p. 18)	Poor
	Percentage of total population whose waste water reaches the sewage plant (approximated measure)	39%	81 – 89%	Poor
	Solid waste management			
	Percentage of the tourism businesses with regular solid waste collection	98%	75 – 90%	Good
	Amount of debris found on predetermined area on the Municipal Beach	Primary data to be generated	Tendency to decrease	To be determined
	Existence of a solid waste reuse or recycling program in Puerto Cortés	No reuse / No recycling	50% Yes answers (Yes reuse/No recycling or No reuse/Yes recycling)	Poor
	Drinking water – Quality and access			
	Number of shortage incidents (Aguas de Cortés coverage area)	Primary data to be generated	Tendency to decrease	To be determined
	Percentage of drinking water samples complying with QTC standards (Aguas de Cortés and Juntas Administradoras de Agua, for standards see Appendix C)	Aguas de Cortés coverage area: 67% (data not available for JAAs)	96-100% (QTC 103:2001 in Quintero & Vega, 2004, p. 18)	Poor

DIM.	CORE INDICATORS	RESULT	ACCEPTABLE RANGE[12]	PERFORMANCE
	Recreational water quality			
	Percentage of the fecal coli forms tests whose result is appropriate for recreational use	Primary data to be generated	75%-90% (Blue Flag Programme, 2008)	To be determined
ECONOMY	**Tourism contribution to the local economy**			
	Representativeness of the tourism sector on the total income generated by businesses registered in Puerto Cortés	Secondary data to be determined	Tendency to increase	To be determined
	Tourism net benefits			
	Percentage of total tax revenue generated by the tourism sector	Secondary data to be determined	Tendency to increase	To be determined
	Tourism seasonality			
	Occupancy rates for registered accommodation per month	Secondary data to be determined through IHT	Tendency to increase (National average in 2008: 64%)	To be determined
	Total number of tourist arrivals (based on occupancy rates for registered accommodation)	Secondary data to be determined through IHT	Tendency to increase	To be determined
DESTINATION PLANNING	**Harmonious relationship between biophysical and built environment**			
	Number of buildings not complying with municipal regulations in which the irregularities have been corrected	Secondary data to be determined	75-90%	To be determined
	Vehicular traffic			
	Number of congestion days along the Municipal Beach (Coca Cola)	Primary data to be generated	Tendency to decrease	To be determined

DIM.	CORE INDICATORS	RESULT	ACCEPTABLE RANGE[12]	PERFORMANCE
	Visitor satisfaction			
	Visitor satisfaction rate	Primary data to be generated	61-80 points (Quintero & Vega, 2004, pp. 34-35)	To be determined
	Maintenance of a positive image of Puerto Cortés			
	Percentage of the media reports related to Puerto Cortés which make positive comments about the city	100% (Jan/may 09)	Tendency to increase	Good

5.3.2. Supporting indicators

Relevant measures whose monitoring would likely contribute to the planning process.

Table 4 – Supporting indicators

DIM.	SUPPORTING INDICATORS	RESULT	ACCEPTABLE RANGE[13]	PERFORMANCE
SOCIETY	**Integration among tourism stakeholders**			
	Participation levels in tourism related meetings and events taking place in Puerto Cortés (% of invitees attending)	Primary data to be generated	51-75% of the invitees attending	To be determined
	Education for sustainable tourism development			
	Attendance rates in the tourism related capacity building projects taking place in Puerto Cortés	Secondary data to be determined	50-70% of the invitees attending	To be determined
BYOPHISICAL ENVIRONMENT	**Conservation of local ecosystems**			
	Number of identified specimens in samples of local fauna and flora	Primary data to be generated	Results should be monitored over time so acceptable ranges can be established in the future.	To be determined
	Number of denounces of environmental threats yearly received by the UGA	204 (Puerto Corés,2008)	Results should be monitored over time so acceptable ranges can be established.	To be determined
ECONOMY	**Tourism contribution to the local economy**			
	Percentage of the total number of businesses in Puerto Cortés represented by tourism related businesses	Secondary data to be determined	Results should be monitored over time so acceptable ranges can be established.	To be determined

[13] See Section 5.4. for discussion on acceptable ranges and Appendix C for details on values defined for each supporting indicator.

DIM.	SUPPORTING INDICATORS	RESULT	ACCEPTABLE RANGE[13]	PERFORMANCE
	Community investment in tourism			
	Inventory of municipal expenditures directly related to tourism development	Secondary data to be determined	No acceptable range to be determined. Results should be monitored over time to help evaluate tourism's economic benefits	To be determined
	Tourism generated employment			
	Percentage of tourism businesses owned and managed by stakeholders originally from Honduras	Primary data to be generated	90-94% (Quintero & Vega, 2004, p. 36)	To be determined
DESTINATION PLANNING	**Visual contamination**			
	Percentage of irregular signs existing in Puerto Cortés' urban area removed or modified to follow the regulations	Secondary data to be determined	75-90%	To be determined
	Existence of signage regulation specifically designed for tourist areas	No	Yes	Poor
	Vehicular traffic			
	Percentage from the total of number of car accidents involving visitors	Primary data to be generated	Tendency to decrease	To be determined

5.4. Framework for the interpretation of results

As important as the results of the indicator's application is their interpretation. A crucial step of any monitoring system to prevent indicators of becoming meaningless figures is the definition of a framework of values with which results can be compared. Such a framework can take several forms: comparisons with baseline results obtained over the years in the same destination (thus the importance of the continuity of the monitoring process), the use of thresholds, targets, critical limits or the creation of desirable ranges of values (Miller & Twining-Ward, 2005, p. 157; Twining-Ward & Butler, 2002, p. 378).

The establishment of single reference values such as thresholds, targets or critical limits can be very controversial. Similarly to critical limits, thresholds tend to be used as the value that, once exceeded, might give rise to serious consequences related to the issue being measured. One of the criticisms to their use is that, as systems are continuously and unpredictably changing, the threshold value represents only a snapshot of reality at a given point in time. Furthermore, the establishment of a reliable value requires extensive scientific research, limiting its practical application. Target values, on the other hand, are criticized for frequently becoming more important than the goal which they are meant to measure. The need to achieve a certain value might divert the focus of the management process from the careful interpretation of the data obtained through the indicators (Miller & Twining-Ward, 2005, pp. 157-158).

For the purpose of this study, whenever possible, acceptable value ranges have been established. Results were deemed *poor* if below the acceptable range and *good* if they were above it. Ranges have been selected for their flexibility: they do not put excessive emphasis on a single value and can be adjusted according to the degree of change desired in the destination. It is clear that the definition of acceptable ranges is also subjective and might generate discussion. However, acceptable ranges provide room for several responses for a given issue to be considered acceptable for the sustainable development of tourism (Miller & Twining-Ward, 2005, pp. 157-158).

It is common that the acceptable ranges create unclear situations. The decrease on the number of congestion days, for example, can be a positive trend when the number of visitor arrivals remains unchanged, but can also mean the decline of the tourism sector in the area. In addition, when ranges are set too low or too high, they also might influence the effectiveness of the monitoring system, respectively making it too easy for *good* results to be obtained (and thus stimulating unsustainable practices) or discouraging action when all the indicators fail (Miller & Twining-Ward, 2005, p. 159). Thus, the acceptable ranges should be used as reference values as long as the indicator is not disconnected from its broader context.

For this first attempt of application, given the lack of baseline data for most of the indicators, acceptable range values have been drawn from related literature, international standards and other case studies (see Appendix A for referred sources). Once a monitoring system is successfully established, ranges should be revaluated to assess their suitability to Puerto Cortés reality. In cases where the type of indicator or the lack of data did not allow for the definition of an acceptable range, desirable trends have been mentioned. The idea is that this framework also works as the connection between the indicators and management actions. In this sense, indicators receiving a *poor* and *acceptable* mark should be considered priorities and management responses ought to be developed to address them. The complete system of indicators' implementation is discussed on section 6.2.

6. DISCUSSION AND RECOMMENDATIONS

6.1. General recommendations

The selection and application of the indicators has shown that a long and sometimes challenging path exists between the design of a sustainability indicator set and its effective implementation. The process is not linear and requires constant incorporation of feedback to make the indicators both representative and measurable. Overall, the first application attempt revealed not only weaknesses of the measures originally selected, but also the need to improve data collection processes in Puerto Cortés so that additional and reliable information can be generated on core sustainability issues. The investment of human and financial resources in a monitoring process may sound a little misplaced in face of several other serious and urgent concerns existing in Puerto Cortés. Nevertheless, the availability of sound information on key local issues helps optimize resources in the long run by contributing to the accurate identification of problems and thus minimizing the risk of mis-informed decisions.

It is highly recommended that an effort is made to expand municipal data collection processes so they provide a broader coverage of the rural areas in Puerto Cortés. Even though tourism is not yet developed in these areas, the municipal intention of diversifying available leisure activities and encouraging nature-based tourism tends to make rural areas attractive to the tourism industry. A significant share of the total population (approximately 50% of Puerto Cortés inhabitants live outside the urban boundary[14]) justifies the collection of information especially in matters such as solid waste and waste water management, access to drinking water and land use. The uncontrolled development of tourism in areas where neither infrastructure nor planning control is currently available may represent a risk to the equilibrium of local ecosystems.

[14] According to the 2002 Urban Area Census conducted by the Instituto Nacional de Estadística (INE)

Some of the indicators suggested in this study are meant to allow for the assessment of the tourism sector's representativeness for Puerto Cortés' society, economy and environmental conditions. The number of visitors arriving in Puerto Cortés throughout the year is a critical piece of information for this assessment. Without at least an accurate estimate, efforts to plan for tourism development may well come to naught. In this sense, the structuring of a reliable data collection system for the number of visitor arrivals is of vital importance for effective tourism planning and should be considered a high priority.

6.2. Comments on indicator results

The indicators whose result could be assessed have exposed the vulnerability of critical issues related to environmental management in Puerto Cortés. The issues related to *Waste water* and *Solid waste management* and to the *Quality of drinking water* presented values below the acceptable ranges. This is of particular concern given that these are not topics related to the sustainable development of tourism alone, but rather conditions for the long-term sustainability of Puerto Cortés itself (although one of the measures of solid waste management presented *good* result, it was the one limited to the tourism industry only). It is clear that the aforementioned problems are not minor and will require significant amounts of financial resources and coordination among different government levels to be overcome. In addition, solutions are more likely to be successful when they emerge from alternatives developed at the local level.

Another topic which presented unsatisfactory result is *Visitor safety*. This indicator is based on the evaluation of the resources available to assist visitors in safety-related issues. The *poor* result indicates that the existing resources do not provide visitors with sufficient information or tools to protect themselves in cases of natural disasters, health or crime-related incidents. Thus, it is recommended that the list of evaluated factors be reviewed and the possibility of improving available resources, considered.

The indicators regarding *Education for sustainable tourism development* and the *Maintenance of a positive image* presented results respectively within and above the acceptable ranges. Both are significant issues for the long-term sustainable development of tourism and it is encouraging that positive results have been achieved. Education is the basis for the change in attitude needed to pursue long-term and sustainable tourism development, and the fact that ongoing processes are already involving local tourism stakeholders is very beneficial. It should not be forgotten, however, that efforts should also be made to educate citizens not directly involved with tourism.

Even though the assessment of Puerto Cortés' image was based on observation over a period of four months, these included the beginning of the summer season and the Holy week, when the city is getting prepared to receive the majority of its visitors. Having uniformly positive media comments during this time of the year is likely to be a significant achievement regarding tourism development for a city whose image is easily associated with the port activities. Efforts to maintain the trend and expand media coverage to other periods of the year might help decrease the seasonality of tourism in the region.

Finally, it is important to keep in mind that the measures proposed in this study - both the indicators and the acceptable ranges - are not set in stone. Due to the scarcity of currently available data on tourism in Puerto Cortés, the selection of some indicators has been limited by data availability and others have been selected to draw attention to specific, critical issues that should be incorporated into the practice of local tourism planning. The indicators should be re-evaluated from time to time to verify their continuing suitability for the city's reality and may consequently be modified or supplanted. A similar approach should be used with the established ranges, which should also be monitored, ensuring the limits they set are efficient in stimulating action towards set goals and objectives.

6.3. Connection to Management Responses

The integration of the indicators results with local tourism planning and management processes is a condition for the effectiveness of the monitoring system. The measures are not an end in themselves, but rather tools to support planning decisions and management responses. Several indicator experiences have been carried out in tourism destinations over the past decade; few of them, however, contemplate how the indicator results should actually be converted into management action (Miller & Twining-Ward, 2005, p. 166; Vila, Costa, & Rovira, 2009, p. 7). In a study conducted on tourism destinations in Spain, Vila, Costa, & Rovira (2009) have identified three recurrent limitations for the effectiveness of the indicator-based monitoring systems. These are the lack of relationship between indicators and the destination's tourism development strategy, the lack of connection between results and action guidelines, and finally, the excessive number of indicators, which makes their implementation difficult. Miller & Twining-Ward (2005) also mention the integration of the indicator results to the management practice as a common weakness of sustainability indicator programmes. In this sense, it is essential that an implementation framework is conceived jointly with the monitoring system, and be made an integral and indispensable part of it.

The framework for implementation suggested in this study had its foundations delineated when acceptable ranges were chosen as the method to interpret the information produced by the indicators. By setting acceptable ranges for each indicator, the intention is to stimulate action should the results fall outside these ranges. Once the imperative need for action is recognized, the next step is to identifiy the possible causes for the unsatisfactory outcomes.

The complexity in defining specific causes for inadequate results makes this a delicate and controvesial stage of sustainability indicator systems. The connection between social, economic and biophysical environment issues is not always clear, and the establishment of a causal relationship tends to be very subjective, leaving space for

misinterpretations which can lead to inadequate or misdirected action. It is argued here, however, that subjectivity is inherent to the whole indicator development process and avoiding it completely is virtually impossible. Even if the monitoring system is designed by experts, the selection of what issues should be monitored, the decision on the measures used to represent each issue and the interpretation of results are permeated by subjective assumptions. Furthermore, indicators will only be effectively applied when involved professionals have a sound understanding of the process and its objectives. If the conceptual basis is not well understood, not only the assessment of the results, but also the whole monitoring system will be undermined. Mistakes will undoubtly be made, and they should be regarded as a natural part of the process rather than as intransgressible barriers. In this sense, the complexity in defining causal factors for indicator results should not become a hindrance for sustainability indicators to be used as monitoring tools.

Once possible causes for the unsatisfactory results are identified, strategies should be developed to improve these and help minimizing tourism development's undesirable outcomes. Some authors suggest that the selection of possible action strategies can take place together with the definition of acceptable ranges. In this case, the group of professionals responsible for the application of the monitoring system would only need to select the most appropriate option (Miller & Twining-Ward, 2005, p. 169). Given that strategies are predefined, this approach has the advantage of reducing the pressure on the investigation of causal factors. On the other hand, it forces the definition of strategies beforehand, not taking into account the reality at the moment the problem emerges. For this reason, it is suggested here that the strategy to overcome unsatisfactory results be discussed when the result is actually obtained. This discussion is a good opportunity to involve stakeholders, helping their integration and increasing the legitimacy of the monitoring system.

Following the definition of a strategy to approach the problems, an action plan should be outlined and implemented. Even if local stakeholders are not involved in the

definition of the approach to be taken, the information produced by the monitoring system should be publicly released, together with the management responses adopted to deal with unsatisfactory results. In the long run, the systematic release of information can create a public demand for it, helping institutionalize the monitoring process. Finally, any feedback from this process should be used as input for the following application of indicators, which will serve simultaneously as the evaluation of the management responses and the beginning of a new monitoring cycle.

In the case of Puerto Cortés, the suggested implementation procedures start with the establishment of a partnership for the implementation of the monitoring system. Partners will likely be the municipal departments and other organizations involved in indicator data collection[15]. In the current organizational structure of the City of Puerto Cortés, the Municipal Planning Department controls seven sub-units, including Tourism, Environmental Management, Land Use Planning and Research and Project Development. As these four sub-units are assigned for most responsibilities within the monitoring system, it is recommended that the first effort in creating such a partnership be lead by the Municipal Planning Department. Once an agreement is obtained with the proposed partners, the Tourism Unit should be responsible for the coordination of a committee composed of representatives of each partner, working as the contact point among them.

Data collection responsibility is distributed among the several partners, which are also in charge of investigating causal factors for unsatisfactory results and coming up with possible management responses. Technical support for data analysis and review of the monitoring system is provided by the Research and Project Development Unit (UIFP).

The actions suggested to overcome the unsatisfactory indicator results will have their feasibility discussed by the committee, which will also select the issues to be prioritized.

[15] For the indicators proposed in this study, partners will include the municipal units for Tourism, Environmental Management, Land Use Planning, Research and Project Development, Public Relations, Public Services, and Treasury. In addition to the municipal units, the Empresa Aguas de Cortés and the National Transit Department are also part of the partners for the monitoring system. See Appendix E for list of partners, correspondent indicators and schedule for data collection.

Based on this discussion, the Tourism Unit (UTM) will be responsible for building an action plan defining time-frames, costs and responsibilities for each management response. Finally, once the action plan is structured, it should be approved by the committee.

To ensure the monitoring process contributes to the dissemination of knowledge on sustainable tourism development, the UTM, together with the Public Relations Unit, will release an annual report presenting the outcomes of tourism development in Puerto Cortés and explaining how they are addressed by the municipality. Figure 35 illustrates the monitoring process applied to Puerto Cortés' municipality organizational structure.

Throughout the monitoring process, it is recommended that the staff members directly involved receive training on the possible outcomes of tourism development and on the indicator's system conceptual foundations. The increase of awareness will likely stimulate the interest in the process. The most important factor in the maintenance of indicators' system is, however, the recognition from the part of the municipality that comprehensive planning is a pre-condition for the sustainable development of tourism, and that this will only be possible once sound information is available to support decision-making.

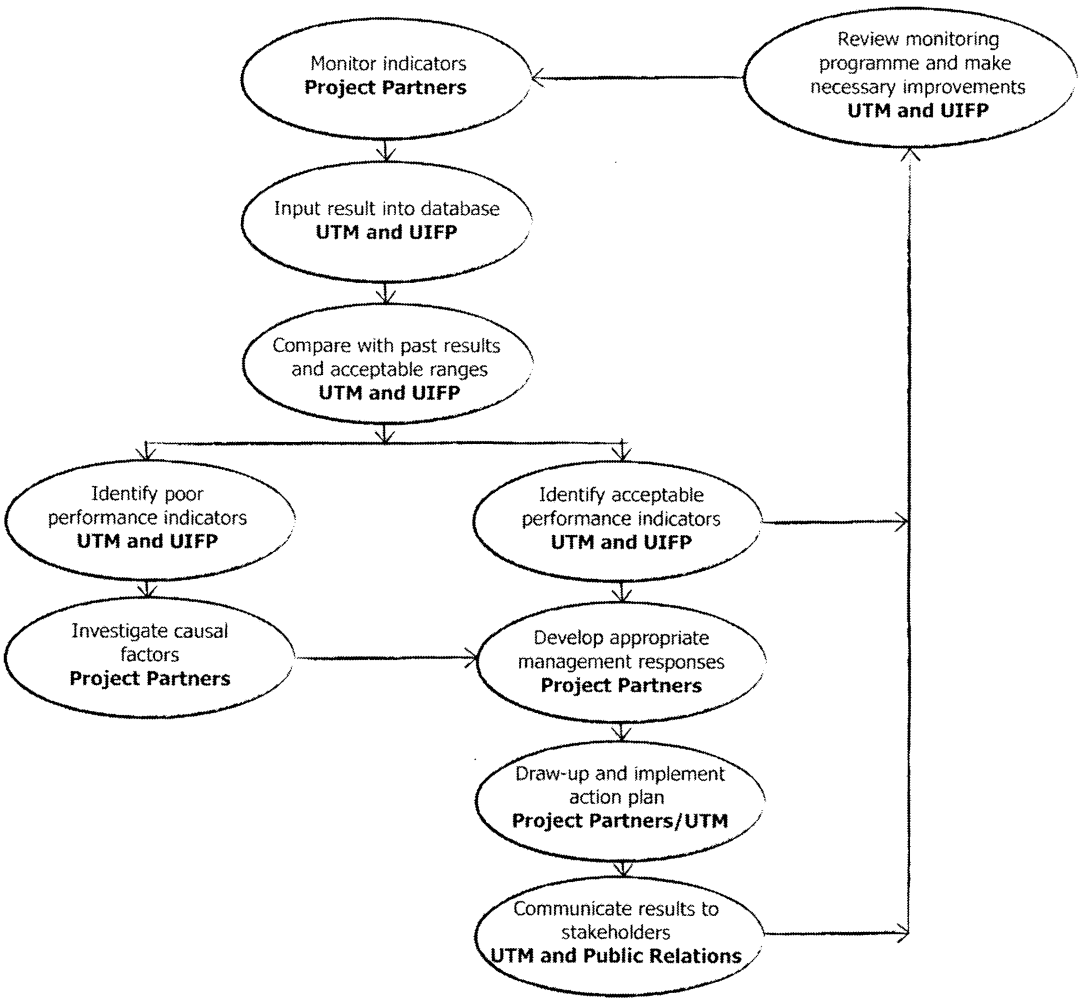


Figure 35 – Implementation Framework adapted to the organizational structure of the City of Puerto Cortés. Adapted from Twining-Ward (2001) in Butler & Twining-Ward, p.381.

7. CONCLUSION

7.1. Final comments on sustainable tourism development in Puerto Cortés

The review of the literature has shown that tourism planning and management approaches can provide an adequate framework to deal with tourism's peculiar dynamics when they acknowledge that sustainable tourism development is a continuing process in which changes are interrelated. Once change is recognized as natural to the development process, learning about the consequences of tourism becomes an essential element of the activity's planning and management. Based on this theoretical framework, a set of sustainability indicators has been developed to monitor the outcomes of tourism development in Puerto Cortés, Honduras.

The first attempt at applying the aforementioned indicators has exposed challenges for the implementation of such a monitoring program in Puerto Cortés. The fact that the city has few systematic data collection processes poses an important hindrance and challenge for its accomplishment. The successful monitoring of tourism outcomes has been demonstrated to require not only technical procedures for the selection of appropriate indicators, but also the adequate organizational culture and management processes to allow for their effective application and the use of the information they generate in the planning-decision making.

The results obtained at the first indicator assessment allowed for the identification of relevant aspects related to the sustainable development of tourism in Puerto Cortés. The extreme seasonality of currently available tourist attractions creates a contrasting pattern of outcomes in the city. While Puerto Cortés and Omoa receive more than 200,000 visitors during the Holy Week (Dirección Nacional de Transito, 2009), no other event of similar magnitude takes place during the rest of the year. During that week, overcrowding signs such as traffic congestion, accumulation of litter on the seashore and noise pollution are visible especially at the Coca-Cola and the Cienaguita beaches.

On the other hand, the Holy Week festivities in Puerto Cortés have a good national reputation and seem to contribute to the city's positive image and to the pride of the local population. The high number of visitors also generates economic activity. Besides, the significant increase in the number of clients in the hotels and restaurants established on the two main beaches, restaurants and night clubs located in downtown build temporary structures on the shore during the Holy Week. Several small entrepreneurs also profit from the event through formal and informal food, beverages and handicraft commerce.

The intensity of tourism impacts in Puerto Cortés, however, is drastically reduced in other periods of the year as the number of visitors arriving to the city on a regular basis is relatively low. Apart from the Holy week, tourism is currently restricted to summer weekends and few local festivals. The inconsistent number of visitors has both positive and negative consequences; while it reduces the pressure on the local infrastructure and environment, it also represents a burden for tourism businesses which have difficulties in maintaining regular revenues throughout the year.

Despite the seasonality currently characterizing the tourism sector in Puerto Cortés, it is important that the municipal efforts to stimulate tourism development be taken into consideration when planning for the activity's sustainable development. It is clear that the development of tourism has the potential to intensify some of the local pre-existing problems. As it has been described on Chapter 6, tourism development seems to represent a challenge especially for environmental management issues in Puerto Cortés. The tourist attractions available in the municipality are mostly related to natural resources: beach, lagoons, river basins and mountain areas. Most of the water bodies, however, already present some level of contamination which tourism activity only tends to increase. The mountain areas, in turn, have not yet been explored for recreational purposes, and may be threatened if leisure activities take place without adequate planning.

Puerto Cortés' early stage of tourism development constitutes the proper moment to initiate the collection of data which will allow the identification of changes brought by tourism over time. The negative outcomes of tourism development in the area are still manageable and limited to specific periods of the year. The proposed monitoring program, however, must focus not only on the technical details of indicator assessment but also on the enhancement of the planning and management processes within the institutions involved in the local tourism planning.

7.2. Limitations and further research

It is important to point out that this study also has its limitations and that further research in related topics would contribute to its comprehensiveness and effective implementation. Despite the author's efforts in understanding the context in Puerto Cortés during the six weeks of field research and the involvement of local authorities in the selection of priority issues, the vast majority of the study was carried out through an external point of view. The lack of direct local stakeholder involvement can possibly result in overlooked or misinterpreted issues. In addition, the little data available for the first indicator application imposed challenges for the evaluation of current effects of tourism development in Puerto Cortés and increased the weight of author's observations on the overall assessment.

Another important limitation relates to the scope of the study. Even if it has received local authorities' support, it is still a proposal, an add-on to a pre-existing tourism development strategy. It lacks, therefore, one of the critical aspects to the successful implementation of monitoring systems, which is the linkage to the ongoing planning processes. Its applicability is thus bound to the willingness of the local authorities to revaluate the tourism development strategy, including the monitoring system as an integral part of it and coordinating efforts among the mentioned departments and organizations. Finally, both the earthquake and the political crisis which took place in 2009 might have represented changes to the context on which this research was based.

Its implementation might thus require a re-assessment of the possible changes brought about by these events.

Finally, the study of a couple of aspects of tourism development in Puerto Cortés' region would likely complement this proposal. A detailed characterization of the local tourism businesses, describing not only economic and infrastructure features, but also identifying their objectives and management strategies would help direct actions to raise awareness and establish partnerships with the private initiative for the sustainable development of tourism. In addition, it would also be recommendable that a similar monitoring program be developed in the neighbouring town of Omoa, as both communities complement each other in terms of tourism development. Efforts to pursue sustainable practices in Puerto Cortés might have their effectiveness threatened if no similar concern is taken in Omoa.

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A. APPENDIX A

Selection of priority issues

UNIVERSIDAD MCGILL - ESCUELA DE PLANEAMIENTO URBANO Y GRUPO INTERUNIVERSITARIO DE MONTREAL - CIUDAD Y DESARROLLO (GIM)
Maestría en Planeamiento Urbano - Abril 2009
Proyecto: Monitoreo del desarrollo urbano en destinos turísticos - El caso de Puerto Cortés, Honduras
Alumna: Danielle Hoppe

PRIORIZACIÓN DE ASUNTOS PARA EL DESARROLLO DE INDICADORES DE TURISMO SOSTENIBLE

El siguiente formulario tiene como objetivo la priorización de asuntos los cuales serán posteriormente utilizados como base para el desarrollo de indicadores de turismo sostenible. Para llenar ese formulario por favor considere las siguientes recomendaciones:

1 = Prioridad alta
2 = Prioridad media
3 = Prioridad baja

Se solicita elegir 5 asuntos como prioridad alta (1) en cada uno de los temas abajo (Sociedad, Medio Ambiente, Economia, Planificación urbana y turística). Los restantes de los asuntos podrán ser libremente clasificados como prioridad media (2) o baja (3). Ud. también podrá adicionar cuestiones las cuales no están incluidas en la lista.

Gracias por su colaboración!

Tema Principal		Asunto	Prioridad		
			1 -Alta	2-Media	3-Baja
1. Sociedad					
	1.1	Integración entre actores involucrados en el turismo y la municipalidad			
	1.2	Integración entre actores privados involucrados en el turismo			
	1.3	Conservación de las costumbres culturales de las comunidades garífunas			
	1.4	Educación formal para el turismo sostenible (nivel primario y secundario)			
	1.5	Educación informal para el turismo sostenible (población en general, trabajadores de los servicios turísticos)			
	1.6	Seguridad de los turistas			
	1.7	Seguridad de la población local			
	1.8	Satisfacción de los turistas			
	1.9	Satisfacción de la población local con el turismo			
	1.10	Efectos del turismo en la comunidad - Cambios en los costumbres de la comunidad			
	1.11	Efectos del turismo en la comunidad - Costo de las viviendas			
	1.12	Efectos del turismo en la comunidad - Proporción entre población residente y turistas			
	1.13	Acceso de los residentes a los principales recursos (acceso físico y costo de acceso)			
	1.14	Participación comunitaria en el turismo			
		Propuesta de otro asunto:			

Tema Principal		Asunto	Prioridad		
			1 -Alta	2-Media	3-Baja
2. Medio ambiente					
	2.1	Control y manejo de aguas lluvias			
	2.2	Vulnerabilidad de la población a vientos y inundaciones			
	2.3	Control de la ocupación descontrolada de las cabeceras de las cuencas productoras de agua			
	2.4	Preservación y recuperación de los espacios de altas pendientes			
	2.5	Mantenimiento de la zona de amortiguamiento del Parque Nacional Punta Sal y de la zona de reserva de la Península (ecosistema de humedal)			
	2.6	Estado de conservación de los manglares (ecosistema de bosque de manglar)			
	2.7	Estado de conservación de los arrecifes (ecosistema marino)			
	2.8	Manutención de la biodiversidad (fauna, flora)			
	2.9	Calidad del agua en la Laguna de Alvarado, en los rios Medina y Cienaguita, en la Bahía de Cortés y a lo largo de la costa (ecosistemas lagunar-estuarino)			
	2.10	Tratamiento de las aguas residuales			
	2.11	Calidad del agua potable			
	2.12	Colecta de desechos sólidos			
	2.13	Manejo del relleno sanitario (depósito para el tratamiento de desechos sólidos)			
	2.14	Manejo de los recursos y consumo energético			
	2.15	Control de la contaminación del aire			
	2.16	Control de la contaminación por ruido			
		Propuesta de otro asunto:			

Tema Principal		Asunto	Prioridad		
			1 -Alta	2-Media	3-Baja
3. Economía					
	3.1	Estacionalidad del turismo			
	3.2	Ingresos turísticos			
	3.3	Inversión de la comunidad en el turismo			
	3.4	Aportación del turismo a la economia local			
	3.5	Beneficios económicos a pequeñas y medianas empresas			
	3.6	Competitividad de los negocios turisticos (en comparación con otros destinos similares)			
	3.7	Fuga de divisas (artículos importados, divisas, fugas internas y externas)			
	3.8	Empleos generados por el turismo - cuantidad, estacionalidad, nivel salarial			
	3.9	Cambio en el costo de vida local			
	3.10	Impacto del turismo en la economía informal			
	3.11	Navios cruceros - planificación, infraestructura y promoción			
	3.12	Contribución económica del turismo para la conservación de la naturaleza			
		Propuesta de otro asunto:			

Tema Principal		Asunto	Prioridad		
			1 -Alta	2-Media	3-Baja
4. Planificación urbana y turística					
	4.1	Inserción armónica de las construcciones en el entorno urbano y natural (especialmente desarrollo urbanístico El Porvenir, Cieneguita, Playa Municipal y carretera a Omoa)			
	4.2	Control de contaminación visual: manutención de los espacios públicos lo más libre posible de rótulos y elementos distorsionantes que disminuyen la calidad visual			
	4.3	Control de contaminación visual: Regular el acceso visual de la población hacia puntos de atracción y de ordenación natural			
	4.4	Conservación del patrimonio histórico (Fortaleza San Fernando de Omoa, antigua municipalidad en Puerto Cortés)			
	4.5	Seguridad del Tránsito Peatonal, Ciclístico y Vehicular			
	4.6	Accesibilidad a Puerto Cortés (embotellamientos, transporte público, manutención de las carreteras)			
	4.7	Accesibilidad en Puerto Cortés (embotellamientos, transporte público, manutención de las carreteras)			
	4.8	Alcaldía municipal – planeamiento para el turismo, integración entre las unidades			
	4.9	Promoción turística - Manutención de un imagen positivo de Puerto Cortés			
	4.10	Conflictos de uso del suelo urbano (industrial x turístico)			
	4.11	Expansión urbana (urbanización en áreas sensibles)			
	4.12	Integración del planeamiento turístico en las políticas de planeamiento local y regional			
	4.13	Desarrollo de servicios y productos turísticos			
	4.14	Sostenibilidad y prácticas de gestión ambiental en los prestadores de servicios turísticos			
	4.15	Control de intensidad de uso de los atractivos turisitcos			
	4.16	Monitoreo de la implementación de los planes de desarrollo turístico			
		Propuesta de otro asunto:			

List of respondents of the Issue Prioritization questionnaire:

- **Bodden, Kay,** Environmental Management Manager
- **Cacildo, Mauricio,** Transportation Manager
- **Méndez O., Diego ,** Head of Municipal Planning Department
- **Flores, Omar,** Land Use Planning Manager
- **Paz, Natividad,** Tourism Manager
- **Ramirez , Lourdes,** Research and Project Development Manager
- **Toledo, Moisés,** Head of Municipal Capital Works Department

B. APPENDIX B

Unstructured interviews

List of interviewees

The professionals listed below were interviewed by the author in Puerto Cortés, in April and May 2009. Interviews were recorded to facilitate their analysis.

- **Aguilera, Jorge**
  - Aguas de Cortés Manager
- **Aplicano, Walter**
  - Tourism Police Director for Puerto Cortés and Omoa
- **Bodden, Kay**
  - Environmental Management Manager
- **Cantón, Any**
  - Public Relations Manager
- **Méndez O., Diego**
  - Head of Municipal Planning Department
- **Flores, Norma**
  - Member of the Association of Local Entrepaneurs
- **Flores, Omar**
  - Land Use Planning Manager
- **Lara, Victor**
  - Road Maintenance Supervisor
- **Lemus, Roberto López**
  - Puerto Cortés Chamber of Commerce representative
- **Madril, Carlos**
  - Environmental Management staff member
- **Milovan, Alfredo**
  - Public Services Manager
- **Molina, Waldina**
  - Director for the Tourism Program at Instituto Franklyn Roosevelt
- **Paz, Natividad**
  - Tourism Manager
- **Ramos, Reina**
  - Treasury Manager
- **Viator, Trino**
  - Landfill Manager
- **Zaldivar, César**
  - Police Capitain
- **Zepeda, Yitzhak Yadin**
  - National Police Inspector, Director for Puerto Cortés

Aide memórie used for the unstructured interviews

The topics presented here were used as a broad agenda for the interviews with the municipal staff members who would likely be responsible for the collection of data for the suggested indicators. The core component of the interview was individually adapted to reflect the priority issues each interviewee is in charge.

Opening

- Introduction of researcher and research purpose
- Comment on privacy of information and request to record interview

Core

- Current status of the priority issue(s) in Puerto Cortés
- Stakeholders involved in the priority issue(s)
- Ongoing data collection processes related to priority issue(s)
- Presentation of indicator(s) proposed for priority issue(s)
- Feasibility of proposed indicator(s)
- Other specific topics

Closing

- Thank interviewee
- Availability to respond to follow-up questions if necessary
- Explanation on future research steps

C. APPENDIX C

DETAILED INDICATOR DESCRIPTION

The purpose of this appendix is twofold. First, it explains the relevance of the issues selected for monitoring tourism development outcomes in Puerto Cortés. Second, it provides details on the selected indicators. The indicators are divided into two groups: core and supporting. The core group includes current priorities for the sustainable development of tourism in Puerto Cortés. The supporting group of indicators, in turn, includes relevant measures whose monitoring would likely contribute to the tourism planning process but could be implemented in a second phase.

For each indicator, a measurement "formula" is presented, along with the desirable intervals for data collection and the municipal body responsible for gathering the information. The acceptable ranges defined for the interpretation of the results are also presented. Where no specific reference is made, the ranges have been defined by the author.

1. CORE ISSUES

1.1. Integration among tourism stakeholders
1.2. Education for sustainable tourism development
1.3. Visitor safety
1.4. Waste water treatment
1.5. Solid waste management
1.6. Drinking water – quality and access
1.7. Recreational water quality
1.8. Tourism contribution to the local economy
1.9. Tourism net benefits
1.10. Tourism seasonality
1.11. Harmonious relationship between the natural and the built environment
1.12. Vehicular traffic
1.13. Visitor satisfaction
1.14. Maintenance of a positive image of Puerto Cortés

2. SUPPORTING ISSUES

2.1. Conservation of local ecosystems
2.2. Community investment in tourism
2.3. Tourism generated employment
2.4. Visual contamination

1. CORE ISSUES

1.1. INTEGRATION AMONG TOURISM STAKEHOLDERS

Relevance

Several authors have argued that for tourism development to be sustainable it must ensure local stakeholder input in planning and management processes (Miller & Twining-Ward, 2005; Murphy, 1985; Pearce, 1995; Sirakaya, 2001). This active participation is meant to allow different parts of the community to express their concerns and guarantee a fair distribution of tourism-related benefits.

The integration of tourism stakeholders among themselves is as important as the stakeholders' input in the planning and management processes. By organizing discussion groups, tourism-business associations or simple joint initiatives related to tourism development, opportunities are created for the coordination of efforts towards achieving similar goals.

Relevance in Puerto Cortés

The lack of integration among tourism stakeholders in Puerto Cortés has been pointed as a weakness in municipal tourism-related documents (Diagnostic of Tourism Management in Puerto Cortés and Strategic Tourism Plan). The subject is commonly brought about in informal talks and was mentioned by several of the stakeholders present during the first meeting promoted for the creation of the Municipal Tourism Council (the meeting had to be cancelled due to the low attendance).

Core indicator

- **Representativeness of the diverse stakeholder groups in tourism related meetings and events taking place in Puerto Cortés (stakeholder groups attending)**

Measure

Number of meetings with all the key stakeholder groups represented / Total number of meetings

Stakeholders involved in tourism development in Puerto Cortés are grouped as follows for the purpose of this indicator (key stakeholders are highlighted in bold):

Government

- **Municipality of Puerto Cortés**
- **Honduran National Port Authority**

Industry

- **Accommodation**
- Food-related services
- Entertainment

- Tour-operators

Residents

- **Beaches (Playa Municipal, Cienaguita, El Faro, Marejada boroughs)**
- Rural (all rural boroughs)
- Downtown (Centro and El Porvenir boroughs)
- **Garífuna communities (Travesía and Bajamar boroughs)**

Key stakeholders have been selected for the following reasons:

- The Municipality is the main body responsible for the planning and management of tourism development in Puerto Cortés
- The National Port Authority controls the arrivals of cruise ships and plays an important role in the environmental conservation of Puerto Cortés Bay
- The accommodation sector is most representative of the tourism industry, and depends the most on tourism
- Residents of the boroughs located on the coast, are most affected by tourism development
- The Garífuna community has been included for their cultural traditions which are promoted by the Honduran Tourism Institute (IHT) as an important Honduran tourist attraction.

As tourism develops, it is possible that more stakeholders become involved in the process. Therefore, it is recommended that the selection of key stakeholders be evaluated from time to time.

A list of stakeholder groups will be taken to every meeting and the presence of representatives of each category will be identified by the Municipal Tourism Unit (UTM). In case the UTM cannot send a representative to a meeting, the hosting institution will be contacted and asked to forward the list of participants.

Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM

Results
Poor: Representatives of all key stakeholders are present in 0-50% of the meetings
Acceptable: Representatives of all key stakeholders are present in 51-75% of the meetings
Good: Representatives of all key stakeholders are present in 76-100% of the meetings

The ranges for this indicator have been defined based on the majority rule. It is assumed that all stakeholders should be represented in at least 51% of the meetings if satisfactory integration is to be achieved. Nevertheless, the suitability of the ranges to Puerto Cortés reality should be evaluated once a first indicator assessment is made.

Supporting indicator

- **Participation levels in tourism related meetings and events taking place in Puerto Cortés (% of invitees attending)**

Measure
Individual for every tourism-related meeting:
Number of invitations sent by the UTM or hosting organization / Total number of participants
Final value:
Average percentage for the total of tourism-related meetings

The tourism-related meetings and events taking place in Puerto Cortés to be considered for this indicator are meetings publicly promoted by the Municipality or by other institution, such as the Chamber of Commerce. The participation level is based on the comparison between the number of invitations sent and the total number of participants, independent from their stakeholder group.

Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM

Results
Poor: 0- 50% of the invitees attending
Acceptable: 51-75% of the invitees attending
Good: 76-100% of the invitees attending

The ranges for this indicator have been defined based on the majority rule. It is assumed that at least 51% of the invitees should be present if satisfactory integration is to be achieved. Nevertheless, the suitability of the ranges to Puerto Cortés should be evaluated once a first indicator assessment is made.

1.2. EDUCATION FOR SUSTAINABLE TOURISM DEVELOPMENT

Relevance
Wider awareness among stakeholders of sustainable tourism development should tend towards more positive contributions in the planning and management processes. Also, the increase of residents' awareness of tourism effects on the environment, for instance, can help monitor environmental damages and protect natural resources. The information acquired by the local community, in turn, can be passed on to tourists and help the dissemination of good practices related to sustainable tourism development (Sirakaya, 2001, p. 1284).

Relevance in Puerto Cortés
Despite the fact that Puerto Cortés has been a regional tourism destination for several decades, there is an overall impression that neither the residents nor the professionals

working in the industry are well-informed about tourism. The little knowledge about the local attractions and the lack of skilled professionals were mentioned as necessary improvements in the Diagnostic of Tourism Management in Puerto Cortés and the Strategic Tourism Plan. Nevertheless, the city has one technical school with a tourism program but students do not seem to find employment in the local market (Molina, personal communication on May 12, 2009). Thus, this indicator's purpose is to ensure that initiative is taken to increase awareness of tourism dynamics and to provide the basis for better-quality tourism services in Puerto Cortés.

Core indicators

Education for sustainable tourism will be assessed using a group of three normative (yes/no) indicators.

- **Existence of joint projects between the Municipality and the tourism program at the Instituto Franklin Delano Roosevelt**

Collaboration between the Instituto Franklin Delano Roosevelt's tourism program and the UTM can provide students with practical experience while it can be a key asset for the UTM in specific projects where partnerships are needed.

Measure
Yes = 2 points / No = 0 points
Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM

- **Availability of capacity building programs targeted on tourism professionals**

Tourism professionals tend to be the local citizens with whom tourists have the most contact. The quality of the services provided by hotel employees, waiters and tour guides are key elements in the tourist's experience and play an important role in their satisfaction and willingness to return to the destination (Paredes, 2008a, p. 12).

Measure
Yes = One or more capacity building program targeted on tourism professionals was available in Puerto Cortés during the semester under evaluation
No = No capacity building programs targeted on tourism professionals were available in Puerto Cortés during the semester under evaluation

Yes = 2 points / No = 0 points

Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM

- **Existence of tourism related educational initiatives targeting citizens who are not directly involved in tourism activities (such as children and general public)**

In addition to helping to indentify tourism's undesirable consequences such as environment degradation, the local population also plays an important role on the tourist experience. They can help visitors with directions and provide information about attractions and the local culture.

Measure
Yes = 1 point / No = 0 points
Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM

Results
Poor: 0-2 points
Acceptable: 3-4 points
Good: 5 points

The three aforementioned measures should be evaluated together. The two indicators dealing with stakeholders directly related to tourism are weighted 2 points, while the indicator related to the general public, which deals indirectly with tourism, is only given 1 point. It is desirable that at least two of the initiatives are present in Puerto Cortés.

Supporting indicator

- **Attendance rates in the tourism related capacity building projects taking place in Puerto Cortés**

The availability of training opportunities alone does not necessarily mean that awareness of tourism issues is increasing. Training sessions carried out by the municipality in May 2009 had shown low attendance (less than 50% of the invitees, present according to the Tourism Unit manager Natividad Paz (personal communication on May 9, 2009), meaning that available resources are not being used at an optimal level. If attendance rates maintain the low trend, action should be taken to identify possible reasons and allow for adjustments.

Measure
Individual for each capacity building session:
Number of invitations sent by the UTM or hosting organization / Total number of participants
Final value: *Average percentage for the total of capacity building session*

The UTM is responsible for keeping track of tourism-related capacity building projects in Puerto Cortés. The number of invitees is then compared to the number of people attending to each training session, generating an attendance rate. Every six months, the average of the attendance rates will be calculated and generate the indicator.

Frequency of data collection and evaluation: semestral

Data collection responsibility: UTM

Results
Poor: 0- 50% of invitees attending
Acceptable: 51-75% of invitees attending
Good: 76-100% of invitees attending

The ranges for this indicator have been defined based on the majority rule. It is assumed that at least 51% of the invitees should be present to the training sessions to allow for the effective dissemination of tourism-related information and thus contribute to sustainable tourism development. Nevertheless, the suitability of the ranges to Puerto Cortés should be evaluated once a first indicator assessment is made.

1.3. VISITOR SAFETY

Relevance
Crime is widely recognized as one of the factors keeping tourists away from destinations. On the other hand, tourism is known for stimulating the increase in crime rates. Visitors are often preferred victims, as they tend to be more distracted and to carry more money than locals. In some destinations, visitors are also seen as potential drug consumers, attracting dealers and increasing drug traffic related violence (Timothy, D.J. in Buhalis & Costa, 2006, p. 20). Finally, visitor safety also involves the concern with health risks and natural disasters, such as epidemics, hurricanes or earthquakes.

Relevance in Puerto Cortés
The lack of data about crime against visitors in Puerto Cortés does not allow for a precise discussion on the topic. However, during the interviews with different police departments (Tourism Police, National and Municipal Police), all interviewees declared that based on empiric knowledge, visitors do not seem to be a special target for criminals in the area. The impression might be related to the fact that Puerto Cortés is a regional tourism destination, and visitors tend to mix more with locals than in destinations receiving visitors from many countries and cultures. The author herself was the target of a mugging attempt during the 2009 Holy Week. Nevertheless, Honduras presents high crime rates against citizens and Puerto Cortés is unfortunately not different from the rest of the country. Thus, if tourism is to be developed in the area, crime rates should be closely monitored. In addition, Puerto Cortés is also located in an area prone to hurricanes and earthquakes, which demand specific preparation in case an unexpected evacuation is needed.

Core indicator

- **Visitor Safety Indicator Matrix**

Ideally, visitor safety should be assessed based on data about incidents involving specifically visitors. An indicator commonly used in international tourism destinations is the *Number of crimes reported by visitors in the destination / Total number of visitors per year*. Another important factor which can be considered is the perception visitors have on safety at the destination.

Currently no information is collected on the victim's place of residence in Puerto Cortés. Thus, an alternative indicator, focused on the evaluation of institutional framework available to deal with visitor safety issues, is suggested. The matrix below is based on the tourist safety framework approved by the Association of Caribbean States' Special Committee on Sustainable Tourism (Quintero & Vega, 2004).

Measure

Table 1C: Visitor Safety Indicator Matrix

Factor Considered	Score					
	5	4	3	2	1	0
Existence of safe and reliable local web sites on tourist services					1	
Relationship with the media in seeking tourist safety						0
Prevention of organized crime by or targeted at tourists and visitors						0
Prevention of drug trafficking by or toward tourists and visitors						0
Local Plan to counteract health problems of tourists and visitors						0
Local safety network for tourists, visitors and local residents		4				
Specialized Tourism Police Service		4				
Plan on Sanitation, hygiene and cleanliness in tourism facilities and support services						0
Information system on food safety						0
Specialized medical care services for tourists and visitors		4				
Epidemiological surveillance system in tourist facilities and support services						0
System for first aid, emergencies and emergency lines in the destination		4				
System for consumer protection and tourist complaints						0
System for signposting and information symbols		4				0
Subtotal		20	0	0	1	0
Total						**21**

Evaluation is based on the following criteria:

5 points: The destination has implemented the factor with good results.

4 points: The destination has implemented the factor considered.

3 points: The destination has considered the factor but has yet to implement it.

2 points: The destination is undertaking efforts to implement the factor considered.

1 point: The destination is expected to develop the factor considered within the next 5 years.
0 points: The destination has no plans to develop the factor considered.

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM

Results
Poor: 0-49 points (insufficient safety conditions)
Acceptable: 50-56 points (average safety conditions)
Good: 57-70 points (safe destination)

Adapted from the Association of Caribbean States' Special Committee on Sustainable Tourism (Quintero & Vega, 2004, p. 40). Items not applicable to Puerto Cortés have been removed from the Visitor Safety Indicator Matrix, and acceptable ranges have been recalculated accordingly.

1.4. WASTE WATER TREATMENT

Relevance
If not well managed, the waste water produced by the local community and by tourism businesses can have wide-ranging negative effects on the environment. Damage to the wildlife, diseases and economy downturns due to the impossibility of recreational use of water bodies are just a few possible consequences. In this context, an adequate sewage treatment system is of critical importance to any community, be it a tourism destination or not. Tourism development can increase the problem, as often hotels are located in wild areas where no sewage network is available. In other cases, the accelerated development of tourism is not accompanied by appropriate infrastructure, overwhelming existing systems and causing pollution. Thus, it is vital that the collection, treatment and disposal of waste water are closely monitored to avoid environmental damage, health problems and economic losses (World Tourism, 2004, p. 171).

Relevance in Puerto Cortés
Currently, the sewage generated in Puerto Cortés has three main destinations: the sewage treatment plant, individual septic systems or the Puerto Cortés Bay. The sewage treatment plant, managed by Aguas de Cortés, treats the waste water generated by approximately 39% of Puerto Cortés' total population (or 62.5% of the population under Aguas de Cortés' responsibility, in 2008) through a network built in 2005. Only 28% of the accommodation establishments, however, are connected to this network (or 58% of all tourism businesses16). Technical difficulties prevented old downtown buildings to be connected to the new network (including 24% of accommodation businesses), and for

[16] The list of tourism businesses in Puerto Cortés considered in this study includes 64 businesses and can be found in Appendix D

this reason part of the effluents are still disposed untreated in the bay. Buildings located outside the urban area have septic systems (36% of the accommodation businesses). In addition to the regulated water disposal systems, informal settlements along the Laguna de Alvarado margins (and close to several other water bodies in the city) dispose their waste water directly into the rivers and lagoons.

The monitoring of waste water disposal in Puerto Cortés is thus vital for tourism development and for the community. The intention to develop tourism in the rural boroughs and in the Garífuna communities of Travesía and Bajamar tends to stimulate the installation of tourism businesses in remote and sensitive areas, requiring a special attention in order to not threaten its sustainable development.

Core indicators

- **Percentage of registered accommodation businesses connected to effective systems (secondary or tertiary quality effluent)**

This indicator works as a warning for potential risks caused by the disposal of untreated sewage in the water bodies in Puerto Cortés.

Measure
Number of accommodation businesses connected to secondary or tertiary sewage treatment systems / Total number of accommodation businesses in Puerto Cortés
Using the existing list of tourism businesses, the UTM will keep track, with the assistance of Aguas de Cortés, of the enterprises connected to the sewage treatment plant. The ones which are not connected to the Aguas de Cortés network will be individually contacted to verify the destination of their waste water and the maintenance of septic systems. Over the years, this information will help monitoring the impact caused by tourism on the generation of waste water in Puerto Cortés.

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and Aguas de Cortés. Relies on the annual update of the tourism businesses list and survey.

Results
Poor: 0-80%
Acceptable: 81-89%
Good: 90-100%
(Quintero & Vega, 2004, p. 29)

- **Percentage of total population whose waste water reaches the sewage plant (approximated measure)**

This indicator is meant to provide a reference value to the one related to waste water treatment in the accommodation sector, calling attention to the overall condition of waste water treatment in the municipality.

Measure
Population connected to Aguas de Cortés sewage system (estimation)/Total population of Puerto Cortés

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and Aguas de Cortés.

Results
Poor: 0-80%
Acceptable: 81-89%
Good: 90-100%
(Quintero & Vega, 2004, p. 29)

Acceptable ranges should be used as a reference only. They have been defined based on the standard used for the indicator *Percentage of registered accommodation businesses connected to effective systems* and on the assumption that 100% of the population should ideally be connected to the sewage network.

1.5. SOLID WASTE MANAGEMENT

Relevance
Pollution caused by solid waste represents serious environmental and health threats in human settlements. The inadequate collection, treatment and disposal of solid waste can cause soil and water contamination, emission of greenhouse gases, a number of diseases and negative visual impact. Especially in developing countries, solid waste is still commonly burned openly or disposed in open dumps. Few communities have the means of reducing the environmental and health risks of inadequate solid waste management such as sanitary landfills, composting or recycling facilities. According to the World Bank, it is common that more than 50% of the population in developing countries remains without access to collection services, causing garbage to be often left in the same place where it is created (World Bank, 2001b).

Tourism, in turn, generates large amounts of solid waste. When travelling, people tend to use more disposable products or buy more packaged food, for example. In addition, hotels and tourism facilities are often located in remote areas which are not served by regular collection services. Finally, inappropriate waste management can also affect the image of a destination. Litter on the street and natural landscapes, strong odours and the presence of mice and rats (normally attracted by open garbage dumps) can frighten tourists away (World Tourism Organization, 2004, pp. 173-174).

Current trends in solid waste management focus not only on adequate disposal methods, but on the reduction of the amount of waste produced by the population. In this context, a common hierarchy which has gained force is that of the three "R": reduce, reuse and recycle. Combined, the three actions can decrease potential risks of damages caused by inadequate solid waste management.

Relevance in Puerto Cortés

Puerto Cortés has six solid waste collection routes which cover most of the city's urban area and part of the rural boroughs. Where collection is not available, garbage is normally burned or thrown away in water bodies or in surrounding open areas. According to the 2002 Urban Area Census, 74% of the households located in the urban area of Puerto Cortés have their garbage collected by regular municipal services (INE, 2002).

A special collection route is available for businesses, which include supermarkets and hotels. Businesses located outside the central area can request the city to collect their waste, by paying an extra fee. The possibility is available in the boroughs of Travesía and Bajamar (Garífuna communities), which are not served by regular collection routes.

The waste collected is disposed in the municipal sanitary landfill. It is estimated that 120 tons of solid waste reach the landfill every day. Puerto Cortés is the only municipality in the Valle de Sula region with a sanitary landfill, built in 2004 and with an estimated 12-year life span (Viator, 2009). Nevertheless, approximately 50% of the city's population resides in the rural area (INE, 2001), which are currently largely underserved.

Core indicators

Solid waste management is measured using three indicators, one focused on the tourism industry itself, one on the litter found on the beaches and another yes/no indicator regarding the minimization of the amount of waste reaching the landfill.

- **Percentage of the tourism businesses with regular solid waste collection**

Measure

Number of tourism businesses included in the regular municipal solid waste collection routes / Total number of tourism businesses

Data for this indicator will be collected using the existing list of tourism businesses. The UTM will keep track, with the assistance of the Public Services Department (responsible for solid waste collection), of the tourism businesses served by the collection routes. The businesses not included in the regular municipal services will be individually contacted to identify the destination of their solid waste. This indicator's purpose is to ensure that tourism is not a factor contributing to the existing solid waste management challenges in Puerto Cortés.

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and Public Services Department. Relies on the annual update of the tourism businesses list and survey.

Results

Poor: 0 – 74 %
Acceptable: 75 – 90%

Good: 91-100%

For this indicator, the inclusion of 100% of the tourism businesses in the regular municipal solid waste collection routes is assumed as the desirable condition. However, considering the large extension of Puerto Cortés area and also the fact that tourism businesses might locate in remote areas, the lowest acceptable value is set at 75%. It is essential, however, that the final destination of the solid waste produced by these businesses is closely monitored by the UGA (Environmental Management Unit), ensuring compliance to environmental regulations.

- **Amount of debris found on predetermined area on the Municipal Beach**

Measure
Amount of plastic, metal and glass debris (bottles, bags, containers) found on a 10x10m area on the Municipal Beach (Coca-Cola)
The 10 meters should be count from the junction of the naval base property and the sidewalk along the shoreline (it is worth mentioning that the selection of multiple sample areas would increase the measure's reliability).

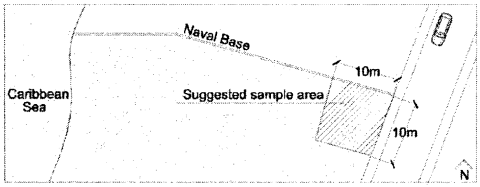

Figure 1C: suggested area for debris count on El Porvenir borough, in front of the Municipal Beach Coca-Cola.

Frequency of data collection and evaluation: trimestral
Data collection responsibility: UTM and Public Services Department.

Results
Poor: stationary or tendency to increase
Acceptable: tendency to decrease
Good: no debris

Results should be monitored over time so acceptable ranges can be established in the future. As a reference, it is worth mentioning that destinations in Northern Europe and in Canada have achieved results close to zero in similar indicators through educational and cleaning campaigns (WTO, 2004, p. 178).

- **Existence of a solid waste reuse or recycling program in Puerto Cortés**

Puerto Cortés currently does not have any solid waste reuse or recycling programs aiming to reduce the amount of waste generated, currently estimated at 120 tons/day. Given the importance of the issue in preventing environmental and health risks and also

in maintaining the sustainability of tourism development, this indicator has been included as a warning. Its aim is to point at the urgent need for solid waste management to be addressed within a long-term planning framework in Puerto Cortés. Once reuse or recycling programs are implemented, possible indicators to continue monitoring the issue could relate to the practice of recycling within the tourism businesses themselves and to educational campaigns on solid waste management in general.

Measure
Yes or No indicator
Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and UGA

Results
Poor: 0% Yes answers (No reuse/No recycling)
Acceptable: 50% Yes answers (Yes reuse/No recycling or No reuse/Yes recycling)
Good: 100% Yes answers (Yes reuse/Yes recycling)

1.6. DRINKING WATER – QUALITY AND ACCESS

Relevance
The quality of drinking water is critical for both tourists and the local population. Poor-quality drinking water represents a serious public health threat. Low quality drinking water can also undermine tourists' reliance on local food service providers, affecting the destination's image (WTO, 2004, p. 169).

Another issue recurrent in tourism destinations are water shortages. The high consumption typical from hotels with swimming pools and extensive green areas often adds up to local problems caused by the dry season, during the peak tourist season in the Caribbean region. Common consequences are the interruption of water services, and in the long run, damages to local ecosystems.

Relevance in Puerto Cortés
The quality of the drinking water in Puerto Cortés varies according to the area of the city. The urban area, which is managed by Aguas de Cortés (mixed capital company regulated by a municipal committee), is mainly served by the Tulián water treatment plant. The latter, however, has a capacity of 120 L/s, against a current demand of 320 L/s in the Puerto Cortés urban area. As the plant constantly works above capacity, the quality of the water distributed is affected, especially during the rainy season, when the concentration of sediments is highest (Aguilera, personal communication on May 7, 2009).

The boroughs of Travesía and Bajamar, both seacoast Garífuna communities targeted for tourism development, fall into Aguas de Cortés' coverage. They are served by a smaller water treatment plan, whose low capacity leads to daily water shortages. Without reliable water services, the community cannot benefit from tourism, as they

underway to connect both boroughs to the main network, but results are still uncertain due to water pressure problems.

Puerto Cortés' rural boroughs manage their own services, through the so-called Juntas Administradoras de Agua. Although they are regulated by the Ente Regulador de los Servicios de Agua Potable y Saneamiento / ERSAPS (National regulatory body for drinking water and sewage services) the quality of the water provided has not been submitted to regular tests over the past years (Bodden, personal communication on May 12, 2009). Under a tourism perspective, the monitoring drinking water in these localities is important in the long run, as the development of nature-based tourism is one of the Strategic Tourism Plan's goals.

Core indicators

Two measures will be used to monitor drinking water quality in Puerto Cortés, one referring to the quality, and another, to the access to drinking water.

- **Number of shortage incidents**

Measure
Number of shortage incidents per semester (within Aguas de Cortés coverage area)
Given to data availability, only the area under Aguas de Cortés' coverage has been selected for the initial application of the indicators. Once control can also be established on the area covered by the Juntas de Agua, the indicator should be extended to those areas as well.

Frequency of data collection and evaluation: semestral
Data collection responsibility: UTM and Aguas de Cortés

Results
Poor: stationary or tendency to increase
Acceptable / Good: tendency to decrease

The desirable condition assumed for the purpose of this indicator is a very low, close to zero, number of shortage incidents. Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

- **Percentage of drinking water samples complying with QTC* standards** (Aguas de Cortés and Juntas Administradoras de Agua)

Measure
Number of drinking water samples complying with Quality Tourism for the Caribbean (QTC) standards (Aguas de Cortés and Juntas Administradoras de Agua) / Total number of drinking water samples complying with QTC* standards (Aguas de Cortés and Juntas Administradoras de Agua)*

*The Quality Tourism for the Caribbean (QTC) "...establishes quality standards and systems aiming to ensure healthy, safe and environmentally conscious products and services" (Caribbean Alliance for Sustainable Tourism, 2006). Partners in the program include the Caribbean Alliance for Sustainable Tourism (CAST), the environmental regional subsidiary of the Caribbean Hotel Association (CHA), and the Caribbean Epidemiology Centre (CAREC).

A similar indicator is currently used by Aguas de Cortés to monitor the quality of the company's services. The idea is to extend the same kind of local control to the service provided by the Juntas de Agua. A new laboratory for water analysis has been inaugurated in the first semester of 2009, and the aim of the Municipal Environment Unit (UGA) is to conduct water-quality tests every three months in the rural boroughs.

Table 2C: Quality Tourism for the Caribbean Standard for drinking water

Measurement Criterion	**Measurement Value**
BACTERIOLOGICAL PARAMETERS:	
E. Coli or heat-resistant coli forms: (on site)	Undetected
In all types of water for drinking and ice preparation.	
E. Coli or heat-resistant coli forms (on site).	
Total coli forms (on site).	
In the water entering the distribution system.	
In the water within the distribution system.	
Cryptosporidium (in the laboratory) (*)	
Giardia lamblia (in the laboratory) (*)	
PHYSICAL PARAMETERS:	
Colour (Units of Platinum Cobalt: UPC)	<=15
Taste and smell	Acceptable
Temperature	Acceptable
Turbidity (Nephelometric Turbidity Units: NTU)	<=15
CHEMICAL PARAMETERS: (mg / l)	
Nitrate	50 as NO3
Nitrite	3 as NO2
Sulphate	50
Chlorides	250
Lead	0.01
Sulphate	250
(*) Additional parameters that are no mandatory but recommended. Source: QTC 103:2001 in Quintero & Vegas (2004)	

Frequency of data collection and evaluation: analysis should be conducted every trimester; indicator is based on annual evaluation of collected data.
Data collection responsibility: UTM, UGA and Aguas de Cortés

Results
Poor: 0-95%
Acceptable / Good: 96-100%
(QTC 103: 2001 in Quintero & Vega, 2004, p. 18)

1.7. RECREATIONAL WATER QUALITY

Relevance
Water bodies are very popular tourist attractions. Activities such as fishing, diving or boating tend to attract a large number of tourists. Nevertheless, rivers, lagoons and seas are very sensitive to any changes in their ecosystems. The pollution caused by these activities, coupled with the urban growth normally associated with tourism development represents a risk to the quality of the water bodies and consequently, to the fauna, flora, and population dependent on it (WTO, 2004, p. 149).

Relevance in Puerto Cortés
Signs of water pollution can already be noticed in the water bodies in Puerto Cortés. The problem has been recognized in the Strategic Plan for the City's Development 2007-2009 (PEDM) and in the Strategic Tourism Plan. Contamination signs can be seen in rivers, the Alvarado Lagoon and the sea. The local population tends to avoid bathing at the Municipal beach due to an overall impression that the water is polluted and can cause health problems. In addition, the port activities will be soon expanded and nautical activities are to be encouraged in Puerto Cortés as a means of developing tourism. In this context, it is critical that the quality of the water bodies in Puerto Cortés is monitored so action can be taken to improve its condition and prevent serious damage to the ecosystems and cause health hazards for the population and visitors.

Core indicator

- **Percentage of the fecal coliforms tests whose result is appropriate for recreational use**

Measure
Number of the fecal coliform tests whose result is appropriate for recreational use (see Table A2) / Total Number of the fecal coliform tests taken over the semester

Table 3C: Blue Flag Programme's microbiological parameters for recreational water in the Caribbean region

Microbiological parameters	Limit values	% test results appropriate (smaller than limit values)
Fecal Coli bacteria (E. Coli)	100/100 ml (Geom. Mean 33.7/100 ml)	75%
Fecal Enterococci (Fecal streptococci) (optional)	40/100 ml(optional) (Geom. Mean 13.5 / 100 ml)	75%

Source: (Blue Flag Programme, 2008)

Recreational water quality will be initially assessed through fecal coliform tests. The assessment of fecal streptococci is considered optional in the Caribbean region by the Blue Flag Programme and could be implemented on a second phase of indicators' application.

In addition to microbiological parameters, given the proximity and scale of the port to the beaches, it is critical that the analysis of physical and chemical parameters is also conducted in a second phase of indicator application. The location where the sample is collected should correspond to the area of highest concentration of bathers. Samples will be analysed in Puerto Cortés, using the infrastructure of the laboratory built in 2009 the city.

Table 4C: Blue Flag Programme's Physical-chemical parameters for recreational water in the Caribbean region

Physical-chemical parameters	Imperative values	% test results appropriate (smaller than limit values)
pH	6.5 to 8.5	95%
Oils	No film visible on the surface and no odour	75%
Floatables: tarry residues, wood, plastic articles, bottles, containers, glass, plastic, rubber or any other substances	Absence of floatables	95%
Transparency/Turbidity	Secchi depth reading from the bottom, or from 3 meters if bottom is deeper	95%

Source: (Blue Flag Programme, 2008)

Frequency of data collection and evaluation:
Water samples will be collected and tests will be carried out at least every three months. Results will be compared with international standards for recreational water quality proposed by the Blue Flag Programme (Blue Flag Programme, 2008).

This indicator will be used for two different purposes. The first, based on the assessment of each sample, relates directly to the bather's health and is meant to allow for immediate action when the water is not appropriate for bathing. This can include the wide dissemination of water pollution levels or even the prohibition of bathing. The

second purpose is to support long-term policies towards the maintenance or improvement of the water quality and is based on the annual evaluation of all the water analysis conducted (the acceptable ranges below relate to the tests' annual evaluation).

Data collection responsibility: The UGA (Environmental Management Unit) is responsible for conducting the tests and defining the procedures to be followed in case the water quality is considered inappropriate for bathing. Information will be passed to the UTM every three months.

Results
Poor: 0-74%
Acceptable: 75-90%
Good: 91-100%
(Blue Flag Programme, 2008)

1.8. TOURISM CONTRIBUTION TO THE LOCAL ECONOMY

Relevance
One of the main reasons leading communities around the world to pursue tourism development is the potential positive impact on the local economy. Given the particularities of the tourism industry it is important that this contribution is not taken for granted, as if it was a natural consequence of tourism development. The tourism industry is known as a highly concentrated industry, reproducing the established structure of economic power, with few large corporations controlling the majority of the global market (Telfer & Sharpley, 2008). When tourism enterprises are mostly foreign-owned, the probability that suppliers will also not be local, and that profits will be sent back to the company's headquarters instead of being reinvested in the destination, is significant. In addition, the tourism industry tends to be very susceptible to events external to the destination, such as media influence, terrorist attacks or epidemics (WTO, 2004, p. 128). For these reasons, tourism requires special attention to ensure it effectively contributes to the local economy. If well managed, the activity may indirectly stimulate the development of other economic sectors, such as agriculture, construction or manufacturing of local products. The contribution to the local economy, however, should be evaluated taking into account its costs and possible leakages (see section 2.3.1 for more on economic losses and hidden costs related to tourism activities).

Relevance in Puerto Cortés
Tourism development in Puerto Cortés has so far happened naturally, with little specific planning. Tourism businesses are mostly locally owned, and the few international chains present in the city belong to the fast-food industry. Thus, international leakages currently do not represent an important threat in the local tourism sector. In 2007, the municipality established tourism development as a goal in an attempt to diversify the local economic base, which is currently dependent on port activities. The evaluation of the outcomes of municipal efforts will thus help ensure tourism's positive contribution to the local economy.

Core indicator

- **Representativeness of the tourism sector on the total income generated by enterprises registered in Puerto Cortés**

Measure
Total income generated by tourism-related businesses legally registered in Puerto Cortés / Total income generated by all legally registered businesses in Puerto Cortés*
*Tourism-related business include: accommodation (hotel, bed & breakfast, cottages), restaurants, bars, tour operators, tourism transportation, entertainment (nightclubs, thematic parks) (WTO, 1995, pp. 109-114)

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and Treasury Department

Results
Poor: stationary or tendency to decrease
Acceptable / Good: tendency to increase

Considering the initial stage of tourism development in Puerto Cortés, the increase in the representativeness of the tourism sector on the overall income generated by local businesses is currently a desirable trend and an official municipal goal. Nevertheless, this increase can also be a sign of less economic diversity. To avoid dependency on the tourism sector, the result of this indicator should always be analysed taking into account the contribution of other economic sectors to the local economy.

Supporting indicator

- **Percentage of the total number of businesses in Puerto Cortés represented by tourism related businesses**

Measure
Number of tourism-related businesses legally registered in Puerto Cortés / Total number of legally registered businesses in Puerto Cortés*

*Tourism-related business include: accommodation (hotel, bed & breakfast, cottages), restaurants, bars, tour operators, tourism transportation, entertainment (nightclubs, thematic parks)

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM and Treasury Department

Results
Results should be considered together with the Representativeness of the tourism sector on the total income generated by businesses in Puerto Cortés to evaluate the

contribution tourism makes to the local economy. Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

1.9. TOURISM NET BENEFITS

Relevance
Tourism is a very competitive industry, and its economic benefits are often overestimated by municipalities. It is clear that the activity can have wide spin-off effects in the destination's economy and, consequently, on the net benefits accrued to the municipality. However, it must be kept in mind that tourism is a very competitive industry, and the effort necessary to develop it must be weighted against its potential gains. Costs related to tourism development can include infrastructure and maintenance services or promotion. Furthermore, in some cases municipalities use temporary tax exemptions as a means to attract investors, reducing the net benefits for a given period of time. In this context, monitoring net benefits accrued to the municipality is an important planning tool which can be used to define investment priorities.

Relevance in Puerto Cortés
The development of tourism is a priority recently established by the municipality of Puerto Cortés. The work of the Municipal Tourism Unit (UTM) has been so far concentrated in stimulating synergy among local stakeholders and creating a tourism culture in the city. The evaluation of current and potential tourism net benefits can help define investment priorities. In addition, the disaggregation of data for the tourism sector can help towards recognizing it as an established economic sector in the city and facilitate its organization within the municipality's administrative structure.

Core indicator

Together with the assessment of tourism related municipal expenditures (one of the supporting indicators), the indicator below provides ground for the evaluation of the relationship between the costs and the benefits of tourism.

- **Percentage of total tax revenue generated by the tourism sector**

Measure
Amount of business taxes collected from tourism businesses/Total amount of business taxes collected annually in Puerto Cortés

Frequency of data collection and evaluation: annual
Data collection responsibility: Treasury Department (Control Tributario) and UTM

Results
Poor: Stationary / tendency to decrease
Acceptable/Good: Tendency to increase

As it is the case with the tourism contribution to the local economy, considering the initial stage of tourism development in Puerto Cortés, the increase in the representativeness of the tourism sector on tax revenues is currently a desirable trend. Nevertheless, the results should be analysed within a broader context, considering the overall benefits brought by tourism to the community. It is also important to ensure that the diversity of the local economy is maintained, taking into account the contribution of other economic sectors to the local economy.

1.10. TOURISM SEASONALITY

Relevance

The seasonality of tourism tends to generate hidden costs for destinations. When tourist arrivals are concentrated in a few periods of the year, the activity can generate stresses on private businesses and on general built infrastructure. If infrastructure is constructed to serve peak seasons, it may be underused during the low season. The social and economic impacts caused by seasonal employment and high turnover rates are also a source of hidden social costs. Finally, the concentration of tourism in specific periods can also frighten possible investors away (Telfer & Sharpley, 2008, p. 183; Wall & Mathieson, 2006; WTO, 2004, p. 11)

Relevance in Puerto Cortés

Tourism in Puerto Cortés is highly seasonal. While more than 200,000 visitors arrive to the Puerto Cortés-Omoa region every year during the Holy Week (226,470 visitor arrivals in 2009 according to the Dirección Nacional de Transito), the number drastically drops during the rest of the year. Three other events are known for attracting visitors in smaller numbers to the city in July (Garífuna Festival), August (Feria Veneciana) and December (Christmas Fair). Other than that, the activity is restricted to regular summer weekends visitor arrivals. The high number of visitor arrivals concentrated in short periods of time imposes difficulties to the maintenance of tourism businesses throughout the year and overloads the existing infrastructure.

Core indicators

Both indicators described here are extremely important for the analysis of the tourism sector in Puerto Cortés and therefore, for the activity's long term planning. The number of tourist arrivals establishes a baseline with which to assess the impact of tourism in all dimensions. The distribution of arrivals over the year, in turn, allows for the assessment of seasonality and the study of actions to reduce its negative effects on the destination.

Both indicators proposed are based on the occupancy rates for the registered accommodation. It is important to take into account that the occupation rate of officially registered accommodation establishments excludes unofficial accommodation such as family and friends, and also visitors who do not stay overnight at the destination. The data should be obtained through an agreement with the Honduran Tourism Institute (IHT), which currently releases hotel occupancy rates for the main

destinations in Honduras every trimester. Another alternative of data collection is an agreement with the local industry through the Chamber of Commerce.

- **Occupancy rates for registered accommodation per month**

Measure
Number of occupied beds at registered accommodation establishments / Total number of beds available in registered accommodation establishments

Frequency of data collection and evaluation: monthly (analysis of seasonal and annual trends should be carried out)
Data collection responsibility: UTM, IHT, Chamber of Commerce

Results
Poor: Tendency to decrease
Acceptable / Good: Tendency to increase

- **Total number of tourist arrivals (based on occupancy rates for accommodation)**

Measure
Total number of occupied beds in registered accommodation establishments Puerto Cortés per year

Frequency of data collection and evaluation: annual
Data collection responsibility: UTM, IHT, Chamber of Commerce

Results
Acceptable / Good: Tendency to increase
Poor: Tendency to decrease

The initial stage of tourism development and the municipal goal of increasing the activity's participation on the local economy are the factors defining the increase on the total number of tourist arrivals as a desirable trend in Puerto Cortés. It is recommended that this indicator is analysed within a broader context taking into account the distribution of arrivals over the year and the capacity of the infrastructure available to receive visitors. The desirable trend should be revaluated in case the number of visitor arrivals becomes a threat to the sustainable development of tourism in Puerto Cortés.

1.11. HARMONIOUS RELATIONSHIP BETWEEN THE NATURAL AND BUILT ENVIRONMENTS

Relevance
Tourism development often introduces in the destination architectural styles which reflect tourist's expectations rather than the local cultural and natural environment. Architectural pollution is mentioned in the literature as one of tourism's negative consequences (Wall & Mathieson, 2006). The building of tourism facilities very often

ignores vernacular architecture, introducing to the destination different building forms, materials and construction techniques. The traditional architecture, however, is not only the expression of the local culture, but tends to present the most adapted building solution for the local climate and terrain (WTO, 2004, p. 185).
Additionally, the development of tourism based on natural attractions encourages the building of facilities in environmentally sensitive areas such as shorelines causing strong visual and environmental impacts. Construction in environmentally sensitive areas is a significant threat generated by tourism development especially in developing countries, where municipalities often lack resources to effectively control the compliance with local building regulations.

Relevance in Puerto Cortés
Puerto Cortés unfortunately has several examples of buildings contributing to visual pollution or environmental damage. The reasons for this trend are not related on tourism only, and are influenced by economic, environmental, cultural and legal factors. The building regulations enforced in 1998 do provide a framework for the protection of the environment and the visual harmony throughout the city. However, few buildings have been built after their implementation. In addition, the lack of knowledge and tradition of the strict enforcement of building regulations encourages the local population to build first and ask for the permit once the building is completed.
The fact that the shoreline falls within federal jurisdiction adds complexity to the control of visual pollution or environmental damages. While small developments can be approved by the municipality, larger developments must be submitted to SERNA (the National Secretary for Natural Resources and the Environment) for evaluation, allowing for inconsistencies in some cases. In Cienaguita beach, private residences (mostly second-homes) block physical and visual access to the sea along large stretches of the shoreline. A controversial bar and restaurant whose construction on a pier causes a strong visual impact is located on the same beach. The latter, however, currently holds a license from the SERNA.

In the Garífuna communities of Travesía and Bajamar, traditional construction techniques using materials such as bamboo and palm leaves are slowly being replaced by brick walls and metal roofing. In these communities, the erosion of the shoreline has led to a delicate and potentially conflictive situation. As the sea has taken over the public beach area, the existing sand fringe, although still unoccupied, is now within the property lines of the lots formerly located on the beach front. A similar phenomenon happened with the construction of a small hotel recently built. Despite having respected the 40 m setback from the shoreline required by local regulations at the time of the construction, the current fringe of sand separating the hotel from the shoreline is nowadays considerably narrower.

Finally, Puerto Cortés also has several informal settlements along the Alvarado Lagoon, which is a declared preservation area. Even if these are not directly linked to tourism development, they still represent serious environmental risk and visual pollution.

Given this context, it is vital that an effort is made to ensure that building regulations in Puerto Cortés are strictly followed, and that the same regulations are evaluated from time to time, so they can be adapted the changing environmental conditions.

Core Indicator

- **Number of buildings not complying with municipal regulations in which the irregularities have been corrected**

It is often the case is that buildings not complying with the regulations are identified, owners are charged with a fee but the building remains without modifications and their effect on the environment or on the overall visual harmony will remain in place. For this reason, the selected measure is the percentage of such cases in which irregularities have been physically corrected, addressing the origin of the problem.

Measure
Number of buildings not complying with municipal regulations in which the irregularities have been corrected / Total number of buildings not complying with municipal regulations

Frequency of data collection and evaluation: annual
Data collection responsibility: Land Use Planning Department and UTM

Results
Poor: 0-74%
Acceptable: 75-90%
Good: 91-100%

The desirable condition assumed for the purpose of this indicator is that nearly all buildings not complying with municipal regulations should have their irregularities corrected. The ranges presented here should be revaluated and adapted to Puerto Cortés reality once the first assessment is made.

1.12. VEHICULAR TRAFFIC

Relevance
The ability to circulate safely and smoothly, independent of the transportation mode plays an important role on the quality of visitor's experience. Few people will enjoy spending holidays in a place where they do not feel safe while driving, cycling or walking around. On the other hand, tourism development often contributes to the decrease in traffic mobility and safety. In destinations where the main transportation mode available for tourists is the private car, congestion on roads leading to main attractions is very common during the peak season. In certain European destinations, such as Port Grimaud, traffic problems have reached such an alarming level that the car has been prohibited in problematic areas (Pearce, 1995, p. 140). When traffic is not effectively

managed, the coexistence of pedestrians, cyclists, roller bladders and cars can also lead to an increase in the number of accidents.

Relevance in Puerto Cortés

The main transportation mode used by tourists to reach Puerto Cortés is the private car. During peak periods, the roads giving access to the most popular beaches (Coca-Cola and Cienaguita) become constantly congested, and parking spaces are difficult to find in both beaches. Complaints about intoxicated drivers are also common during this time of the year.

One bus line, with a 20 min frequency, reaches the Coca-Cola beach, the closest to downtown. The same line drops users around 600 metres from Cienaguita beach. Local bus lines, however, are normally not used by visitors.

Pedestrians do not seem to be a priority in Puerto Cortés, neither for the drivers nor for city management. Furthermore, the wide streets in downtown Puerto Cortés seem to encourage high-speed driving. The latter and the non-existence of pedestrian lights or crosswalks make it a challenge to cross a street during certain times of the day. The city does have a delimited bike path along the Alvarado Lagoon. The area is not, however, a popular destination for tourists who tend to remain within beach areas.

It is true that these problems are only exacerbated during a small part of the year, mostly during summer weekends and the Holy Week, when Puerto Cortés and Omoa receive an estimate of 226,470 visitors (Dirección Nacional de Transito, 2009). In spite of that, the tendency is that problems will be intensified in the long run if they are not effectively addressed through long-term transportation planning that is not only focused on traffic management. During the entire year, Puerto Cortés also has heavy traffic generated by the port. In addition, the port's planned expansion and the construction of a new transportation corridor connecting the Pacific and the Atlantic oceans (the so-called Canal Seco) are expected to increase traffic in the area even more.

Core Indicator

Given the lack of available data and the difficulty to assess the participation of tourism in transportation issues in Puerto Cortés, a simple indicator about congestion has been selected as a core indicator. The intention is that this measure will help attract attention to the need for improvements on public transit, especially in the naturally sensitive areas where Puerto Cortés' tourism tends to develop.

- **Number of congestion days along the Municipal and Cienaguita beaches**

Measure

Number of days a year in which traffic congestion is registered along the Municipal beach (Coca-Cola) and on the access road to Cienaguita beach

*For the purpose of this indicator, traffic congestion is considered as the road condition characterized by queuing or fully stopped vehicles

Frequency of data collection and evaluation: annual (based on monthly data)
Data collection responsibility: Dirección Nacional de Transito and UTM

Results
Poor: tendency to increase
Acceptable / Good: tendency to decrease

It is imperative that the result of this indicator is analysed considering its linkage to other issues such as visitor arrivals, population growth and changes to the public transit system. If analysed in isolation, a drop on the number of congestion days indicates an improvement in mobility. Yet, the decline of congestion days can be connected to a decline of the number of visitor arrivals, which might also indicate an adverse trend.

Supporting indicator

- **Percentage from the total number of car accidents involving visitors**

Currently, the data recorded on car accidents does not allow for the identification of visitor's involvement. It is recommended that the citizens involved in this kind of event are told apart from residents, allowing for the evaluation of tourism's impacts on the number of accidents.

Measure
Annual number of car accidents in which visitors are involved / Total annual number of car accidents registered in Puerto Cortés

Frequency of data collection and evaluation: annual (based on monthly data)
Data collection responsibility: Dirección Nacional de Transito and UTM

Results
Poor: tendency to increase
Acceptable / Good: tendency to decrease

Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

1.13. VISITOR SATISFACTION

Relevance
Visitor satisfaction depends on a number of variables, including the quality of tourist attractions, prices, quality of services and naturally, on visitor's expectations towards the destination. The provision of a satisfying experience for visitors is an essential

element in ensuring that they will return and will help create a positive image of the destination (WTO, 2004, pp. 86-87).

Relevance in Puerto Cortés

Both municipal tourism documents (Diagnostic of Tourism Management in Puerto Cortés and the Strategic Tourism Plan) point to the need of improving the quality of services and the infrastructure offered to visitors in Puerto Cortés. Tourism services and infrastructure, in turn, can directly affect visitor's satisfaction with the destination and reflect on the image which is going to be passed on to friends and relatives. In this sense, the monitoring of visitor satisfaction will help identifying the extent to which the tourism products and services available in Puerto Cortés meet tourists' expectations.

Core Indicator

- **Visitor satisfaction rate**

Visitor satisfaction will be assessed through an exit survey which will be continuously available in tourism businesses such as hotels, restaurants and tour operators. The suggested exit survey is an adaptation of the exit survey approved in 2003 by the Association of Caribbean States' (ACS) Special Committee on Sustainable Tourism to evaluate visitor satisfaction throughout the Caribbean.

Measure

Number of exit surveys meeting acceptable satisfaction standard / Total number of exit surveys completed

As example of an exit survey proposed by the Association of Caribbean States is shown below. Based on questions 9 and 10 of the survey, a Tourist Satisfaction Index is calculated.

These two questions should be coded as follows:

Excellent	10 points / Good	3 points
Regular	1 point / Bad	0 points

Each of the variables on question 9 is attributed a percentage weight, summing up 85%. Question 10's weight is 15%.

Table 5C: Weights for questions 9 and 10

Weights for questions 9 and 10	
Weight	**Value %**
Question 9	
1- Accommodation	6
2- Food	5
3- Entertainment	5
4- Public services	6
5- Tourist information	5
6- Services at attractions	5
7- Public safety	6
8- Price	5
9- Attitude of the local population	7
10- Tourist attractions	6
11- Quality of the environment	7
12- Cleanliness - hygiene - health	6
13- Customs and immigration	5
14- Local transport	5
15- Shopping and local craft	6
Question 10	15
Total	**100**

Source: (Quintero & Vega, 2004)

According to visitors' assessment (excellent, good, fair, bad) of each of the variables above, the code for each variable (excellent=10, good=3, fair=1, bad=0) will be multiplied by its weight. The sum of all results is the Satisfaction Index of the individual questionnaire. Every month, the average satisfaction index of all questionnaires will be calculated (sum of all satisfaction index results/total number of questionnaires completed)

Frequency of data collection and evaluation: monthly, semestral data analysis
Data collection responsibility: Relies on exit survey to be implemented. The UTM is responsible for the distribution and collection of the questionnaires at the tourism businesses.

Results
Poor: 0-60 points
Acceptable: 61-80 points
Good: 81-100 points
(Quintero & Vega, 2004, pp. 34-35)

Figure 2C: Exit survey sample

VISITOR SATISFACTION QUESTIONNAIRE

THE MUNICIPAL TOURISM UNIT
IS CARRYING OUT THIS SURVEY TO OBTAIN VIEWS ON PUBLIC AND TOURIST SERVICES
IN ORDER TO ASSESS THE IMAGE OF THESE CITIES AND IMPLEME
PROMOTION PROGRAMMES AND IMPROVE INFRASTRUCTURE AND SERVICES FOR TOURISTS
WE WOULD THEREFORE BE GRATEFUL IF YOU WOULD CO-OPERATE WITH US BY FILLING OUT THIS QUESTIONNAIRE

LOCATION
SHEET
CODE COLUMN

1 - WHAT IS YOUR NATIONALITY? _____

2 - WHAT IS YOUR PLACE OF RESIDENCE
COUNTRY _____ STATE _____
CITY _____

3 - WHO ACCOMPANIED YOU ON THIS TRIP?
1) NO ONE
2) THE FAMILY
3) FRIENDS
4) FRIENDS AND RELATIVES
5) WORK COLLEAGUES
6) OTHER _____ SPECIFY

4 - HOW MANY PERSONS ARE THERE IN YOUR TRAVEL GROUP INCLUDING YOURSELF?

		0 TO14	15 TO 24	25 TO 34	35 TO 49	50 or older(YEARS)
TOTAL	( )					
MALE	( )					
FEMALE	( )					

5 - THROUGH WHICH MEDIUM DID YOU FIND OUT ABOUT THIS DESTINATION?
1) TELEVISION
2) RADIO
3) BROCHURES
4) FOREIGN ADVERTISEMENTS
5) NEWSPAPERS OR MAGAZINES
6) RECOMMENDATION BY FAMILY/FRIENDS
7) OTHER _____ SPECIFY

6 - IS THS YOUR FIRST VISIT TO THIS DESTINATION?
1) YES (GO ON TO QUES. 7)
2) NO ..... CONTINUE
1) HOW MANY TIMES INCLUDING THIS ONE? _____
2) WHEN WAS THE LAST TIME? MONTH _____ YEAR _____

7 - DO YOU INTEND TO RETURN TO THIS DESTINATION OR ANOTHER IN THE CARIBBEAN, AND WHEN?
1) YES (CONTINUE)
2) NO (GO ON TO QUESTION NO. 20)
1) IN THE NEXT 30 DAYS
2) IN APPROXIMATELY 3 MONTHS
3) IN APPROXIMATELY 12 MONTHS.
4) IN MORE THAN 12 MONTHS

8 - WHAT DID YOU LIKE MOST AT THIS DESTINATION? (LIST 1 TO 5)

1. - ARCHAEOLOGY	( )	5. - NATURE	( )	9- CLIMATE	( )	13.-ENVIRONMENT	( )
2.-COLONIAL ARTL	( )	6. - GASTRONOMY	( )	10. - HOSPITALITY	( )	14.-RESORTS	( )
3.-LOCAL CRAFT	( )	7. - EVENTS	( )	11. - COUNTRYSIDE	( )	15.-RELIGION	( )
4. - MODERN ART	( )	8. - FOLKLORE	( )	12. - BEACH	( )	16.-SPORT (WHICH?)_____	( )

9 - HOW WOULD YOU DESCRIBE THE FOLLOWING AT THE DESTINATION?
(4=EXCELLENT, 3=GOOD, 2=FAIR, 1=BAD)

1) ACCOMMODATION	( )	8) PRICE	( )
2) FOOD	( )	9) ATTITUDE OF THE LOCAL POPULATION	( )
3) ENTERTAINMENT	( )	10) TOURIST ATTRACTIONS	( )
4) PUBLIC SERVICES	( )	11) QUALITY OF THE ENVIRONMENT	( )
5) TOURIST INFORMATION	( )	12) CLEANLINESS-HYGIENE-HEALTH	( )
6) SERVICES AT ATTRACTIONS	( )	13) CUSTOMS AND IMMIGRATION	( )
7) PUBLIC SAFETY	( )	14) LOCAL TRANSPORT	( )
		15) SHOPPING AND LOCAL CRAFT	( )

10. - IN GENERAL HOW WOULD YU DESCRIBE YOUR STAY AND YOUR EXPERIENCE AT THIS DESTINATION? ( )
(4=EXCELLENT, 3=GOOD, 2=FAIR, 1=BAD)

COMMENTS AND/OR SUGGESTIONS ON YOUR TRIP TO THIS DESTINATION
_____
_____
_____

DATE

DAY, MONTH, YEAR
/ /

Source: (Quintero & Vega, 2004, p. 35)

1.14. MAINTENANCE OF A POSITIVE IMAGE OF PUERTO CORTÉS

Relevance

The image visitors have of a city or region plays a key role towards its selection as a holiday destination. Marketing campaigns, articles in newspapers, friends' referral or personal experience influence the choice and also the expectation visitors have about a certain place or region. The competitiveness of the tourism industry contributes even more to the importance of maintaining the destination's positive image. One single negative event can quickly come to the media's attention, influencing visitors' choice for holiday destinations. Negative events can relate, for instance, to environmental contamination, crime or low-quality services. For this reason, special care is needed not only to meet visitor's expectations, but also to ensure that targeted tourism markets receive positive information on the area (WTO, 2004, p. 236).

Relevance in Puerto Cortés

Puerto Cortés' image has been traditionally associated with its port facilities. When it comes to tourism development, this association has both negative and positive consequences. At the same time that the high-quality of the port infrastructure is often extended to Puerto Cortés image as a progressive and economically successful city, its wide recognition as a port city comes into conflict with the its image as a tourism destination. In this sense, it is important that Puerto Cortés takes advantage of the positive image brought by the port, but effort should be made to ensure that this image is complemented by that of a regional tourism destination.

Core indicator

- **Percentage of the national media reports related to Puerto Cortés which make positive comments about the city**

This measurement can show changes in the perception of the destination, and can guide proactive measures to maintain an overall positive image of Puerto Cortés.

Measure

Number of national media reports related to Puerto Cortés which make positive comments about the city / Total number of national media reports related to Puerto Cortés*

*To be considered a positive comment, the article should highlight positive aspects of Puerto Cortés, tourism-related or not.

Frequency of data collection and evaluation: trimestral
Data collection responsibility: Public Relations Unit will collect the data and pass to the UTM

Results

Poor: tendency to decrease

Acceptable / Good: tendency to increase

Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

2. SUPPORTING ISSUES

The following issues have not been included in the core list of indicators for several reasons. Some of them are already being addressed through another indicator or municipal initiative; others have not been considered priorities for a first indicator application. Finally, some of them require data that is not currently available. Nevertheless, these issues are important and effort should be made so they can be incorporated into the monitoring process in the near future.

2.1. CONSERVATION OF LOCAL ECOSYSTEMS

Relevance
Communities are dependent upon local ecosystems. Ecosystems provide water, food and can be sources of energy and economic development. In this context, the conservation of fauna and flora and the maintenance of the natural processes which sustain their lives become essential towards sustainable development.

Relevance in Puerto Cortés
Damages to several of the local ecosystems can be noticed in Puerto Cortés. Deforestation of the hills; water contamination of local rivers, lagoons and Puerto Cortés bay; reclamation of wetlands and destruction of mangrove forests are just a few of the noticeable signs that the equilibrium of ecosystems has been affected (Municipalidad de Puerto Cortés, 2007b).

Tourism development in Puerto Cortés depends on the conservation of natural resources. Most tourist activities currently benefit from the beach and marine ecosystems. The success of planned nature tourism development, in turn, depends on the conservation of the forests and mangroves. Thus, the monitoring of ecosystems conservation in Puerto Cortés aims to ensure the sustainability of tourism development and prevent irreversible damages to the existing natural resources.

Supporting Indicators

The conservation of the ecosystems in Puerto Cortés will be evaluated using two measures. One relates to the overall current status of their health, and the other, to the pressure tourism development might exert on their conservation.

The variability within and among specimens and ecosystems is the foundation of biodiversity, which, in turn, is often considered to be an indicator of ecosystem's health (Convention on Biological Diversity in WTO, 2004, p. 123). Thus, this measure is based

on the assumption that the larger the biodiversity in an area, the better the health of the ecosystem. The Municipal Environment Unit (UGA) is currently establishing a partnership with the biology program at Zamurano University. If the partnership is successfully established, students will make the specimens count as part of the program's requirements.

- **Number of identified specimens in samples of local fauna and flora**

Measure
Total number of identified specimens in samples of local fauna and flora

Frequency of data collection and evaluation: annual
Data collection responsibility: UGA

Results
Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

- **Number of denounces of environmental damages received by the UGA**

As the municipality of Puerto Cortés does not have sufficient resources to actively monitor the extensive municipal area against environmental crime, an alternative indicator was selected. If denounces are efficiently addressed, this indicator can create an opportunity for the engagement of the local population in the conservation of the natural resources.

Measure
Number of denounces of environmental damages received by the UGA

*Examples of denounces include: inappropriate garbage disposals, deforestation, fuel contamination of the sea, lagoons or rivers, hotels without appropriate sewage treatment.

Frequency of data collection and evaluation: semestral
Data collection responsibility: UGA

Results
Indicator results should be monitored over time so suitable acceptable ranges can be established for Puerto Cortés.

2.2. COMMUNITY INVESTMENT IN TOURISM

Relevance
At the same time as tourism can attract investors and create job opportunities, the activity may depend on public investments to thrive. These may include marketing and promotion, capacity building or infrastructure costs such as road and sewage

maintenance or waste collection. In destinations characterized by the seasonality of tourism, the infrastructure costs tend to be even higher, as facilities used only during the tourist season have to be maintained for the whole year. Similarly, the seasonality of tourism may also induce an increase in social costs, as workers spend part of the year unemployed. To avoid the overestimation of tourism economic benefits, the costs associated with the activity should be considered when evaluating their contribution to the local economy (WTO, 1999, p. 15).

Relevance in Puerto Cortés

Tourism in Puerto Cortés is still in its early stage of development. The development of the activity has only recently (2007) been recognized as a municipal goal and, given municipal budget limitations, the financial resources allocated for tourism development are small. Some of the municipality's direct expenditures in tourism development have been towards the establishment of the Municipal Tourism Unit, the organization of events such as the Feria de la Identidad Porteña (which was cancelled due to an earthquake two days before, on May 28th, 2009) and the construction of the Mercado de Mariscos, a sea food market targeted at tourists. Some municipal investments are not strictly related to tourism, as they also serve the local population, such as the cleaning of the beaches and the maintenance of their access roads.

Other investments in tourism have been made with external sources of funding (national and international), such as the task force (security, traffic management and first-aid) organized every year to receive tourists during the Holy Week or the consultants who developed Puerto Cortés' tourism plans. In addition, the municipality has so far counted on private initiative donations to produce marketing material or to host capacity building sessions provided by the National Institute for Professional Training (INFOP).

Even if the direct investment of financial resources made by the municipality is small and difficult to tell apart from other expenditures, it is useful to keep track of all the resources, financial or not, invested in tourism development. More important than the final amount, is the realization that tourism is not an investment-free industry and that its benefits should, indeed, be weighted against its costs.

Supporting Indicator

- **Inventory of municipal expenditures directly related to tourism development**

As mentioned above, it can be very difficult to separate tourism expenditures from other regular municipal expenses. Thus, rather than generating a total monetary amount which will be later compared to the net benefits generated by tourism in Puerto Cortés, the purpose of this indicator is to increase the awareness of tourism's hidden costs. Once a year, the chief of the Planning Department, together with the

UTM, will put together a list of municipal expenditures which have been related to tourism. The list may include:

- UTM operation costs (human resources, equipment)
- Marketing and promotion
- Capacity building programs
- Consulting fees
- Events and fairs
- Holy Week Task Force budget
- Waste collection on the beaches

Measure
List of tourism-related expenditures and / or Unitary value and total amount (in Lempiras) of tourism-related expenditures

Frequency of data collection and evaluation: annual
Data collection responsibility: Planning Department (Gerencia de Planificacion) and UTM

Results
Results should be monitored over time, working as one of the elements of the evaluation of the economic benefits brought by tourism to Puerto Cortés.

2.3. TOURISM GENERATED EMPLOYMENT

Relevance
The creation of jobs is one of the potential benefits of tourism development. Tourism is essentially a services industry, and it is normally considered a labour-intensive activity (WTO, 1999, p. 12). On the other hand, tourism jobs are also known for low wages and seasonality. Furthermore, in destinations where the tourism industry has significant foreign investment, higher positions may be filled by imported labour force, providing few opportunities for the local population.

To maximize the benefits tourism can bring to the local community, it is important that the quality of the jobs created in the industry be closely monitored. Variables influencing job quality include: income in comparison to other economic sectors and local cost of living, turnover and seasonality of the positions created, availability of training and opportunities given to the local population (WTO, 2004, p. 115).

Relevance in Puerto Cortés
Tourism in Puerto Cortés is currently highly seasonal, mostly concentrated in summer weekends and few weeks over the year during special events. This characteristic normally affects the ability of the employers to provide stable employment and benefits. It leads to the creation of short-term and informal positions, in which workers do not have any social benefits and have to find other (normally informal) occupations during the rest of the year.

Another characteristic of tourism-related positions in Puerto Cortés is that they are normally filled by unskilled workers (Cerrato & Peraza, 2007; Paredes, 2008a). Despite the existence of a high-school program dedicated to tourism and hospitality in the city, few of the students find jobs in Puerto Cortés (Molina, personal communication on May 12, 2009). On the other hand, the early stage and the small scale of tourism development in the area seem to have kept tourism related positions among the local population. With one exception (a recently built small hotel whose owner and manager is foreign), the great majority of the workers in the tourism industry are locals.

Supporting Indicator

Unfortunately, because of the lack of reliable data on employment generated through tourism development, its measure is a very difficult task in Puerto Cortés. The IHT (National Tourism Institute) releases, together with the National Tourism Satellite Account, an annual estimate of the tourism-related employment. The data, however, is not disaggregated and cannot be used to evaluate the situation in Puerto Cortés alone.

Tourism businesses in Puerto Cortés, in turn, are generally not willing to release information regarding to the number and conditions of employees, given the fact that informal employment is a very common practice. Thus, for this first assessment of tourism-generated employment, only one measure, regarding the origin of the professionals (whether foreign or nationals from Honduras) occupying the higher positions available in the tourism businesses, has been selected. This indicator should however, be revaluated once reliable data about employment in the tourism sector can be gathered.

- **Percentage of tourism businesses owned and managed by stakeholders originally from Honduras**

Measure

Number of tourism businesses whose owner and manager are nationals from Honduras / Total number of tourism businesses legally registered in Puerto Cortés

Frequency of data collection and evaluation: annual

Data collection responsibility: UTM (relies on the annual update of the tourism service providers list and survey).

Results

Poor: 0-89%
Acceptable: 90-94%
Good: 95-100%
(Quintero & Vega, 2004, p. 36)

2.4. VISUAL CONTAMINATION

Relevance
The development of tourism can also encourage the proliferation of outdoor media or infrastructure such as power lines, mobile telephone and radio antennas or satellite dishes (WTO, 2004, p. 185). If not well managed and integrated to the local architecture and landscape, these elements can disturb the visual harmony in their surroundings.

Relevance in Puerto Cortés
Puerto Cortés' downtown area has few but very noticeable outdoor media elements. All of them have already been notified of recent changes of municipal regulations which will not allow their replacement. Power lines, both high and low tension, are also recurrent in the city's landscape, especially in the surroundings of the port. In addition, in the Nisperales mountains, antennas are located next to a lookout targeted for tourism development.

The regulation of the power lines and antennas depends on different government instances and on political will. Any change on them is also associated to costly interventions and long-term planning. For these reasons, only the outdoor media was selected to be included in the current monitoring system.

As with the building regulations, signage and outdoor media elements in Puerto Cortés are often put in place before a permit is issued, and remain in place after a fine is paid. Thus, the indicator is focused on the elements which have effectively been modified or removed to comply with the regulations.

Supporting indicators

- **Percentage of irregular signs existing in Puerto Cortés' urban area removed or modified to follow the regulations**

Measure
Number of irregular outdoor signage elements existing in Puerto Cortés urban area removed or modified to comply with the regulations / Total number of notified outdoor signage elements

Frequency of data collection and evaluation: annual
Data collection responsibility: Land Use Planning Department and UTM

Results
Poor: 0-74%
Acceptable: 75-90%
Good: 91-100%

The desirable condition assumed for the purpose of this indicator is that all signs not complying with municipal regulations should be removed or modified. The ranges

presented here should be revaluated and adapted to Puerto Cortés reality once the first assessment is made.

- **Existence of signage regulation specifically designed for tourist areas**

Ideally, to help maintain the vernacular character of areas such as Cienaguita beach or the Garífuna communities and help towards the creation of a tourist image for Puerto Cortés, a signage plan should be developed and implemented in areas prone to tourism development.

Measure
Yes / No indicator

Frequency of data collection and evaluation: annual
Data collection responsibility: Land Use Planning Department and UTM

Results
Poor: No
Acceptable / Good: Yes

D. APPENDIX D

Tourism businesses and available infrastructure services

Name	Address	Drinking water	Adequate waste water treatment	Solid waste collection
SPRING PALACE HOTEL	BARRIO EL CENTRO 4-5 AVE, 2CLL, PTO.CORTES	x	No	x
HOTEL BAR Y RESTAURANTE PALMERAS BEACH	PLAYA DE CIENEGUITA CALLE PRINCIPAL	x	No	x
HOTEL BRISAS RESORT S.A.	PLAYAS DE CIENEGUITA SALIDA A OMOA	x	No	x
HOTEL CASA DE PLAYA	PLAYAS DE CIENAGUITA	x	No	x
HOTEL COLON	Bo. SAN RAMON, 3 Ave; 2 y 3 Calle	x	x	x
HOTEL COSTA AZUL COUNTY BEACH	PLAYAS MUNICIPALES Bo. RIO MAR	x	x	x
HOTEL EL CENTRO, S.A.		x	No / Bay*	x
HOTEL PLAZA CENTRAL		x	No / Bay*	x
HOTEL RESTAURANTE Y BAR MANILA	1 AVE. Bo. EL CENTRO	x	No /Bay*	x
HOTEL SOL Y MAR	Bo. CIENAGUITA	x	No	x
HOTEL VILLA DEL SOL	PLAYA MUNICIPAL Bo. RIO MAR	x	x	x
HOTEL Y RESTAURANTE COSTA AZUL	Bo. EL FARO	x	No	No
HOTEL Y RESTAURANTE COSTA MAR	Bo. CIENAGUITA FRENTE PLAYA COCA COLA	x	x	x
HOTEL Y RESTAURANTE FRONTERAS DEL CARIBE	Bo. CAMAGUEY CALLE A TRAVESIA	x	No	x
HOTEL Y RESTAURANTE LA CASCADA	BARRIO LA CURVA CALLE 15	x	x	x
HOTEL Y RESTAURANTE PRINCE WILSON	Bo. EL PORVENIR CALLE PRINCIPAL	x	No /Connection underway	x
HOSPEDAJE	Bo. SAN RAMON 9 CALLE 7 AVE.	x	x	x
SOUVENIR CARMEN	BO. EL CENTRO 1-2 AVE. 4 CALLE	x	No / Bay*	x
SOUVENIR MARTITAS	BO. EL CENTRO 2 AVE. FRENTE PARQUE CENTRAL	x	No / Bay*	x
SOUVENIR SHOP Y MAS	BARRIO EL CENTRO FRENTE A B.G.A.	x	No / Bay*	x
SOUVENIR Y VARIEDADES AMIGOS	3 CALLE 3 AVE., PLAZA POPULAR BO. EL CENTRO	x	No / Bay*	x
BAR Y RESTAURANTE KAHLUA	Bo. COPEN 8 CALLE 2-3 AVE.	x	No / Bay*	x
BAR Y RESTAURANTE LA AMISTAD	Bo. EL CENTRO 1 AVE. 4-5 CALLE E.	x	No / Bay*	x
CATRACHOS RESTAURANT	3 AVE. 9 Y 10 CALLE B. COPEN	x	No / Bay*	x
INVERSIONES Y SERV. TURISTICOS (HOTEL BUENOS AIRES)	Bo. BUENOS AIRES 5 AVE, 12 Y 13 CALLE	x	x	x
INVERSIONES Y SERVICIOS TURISTICOS, J. C S..A	Bo. BUENOS AIRES 5 AVE, 12 Y 13 CALLE	x	x	x
PARQUE ACUATICO LOS LAURELES	ALDEA EL BALSAMO	x	No	x
HOTEL FORMOSA	1 y 2 calle 3 ave. B. El Centro	x	No / Bay*	x
HOTEL PLAYA	Playa de cienaguita	x	No	x

	Name	Address	Drinking water	Adequate waste water treatment	Solid waste collection
30	HOTEL Y RESTAURANTE SPORT BOYS	2 ave. 7 y 8 calle B. El C entro	x	No / Bay*	x
31	HOTEL VILLA CAPRI	B. El Centro 2 ave. 1 y 2 calle	x	No / Bay*	x
32	PRINCE WILSON HOTEL	B. Porvenir	x	No /Connection underway	x
33	HOTEL VICTORIA	Aldea Bajamar	x	No	No
34	MOTEL EL ENCANTO	Calle a cienaguita	x	No	x
35	MOTEL MAMA	B. Camaguey	x	No	x
36	RESTAURANTE ANCLAS	Playa de Cienaguita	x	No	x
37	BENJAMIN PIZZA	Frente a las canchitas - El Pirata	x	No	x
38	RESTAURANTE SÚPER CARNITAS	2 av, 12 y 13 calle, La Curva	x	x	x
39	RESTAURANTE SÚPER CARNITAS 2	Playa de Cienaguita	x	No	x
40	RESTAURANTE LA VAQUERA	Barrio Cienaguita	x	No	x
41	RESTAURANTE EL DELFÍN	Barrio Porvenir	x	No /Connection underway	x
42	RESTAURANTE TACO PLUS	Barrio Copen	x	x	x
43	PARRILLADA JOCHE	Barrio Copen	x	No / Bay*	x
44	RESTAURANTE PEKÍN	2 ave. 6 calle. B. El Centro	x	No / Bay*	x
45	RESTAURANTE CANTÓN	Calle Principal Barrio Porvenir	x	No /Connection underway	x
46	RESTAURANTE PALACIO CHINO	Bajo del Hotel Mister Geer	x	No /Connection underway	x
47	RESTAURANTE SHEAF TAPAS	9 Calle 3 y 4 Avenidas B. Copen	x	No	x
48	BURGUER KING	3 ave. 5 y 6 calle. B. El Centro	x	No / Bay*	x
49	WENDY'S	2 ave. 5 y 6 calle. B. El Centro	x	No / Bay*	x
50	CHUR'S CHICKEN	2 ave. 5 y 6 calle. B. El Centro	x	No / Bay*	x
51	PIZZA HUT	3 ave. 5 y 6 calle. B. El Centro	x	No / Bay*	x
52	RESTAURANTE BOHIOS	4 ave. 9 calle B. Copen	x	x	x
53	RESTAURANTE LAS BRASAS	Boul. Salida Omoa, B. Cienaguita	x	No	x
54	RESTAURANTE JARDÍN FAMILIAR		x	No / Bay*	x
55	SOCCER PLAY	9 calle 3 y 4 ave.	x	No	x
56	ARENAS SPORT	Balneario Municipal	x	x	x
57	RESTAURANTE EL CRUCERO	Balneario Municipal	x	x	x
58	CLUB D'EXPRESS	Playa de Cienaguita	x	No	x
59	PARQUE AC. LOS LAURELES	Comunidad El Balsamo	x	No	x
60	CLUB NAUTICO	Playa Cienaguita	x	No	x
61	SUDA MELIS	Playa Cienaguita	x	No	x
62	SERVI OPERACIONES SUBMARINAS	Playa Cienaguita	x	No	x
63	OXYGEN DISCOTEQUE	Barrio Copen	x	No / Bay*	x
64	BOLICHES BAR	Barrio Copen	x	No / Bay*	x

*Waste water is discharged directly into Puerto Cortés bay

E. APPENDIX E

Indicator summary by partner

Empresa Aguas de Cortés	Waste water treatment	Percentage of total population whose waste water reaches the sewage plant (approximated measure)	Annual	
	Drinking water - Quality and access	Number of shortage incidents (Aguas de Cortés coverage area)	Semestral	
		Percentage of drinking water samples complying with QTC standards (for standards see Appendix A)	Annual	Based on trimestral data, indicator is complemented by data generated by the UGA
Environmental Management Unit (UGA)	Drinking water - Quality and access	Percentage of drinking water samples complying with QTC standards (Juntas Administradoras de Agua, for standards see Appendix A)	Annual	Based on trimestral data, indicator is complemented by data generated by Empresa Aguas de Cortés
		Existence of a solid waste reuse or recycling program in Puerto Cortes	Annual	
	Recreational water quality	Percentage of the fecal coli forms tests whose result is appropriate for recreational use	Trimestral	
	Conservation of local ecosystems	*Number of identified specimens in samples of local fauna and flora*	*Annual*	*Supporting issue and indicator*
		Number of denounces of environmental threats yearly received by the UGA	*Semestral*	*Supporting issue and indicator*
Municipal Land Use Planning Unit	Harmonious relationship between biophysical and built environments	Number of buildings not complying with municipal regulations in which irregularities have been corrected	Annual	
	Visual contamination	*Percentage of irregular signs existing in Puerto Cortés' urban area removed or modified to follow the regulations*	*Annual*	*Supporting issue and indicator*
		Existence of signage regulation specifically designed for tourist areas	*Annual*	*Supporting issue and indicator*
Municipal Tourism Unit (UTM)	Integration among tourism stakeholders	Representativeness of stakeholder groups in tourism related meetings and events taking place in Puerto Cortés (percentage of meetings with all the key stakeholder groups represented)	Semestral	
		Participation levels in tourism related meetings and events taking place in Puerto Cortés (% of invitees attending)	*Semestral*	*Supporting indicator*
	Education for sustainable tourism development	Existence of joint projects between the Municipality and the tourism program at the Instituto Franklyn Delano Roosevelt	Semestral	
		Attendance rates in the tourism related capacity building projects taking place in Puerto Cortés	*Semestral*	*Supporting indicator*
	Availability of capacity building programs targeted on tourism professionals	Existence of tourism related educational initiatives targeting citizens who are not directly involved in tourism activities (such as children and general public)	Semestral	
	Visitor safety	Evaluation of visitor safety feeling (based on matrix developed by the ACS)	Annual	
	Waste water treatment	Percentage of registered accommodation businesses connected to effective systems (secondary or tertiary quality effluent)	Annual	Based on Aguas de Cortés data and on update of tourism businesses list
	Solid waste management	Percentage of the tourism businesses with regular solid waste collection	Annual	Based on Public Services data and on update of tourism businesses list
	Visitor satisfaction	Visitor satisfaction rate	Annual	Based on exit survey results
	Tourism seasonality	Occupancy rates for registered accommodation by month	Monthly	Dependent on agreement with IHT or Chamber of Commerce
		Total number of tourist arrivals (based on occupancy rates for registered accommodation)	Monthly	Dependent on agreement with IHT or Chamber of Commerce
	Tourism generated employment	*Percentage of tourism businesses owned and managed by stakeholders*	*Annual*	*Supporting indicator*
National Transit Police	Vehicular traffic	Number of congestion days along the Municipal Beach (Coca Cola)	Annual	
		Percentage from the total of number of car accidents involving visitors	*Annual*	*Supporting indicator*
Municipal Planning Department	*Community investment in tourism*	*Inventory of municipal expenditures directly related to tourism development*	Annual	*Supporting issue and indicator*
Public Relations Unit	Maintenance of apositive image of Puerto Cortés	Percentage of the national media reports related to Puerto Cortés which make positive comments about the city	Trimestral	
Public Services Unit	Solid waste management	Amount of debris found on predetermined area on the Municipal Beach	Trimestral	
Treasury Unit	Tourism contribution to the local economy	Representativeness of the tourism sector on the total income generated by businesses registered in Puerto Cortés	Annual	Based on update of tourism businesses list
		Percentage of the total number of businesses in Puerto Cortés represented by tourism related businesses	*Annual*	*Based on update of tourism businesses list / Supporting indicator*
	Tourism net benefits	Percentage of total tax revenue represented by the tourism sector	Annual	Based on update of tourism businesses list