

INTER-AMERICAN DEVELOPMENT BANK



ENVIRONMENTAL NETWORK

PAYMENT MECHANISMS FOR THE MANAGEMENT AND CONSERVATION OF NATURAL RESOURCES IN THE TOURISM SECTOR IN THE CARIBBEAN

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The views and interpretations in this document are the author's, and should not be attributed to the Inter-American Development Bank, or to any individual acting on its behalf.

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Abbreviations

BREA	Business Research and Economic Advisors
BRF	Buccoo Reef Trust
BTB	Barbados Tourism Board
CARICOM	Caribbean Community and Common Market
CAST	Caribbean Alliance Sustainable Tourism
CATIE	Tropical Agriculture Research and Higher Education Center
CCA	Caribbean Conservation Agency
CDB	Caribbean Development Bank
CI	Conservation International
CTO	Caribbean Tourism Organization
CVM	Cost value method
EC	European Community
EC\$	Eastern Caribbean dollars
ES	Environmental Services
EUROSTAT	Statistical Office of the European Communities
GDP	Gross National Product
GEF	Global Environmental Fund
GEO	Global Environmental Outlook
IDB	Inter American Development Bank
ILO	International Labour Organization
INBIO	National Institute of Biodiversity
IRF	Island Resource Foundation
MINAE	Minister of the Natural Resources and Environment
NPASP	National Protect Areas system plan
OECD	Organization for Economic Cooperation and Development
PACT	Protected Areas Conservation Trust
PAHO	Pan American Health Organization
PES	Payment Environmental or Ecosystems Services
SINAC	Sistema Nacional de Áreas de Conservación, Costa Rica
SSMR	Soufriere/Scotts Head Marine Reserve
SSS	Sand, sun and sea Tourism
T&T	Trinidad and Tobago
TF	Travel Foundation
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
WANGO	World Association on Non Government Organizations
WTTC	World Travel and Tourism Council
WTO	World Trade Organization
WWF	World Wildlife Fund

SECTION 1. Introduction

The Environmental Network of the Regional Policy Dialogue is a unique IDB tool that offers government officers and Ministers of Environment of Latin America and the Caribbean a place to share experiences, learn from the best practices of the region and explore opportunities for regional cooperation on environmental topics of importance.

For the Caribbean region, the Environmental Network supports the analysis of opportunities and initiatives of environmental services in the tourism sector. Tourism is critical for the islands of the Caribbean as they represent the fundamental base of their economies. One out of every four jobs in their economies is related to the tourism sector. The Tourism industry accounts for around 15% of the total GDP of the region as revenues for the region have been estimated at around 17 billion dollars annually.

This makes the Caribbean the most tourism dependent region of the world today. Economic development of the tourism industry is expected to continue to grow as forecasted at least for the next 15 years. As tourism expands, it will continue to put more pressure on an already fragile environment and on the natural resources of each country and of the region, affecting among other things, the prime motives why tourists choose and travel primarily to the Caribbean in first place.

Environmental or Ecosystems services are fundamental to all sectors as they provide a whole range of goods and services that improve human life and maintain the basic living conditions of this planet. All types of life forms depend on each other for food and water supply, air, forests and other products. We also depend on climate change, for the protection of natural disasters and the regulation of disease, just to mention some of the environmental services that ecosystems provide us all and to the tourism industry. As well, humans also derive spiritual satisfaction and experiences from the aesthetic value and free recreation time from the natural environment and ecosystems increasing not just our life but our well being as well.

Despite these benefits, there is growing pressure by human activities on the environment. In some cases, the damage to the environment and ecosystems can be irreversible. According to the Millennium Ecosystem Assessment, around 60% of all environmental services of the world ecosystems have been negatively affected by human activities, including the impact of the tourism development and activities.

The present report provides a profile for the Payment of Environmental or Ecosystem Services (PES) for the tourism sector and explores the effectiveness of its current schemes and different existing economic funding mechanisms as conservation tools. The report starts by providing the background and challenges of PES schemes and experiences of such mechanisms in the tourism industry in the Caribbean.

The base principle of PSA is simple and logical. It establishes that the providers of such environmental goods and services must be compensated economically by the beneficiaries that enjoy them, as the way to ensure the conservation of the ecosystems that generate them. During the last decade, PES around the world and in Latin America have provided some remarkable examples for good practices, although some PES schemes and models are still at the development stage and are seldom applied to the tourism industry.

The main objective of this report is: a) to document best practices and experiences in the tourism industry in the Caribbean for the payment of environmental services and; b) to identify good examples and existing funding mechanisms in the tourism sector for opportunities that can be applied further to the Caribbean to foster sustainable environmental development and sustainable tourism growth.

The report is divided in five sections: 1) an introduction to the study and its objectives; 2) an overview of the tourism sector including the environmental effects of the tourism industry in the Caribbean and PES and funding mechanisms; 3) Three case studies of PES best practices in the region; 4) lessons learned and; 5) recommendations on PES Tourism Schemes and Challenges for the region.

The key challenge in tourism development is to contribute to the maintenance and responsible management of the environment while at the same time providing lasting benefits to the tourism industry, the tourists, the local populations and the planet.

SECTION 2: Experiences with PES Mechanisms for Biodiversity Conservation and the Promotion of Environmental Goods and Services in the Tourism Sector in the Caribbean

2.1 Overview: Tourism Sector in the Caribbean

Tourism continues to grow worldwide at an annual average rate of 4.5%. Some mature regions in the Americas, including the Caribbean, are likely to show an average annual growth rate of 5% within the next 14 years. With the exception of Cuba, the Caribbean has maintained a steady growth of 2%, while still holding to the same world tourism share of 2.5%, compared to 2.4% in the year 2000.

The Caribbean is the number one cruise destination in the world. It attracts around 50% of the world cruise market and the cruise industry, which continues to expand with more and larger ships requiring new and larger ports. Cruise passenger arrivals in the Caribbean reached a double-digit increase in 2002 and 2003. In recent years, Belize has been the fastest growing cruise destination, with an increase of 80% over the 2002 level (WTTC)¹. Some other countries, including the British Virgin Islands, Dominican Republic, Jamaica, Dominica, and Antigua and Barbuda have also shown strong performances.

The dependence of the Caribbean region on the tourism sector is critical for its development. It has boosted the economy by building infrastructure and creating employment and entrepreneurial opportunities while fostering linkages with other sectors. The tourism industry in the Caribbean is responsible for the generation of approximately 15% of all employment (2.4 million jobs) and this is forecasted to rise to 17%. This makes the Caribbean the most tourism-dependent region in the world, as 15% of the total local GDP of the region is generated by the industry. By 2014, it is expected to increase to 16.5% (WTTC)².

Since tourism has positive economic repercussions on other related sectors, such as real estate, agriculture, construction and manufacturing, any changes in demand within the tourism sector affects backward and forward linkages of these other sectors and, therefore, entire economies. This is why, the tourism sector is so important for the survival of the Caribbean economies, especially those of smaller islands with less diversified economies.

The Caribbean has experienced strong tourism growth and said success is mainly attributed to the number of arrivals. For example, Bahamas and Barbados stand out as mature destinations in terms of product cycle, high-density tourism, massive marketing campaigns, and large tourism infrastructure but face, on the other hand, much higher threats on their natural environment.

The Caribbean receives significant volumes of tourists in part because of its coral reefs. As the most intense tourism region of the world, very close to water and marine life encroachment, the Caribbean and its islands host important terrestrial and tropical rainforests that contribute to biodiversity and the entire ecosystem. The great Caribbean area is the second world sanctuary to

several species of endangered birds, reptiles and amphibians and the third shelter to endangered mammal and marine species in the world.

Evidence suggests that natural tourism resources, namely land and coastal resources, are declining. This has not only been the result of the colonial tradition of not caring for the environment, the damages caused by the sugar industry, or the lack of institutional strengthening and commitment, but has been attributed to direct and indirect tourism development, especially within the last 25 years.

The construction of condominiums, hotels and road works in the coastal zones and steep slopes have weakened basins and forests, causing erosion, sedimentation in streams and wetlands, and polluting lagoons. The duplication of tourists during the past decades goes hand in hand with the duplication of solid waste in the tourism sector as well as in the growing local populations that depend on tourism. Forests, mangroves and salty ponds have been and continue to be damaged by the construction of tourist resorts, ports, and other infrastructure along the coastline, which have caused the extinction of endemic species, among other damages (UNEP)³.

These factors have contributed, in one way or another, to increasing the social and environmental degradation. Local populations are being affected and are starting to dislike the industry they depend upon, responding negatively in different ways. For instance, poverty and crime have increased. Moreover, apathy and disinterest from the citizens is a problem to counterattack.

“The concept of creating an island of luxury in a sea of poverty is foolish and not sustainable” Speech by Willi Momm, ILO at the 24th annual Caribbean tourism conference⁴. Tourism economic development must be a key contributor to poverty reduction, enable the poor to benefit from said growth and contribute to protect their natural and man-made resources.

2.2 Environmental Effects of the Tourism Industry in the Caribbean

This section illustrates some of the environmental impacts caused by the tourism industry as well as threats and challenges to the industry in the Caribbean. As a result of sustained unplanned growth from direct and indirect tourism-related activities, important ecosystems in the Caribbean are under a great threat.

International tourism figures and estimates show that some of the countries expecting to increase their tourism demand are also home to 200 key sensitive global eco-regions (WWF)⁵, and that includes some sensitive areas in the Caribbean. Some of the countries most likely to be affected by the tourism industry in terms of growth and arrivals in the near future in the Caribbean include Cuba, Belize, the Dominican Republic, and Turks and Caicos, whose annual average growth has exceeded 10%. In 10 years, the expected growth would be over 100%, and said growth is not likely to stop.

These coastal and marine ecosystems in the Caribbean region are not just important for tourism but of global value to the planet. A study prepared by UNEP estimates that the world coral area contains up to 70% of the world fish species. It is also believed that less than 10% of the species that live in the coral reefs have been identified, meaning that coral reefs are just as important as tropical forests as sources of new chemicals for the benefit of human kind. The AZT drug, for instance, used to treat HIV and AIDS comes from a chemical extracted from a sponge that lives in the Caribbean reefs. More than half of the new research for drugs to treat cancer use marine organisms (UNEP 2001)⁶.

2.2.1 Environmental Impacts of Tourism in the Caribbean

A study prepared by the Island Resources Foundation (IRF) in the late 90's on coastal resource degradation concludes that “virtually every state of the Wider Caribbean suffers from sewage

pollution in coastal water. Most Caribbean countries suffer some contamination from oil spills and leakages and that most of the low income states of the region report solid waste contamination in coastal areas, some attributed to tourism-related activities.”

As for **water sources**, factors such as loss of forest areas attributed to tourism development and other related developments in the high slopes are causing an important degradation in basins, which bear important implications for the future development of the sub-region. Tourism-related infrastructure has significantly affected the efficiency and effectiveness of the region’s water supply.

Sewage is an important source of pollution in the Caribbean region and the most relevant concern. PAHO has estimated that only between 2% and 16 % of the population in the CARICOM countries receives water from a sewage system working correctly and, even in those places with a sewage system, treatment plants are often not operational. Sewage from several important cities in the sub-region is currently being dumped untreated into the environment. Many rural Caribbean communities have latrines. For instance, it is estimated that only 36% of the Jamaican rural population of 1.3 million people has access to water toilets, while the rest uses latrines or other similar systems (BID, 2001)⁷

Commercial and industrial sewage from tourism-related activities may also pollute bathing areas and public water supply. Drinking water supplies are in danger of being polluted by sewage and the same threat jeopardizes coral reefs and other ecosystems. Therefore, not only natural resources, but tourist resources as well, are under risk. The threat to the drinking water supply and the hazard to the coastal ecosystems are the most important implications, which also affect the tourism industry.

Regarding **solid wastes** the majority of the countries of the sub-region lack proper landfills, which is an issue in many urban and rural areas. There is also concern regarding the lack of facilities to treat dangerous wastes. The fires in open dumps are a significant source of atmospheric pollution in many of these countries. Several of the current dumps are located on marsh or instable soils, which might pollute underground and superficial waters. In addition to its aesthetic impact, which is so important to tourism, garbage worsens sewage problems, especially in urban areas. Garbage and debris block the channels and drains, causing floods. An inappropriate management of solid wastes creates in turn the perfect habitat for the reproduction of mosquitoes that transmit many diseases, such as dengue, which affect the tourism sector and the local population. As we can see, the implications are numerous and significant.

Marine resources are also being damaged by tourism and related activities carried out in the islands that cause release of sediments due to erosion and exploitation of sand banks, as well as municipal discharges and sewage thrown by hotels with no treatment whatsoever. According to UNEP, up to 80% of all establishments in the Caribbean throw their waters, totally or partially untreated into the sea or rivers.

In many cases, the construction of more coastal properties (hotels, host houses, marinas, and restaurants) breaches the rules that govern the recommended construction setbacks. That in turn results in sediment currents that affect, for instance, the safe spawning of certain species of turtles. The impact is also visible in the deterioration of the aesthetic value of these destinations.

The use of coral reefs for recreational purposes and the garbage thrown there or along the coast are common problems that the Caribbean region faces, which affect in turn the tourism and the community, involved. Local inhabitants are also responsible for these problems, which significantly affect the tourism industry.

Tourism diving operators report damages caused by anchors in the most popular diving places. According to a research made by Edwards⁸ in 1994, out of the 37 assessed diving sites, 95% of them had been damaged by boat operators, boats, yachts, and cruises due to lack of regulations,

standards and infrastructure. This is caused not only by tourism activities, but also by other commercial activities that affect the tourism sector. Jet skis, except in some islands like St. Vincent and Grenadines that abolished their use through a national policy, contribute to coral deterioration and sound pollution.

2.2.2 Environmental Threats from Tourism on the Caribbean

All forecasts indicate that within the next 10 years, tourism growth in the Caribbean sub-region will continue putting pressure on and deteriorating environmental quality and biological diversity, unless the necessary policies and measures are taken to counteract any eventual damage. Natural areas are essential to tourism as they are the most valuable resource attracting more tourists.

The Caribbean economy depends on many **coastal and marine resources**. Coastal zones are under extreme stress due to the non-stop, unregulated development, and the excessive exploitation of its resources. The coral reefs in the Caribbean are under serious threat. It is estimated that the broadest areas of the Caribbean contain 12% of the world's coral reefs and two thirds of the Caribbean's reefs are under medium to high risk (UNEP 1999)⁹.

In many places in the sub-region, **coral reefs are been seriously damaged**. For instance, it has been reported that the coral presence in the reefs located along the Northern coast of Jamaica has decreased from 52% to 35 % between the late 70's and the early 90's (Hughes 1994).

The Caribbean ecosystems and biodiversity are under great danger due to **habitat destruction, fishing activities, cultivation of species, and pollution**. The Caribbean sub-region is extremely important for the conservation of global biodiversity and ecosystems. Conservation International has identified the Caribbean area, from Bahamas to Trinidad, as one of the five "hot spot areas" for the conservation of the global biodiversity. Also, the Continental Caribbean, Guyana and Suriname make up a part of an international forest eco-region acknowledged for its importance for biodiversity and conservation purposes.

The Caribbean reef is an integral element of the global marine ecosystem and one of the main attractions of the Caribbean tourism as explained earlier. "Coral reefs are very susceptible to changes in the water quality, such as eutrofication (high levels of nutrients), sediment loads, cloudiness, temperature, salinity and loads of toxic chemicals, as well as the impact of some diving practices that take tourists to explore said reefs. Piers also affect the problem, since their poor design and conditions worsen this situation" (UNEP).

Other threats in the maritime environment also include **over fishing** with ramifications from the dredging of channels, **mining for construction purposes, vessel anchorage and pollution caused by sewage from commercial and recreation boats** (due to the inexistence of proper port infrastructure to treat wastes). The fishing activity in the Caribbean has decreased by 50% since 1990, and 30% of its reefs are at high risk (UNEP) and not recovering.

The **management of forests for commercial resources** is troublesome, as well as **deforestation** in some countries in the region. Deforestation has increased as local populations grow and the demand for forest by-products used for infrastructure and construction development increases.

Except for about three countries in the Caribbean sub-region, the majority of these populations live in urban areas, which are in most cases (80%) located along the coastline. Wherever there is a lack or absence of basic infrastructure design and/or land use schemes, the disorganized urbanization leads to **concentrated levels of pollution** and harms environmental health. The lack of territorial legislation, zoning and regulation for construction plans has created serious problems related to **water preservation**, which causes runoff towards the coast areas that harm the coral reefs, just to give an example.

In Barbados, for instance, as well as in many other islands, coral reefs and the few mangroves left in the west coastal zone (predominantly tourism area) have also suffered deterioration probably as a direct consequence of pollution resulting from hotel and residential developments built close to the beaches. In Barbados, the bulk of the coral reefs has been damaged or destroyed. Except for the protected Graeme Hall Mangrove, most mangroves on the island have been destroyed. This mangrove is now under strong monitoring and management for its unique value. Nevertheless, there is pressure to build a tourist residential complex in its surroundings.

With regards to **energy use**, it is estimated that for the next 10 years, electricity demand will continue to increase in the Caribbean area between 3.2% and 6.7% yearly (UNEP 1999)¹⁰ and this growing demand combined with the shortage of these resources, mainly fossil and available alternatives, shall keep adding environmental pressure through air and water pollution.

Climate change factors such as the increase in sea levels and temperature, and extreme weather conditions, including storms, hurricanes, tsunamis and earthquakes to which the Caribbean region is prone - are starting to have serious implications on the region's development and its tourism industry in general.

2.2.3 Environmental Challenges from Tourism

Any level of environmental impact caused and affected by the tourism industry is a problem for the tourism experience. Some tourism initiatives have started to respond to the challenges of pressuring the environment. Nevertheless, key challenges for the industry remains minimizing payback for its environment footprint. Some of these challenges of the Caribbean region are the following:

Legal Frameworks, regulation and zoning. Although some laws and agencies have been created within the last years, it is only during the last two decades that environmental management has gotten some attention in the Caribbean region. The attainments have not been the same in all countries and they have occurred mainly within a judicial framework, with the creation of national institutions for environmental management and a slow progress for the enforcement of rules and standards.

There has been progress regarding environmental impact assessments and necessary impact studies required for construction purposes in Jamaica, Trinidad and Tobago, and the Bahamas. Some progress has been made on regulations and the establishment of coastal zone programs, such as in Barbados and Jamaica, where some terrestrial and maritime protected areas have been established. Countries like Belize, Dominica, Guyana and Suriname have developed forest conservation programs and created important reserves for conservation and scientific research.

Management and financial capacity. Unfortunately, in some of these eco-regions, the management capacity of commercial tourism and the provision of visitors' facilities were amongst the poorest. Lack of management planning, effectiveness, stakeholders' involvement and lack of data for research, monitoring and evaluation as well as education and awareness were found to be insufficient. Not all these eco-regions are protected, and when they are, the income generated to cover their minimum maintenance and operation costs is usually insufficient. Some of the poorest people of the world live in or close to them and depend on these important eco-regions

Social Capital. There have been important improvements concerning human resources, such as, the development of a domestic human resources base for the Caribbean management regarding technical and administrative aspects. Non-government organizations, however, lack the capacity, economic independence, and financial sustainability, such as the case of CCA, which does not lack initiatives but human resources to survive. Unfortunately, it has been observed that NGOs have the tendency to disappear as soon as international funds are used up and this is a challenge for the region and its communities. Environmental issues are highly sensitive to the

publishing of data and monitoring in some Caribbean countries that depend so much on “tourism economics”. Moreover, at the regional tourism level, organizations such as CTO lack a mandate, management capacity to understand economics of the environmental and to lead on a regional integrated initiative.

Civil society awareness and participation. Civil issues, citizens’ awareness and participation in environmental problems have had a significant increase within the sub-region, but there is still plenty to do regarding sensitization and education on the environmental resources value. It is particularly important to create awareness in citizens and youngsters in order to create a way of living in harmony with these tourism-related environmental resources.

Land tenancy is also a vital regional management challenge in many countries of the Caribbean. Very often, their governments have important portions of land without the resources or political will to control them. Many people occupy government-owned lands or lands that used to belong to the government and do not have a clear right on said lands. This situation frustrates and worsens investment and incentives for territorial use alternatives that might be more sustainable and does not permit a fair assessment of the land. Resentment from inhabitants and national investors arise, as well as the suspicion regarding the benefits that foreign investors might take, particularly in the development of infrastructure and tourist services, including hotels. This situation generates large economic, social, and natural resource repercussions on these local governments.

Mass tourism. A serious agent of environmental degradation is caused by the uncontrolled, mass tourism development. In addition to infrastructure development, building materials residuals and sewage runoff, damages are caused by tourism recreational activities such as diving, snorkeling, kicking and standing on corals, boats and jet skis throwing anchors and breaking the corals, souvenir collecting, fishing and collecting endangered species for personal or commercial purposes. Littering and polluting of the water is responsibility of the enlarged local populations.

The environmental footprint created by mass tourism has an important economic and environmental impact on this region and represents a big challenge. This will include the assessment of all environmental services required in the industry, identification of beneficiaries and users and to estimate the different proposed models schemes to compensate them, in the most equitable way.

Natural Disasters. In addition, the region is continuously threatened and impacted by “natural” disasters such as hurricanes that affect potential investment and result in high prevention, and mitigation and recovery costs. This situation discourages economic growth of the industry by making local and foreign investors nervous. Lack of sufficient investment has had a negative impact on the government’s management and its financial ability to continue to provide the basic services and the infrastructure required by the tourism industry, the communities and the growing local population.

Environmental Resources and Services are essential to the tourism product and tourists are strongly attracted to them. Some of these resources are not properly protected and sometimes funds are not sufficient and/or available to compensate and manage them. In the absence of economic mechanisms to compensate the user of environmental services, the next section will introduce the concept, where these resources come from and under what kind of scheme, who can be responsible to manage them.

Climate Change. It is important that the region become aware and joins efforts to reduce and stabilize the production of greenhouse effect gases and provide opportunities and incentives for the investment and transfer of long-term technologies, which shall have greater environmental and economic benefits for the tourism industry, in particular, and the population in general.

Absence of an integrated economic model. The absence of government incentives, consistent fiscal policies, the lack of an integrated economic model, plus a very severe leakage factor generated on substitute imports, are highly problematic and affect the ability of the tourism industry to achieve sustainable growth.

Reckoning the gap between the economy and environment relationship it is essential to seek sustainable development and the protection and conservation of natural and tourism resources of Caribbean nations.

2.3 Payment for Environmental Services (PES) in the Tourism Sector in the Caribbean

2.3.1 Introduction

Over the last years, the concept of Payment for Environmental Services (PES) has received great attention across the globe, including from several Latin American countries, as an innovative tool to finance investments in a sustainable manner.

Environmental services are different from financial and social capital. They are referred to as natural capital, that is to say, whatever nature grants us. The basic foundation for the payment of environmental services (PES) is that changes in natural capital be internalized in the economy by calculating monetary values and incorporating them to the daily transactions.

The concept of environmental services is fundamental and polished by neo classic economic theories, which sees nature in a very similar manner as sustainable tourism does. According to environmental economics, environmental problems and the negotiation of natural resources respond to certain market faults such as the existence of free will and public access (common resources) and outdoor activities carried out by individuals that affect the well being of others.

Payment of these services is critical to solve environmental problems, especially those caused by the shortage of nature capital against numerous and mounting needs. It is also required that these services be valued within an environmental services framework/scheme, with the intention that these costs be collected to correct market faults by internalizing them. This applies to all externalities produced by the tourism industry as well.

2.3.2 Environmental Services (ES) - Benefits and Definitions

There have been important and recent international attempts to define environmental services by the WTO, UNCTAD and others. For example the OECD and Eurostat define environmental services as services “to measure, prevent, limit, minimize or correct environmental damages to water, air and soil as problems related to waste, noise and ecosystems.” UNCTAD subdivides environmental services into four segments. Both definitions and classifications reflect a more realistic understanding of environmental services and suggestions for new classifications have been made, for example, the EC approach that has received support of WTO members¹¹.

Despite the variation in definitions, environmental services have been traditionally divided into four types (figure 1) despite a certain overlap among them: a) carbon capture or sequestration, b) hydro Services, c) conservation and biological biodiversity of ecosystems, and d) landscape beauty.

Environmental Services

1. Capture of Carbon. Carbon capture or sequestration includes the conservation of existing deposits as well as the increase in the fixation of products derived from forests or land where they already exist. This allows for the mitigation of gas emissions from the hibernating effect (reduction, absorption, fixation and storing of carbon).

2. Hydro Services directly help the tourism sector by providing water for tourists and infrastructure and, indirectly, the industrial, agricultural and cattle sectors that provide services and products to the tourist sector. Water and its nutrients are indispensable to the fishing, arts, and crafts industries and provide direct benefits to the tourism sector that consumes them. The needed control of water contributes to the prevention of natural disasters and the pollution that can affect tourism. In the same way, water serves as a direct input for water parks, spas, pools, falls, rivers and natural areas and as indirect input for irrigation purposes to keep areas such as golf courses, sports and recreation in general. In many countries, water constitutes the most important element for the generation of electric energy required by the tourism industry.

3. Conservation of biological ecosystems, including the conservation of niches and the reduction habitat fragmentation in the regional landscape through the formation and outlining of biological and natural corridors. The preservation of biological biodiversity includes the scientific and pharmaceutical sustained use of biodiversity, for research and genetic purposes, and the protection of ecosystems and life forms. Biodiversity includes life forms together with ecosystems and ecological processes.

Tourism derives benefits from the environmental services of biotas and ecosystems in two ways: a) environmental goods (food, drugs, raw materials and sources of bioenergy) and; b) environmental services (conservation of solar energy, storing essential nutrients, supplying clear air, water and maintaining soil, absorbing and detoxifying pollutants, decomposing wastes among other important functions).

Biodiversity is crucial to climate as it helps maintain the gas composition of the atmosphere and regulate climate, which is a decisive and key variable for tourism and tourists in general. Stable weather and climate conditions are also critical to maintaining tourism influx in the region.

In addition, biodiversity provides the sites for many types of tourism and recreational activities, as well as research benefits and overall inspiration. It plays an essential role in all forms of nature and adventure tourism, from soft to hard adventure. It has been estimated that each year people taking nature-related trips contribute to the national income of countries by at least 500 billion dollars. Much of the enjoyment of eco-tourists and nature lovers is found in the biodiversity they encounter and experience.

4. Landscape beauty is seen as a service in itself, as a valorization factor of nature's properties or a component of the recreation service offered with tourist and scientific ends. Aesthetic beauty is defined as the aesthetic, cultural and philosophic value of a destined area, and one of the most important variables of tourist demand and a key component of the total tourist product of a specific location. Aside from its aesthetic value, it possesses a generational holistic value that is essential to tourism.

In tourism, the natural beauty and environmental quality of vacation areas have a positive influence on tourists. A survey of Spanish tourists revealed that a beautiful landscape (51%), water quality (27%), unspoiled nature (23%) and air quality (22%) are the four environmental factors that most influence their choice of destination (Boers and Bosch 1994)¹². A survey of Japanese tourists places enjoying nature (72%) as the primary purpose of the trip (WTTC).

It is important to point out that the scenic and landscape values are important to local inhabitants and tourists as well, as it contributes to a person's overall well being, stress-reduction and greater sense of peace. Tourism is definitely therapeutic and there are important social costs related to it. One of the possible problems lies with how international visitors differ in the assessment of the scenery compared to domestic tourism and local communities.

The scenic value and, especially landscape services, has a recognizable market, but of all four types of ES it remains the least mature. There are no recorded PES schemes specifically designed for the tourism sector and none yet developed and implemented in the Caribbean

concerning scenic value. Payment mechanisms are still somewhat unsophisticated and greater participation from private and community landholders is required. Regardless of the model and its design, and for landscape beauty to be protected and properly compensated in the future, it is essential that users pay the fair share for services they enjoy and that providers receive fair compensation for their input.

The landscape scenic value and beauty represent one of the key attributes for the development and success of nature tourism activities and niche markets, such as ecotourism. However, payment of environmental services has been slowly developing. For example, tour operators might consider scenic value as free goods and impossible to charge. There is also evidence that governments are not always in the position to collect fees from consumers that are willing to pay for the service. This is the case, for example, regarding entry fees to public or private land protected areas. The introduction of payment mechanisms in the tourism sector, where none existed, is difficult and because of its complexity it is not going to be easily managed, unless it is customer friendly, transparent and understandable to stakeholders.

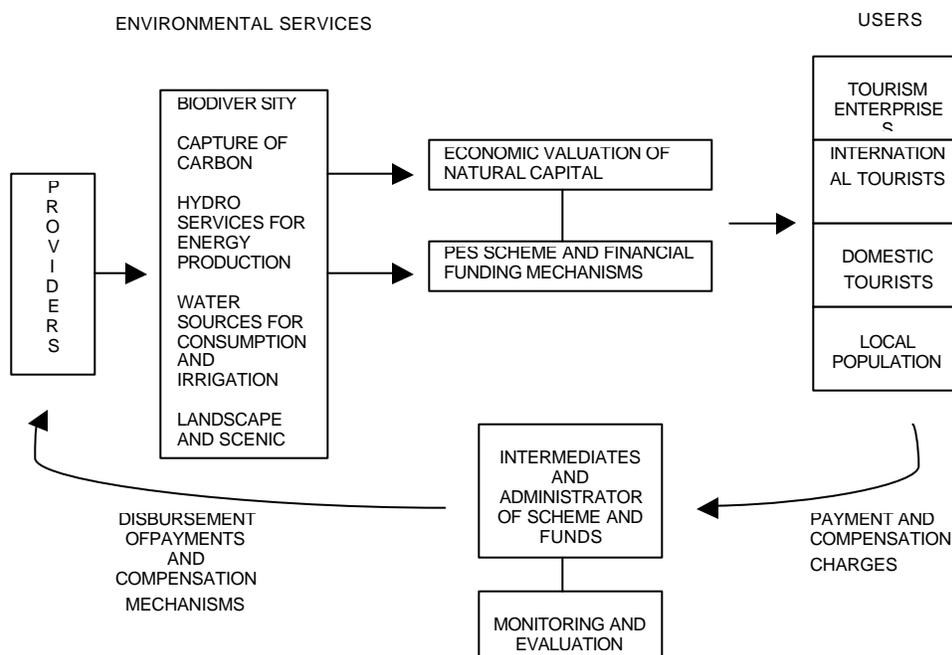
WWF has documented some examples of “payments for landscape values”. The Government of Rwanda, for instance, charges a US\$ 250 fee per tourist to enter its *Parc des Volcan*, acknowledging its unique position to offer the ability to enjoy the landscape value of Africa’s last remaining mountain gorillas and the potential for charging higher tourism fees (WWF)¹³

Ecuador provides a different example of payment for landscape beauty. In 1995, one of Ecuador’s first joint ecotourism ventures was established among the indigenous community, a tour operator and a wildlife reserve to create a venture and promote “Aguarico Trekking,” which promises to reward the Cofans thanks to the careful maintenance of the area’s famous scenic beauty that attracts tourists from around the World” (WWF)¹⁴

2.3.3 PES schemes and the tourism sector

Payment schemes for environmental services, referred to as PES, are flexible compensation mechanisms through which service providers are compensated by service users. As in any market situation (figure 1) there are beneficiaries or users of said environmental services, namely the purchaser or the one who pays for the service. There is also the supplier or vendor of said environmental service, which usually corresponds to the owner, its user, or the holder of the area or territory where the service is generated. Third, we have the intermediary, a third class actor, who is responsible for technical assistance and certification functions, funding negotiations, and marketing.

Figure 1: **Payment and Compensation of Environmental Services Applied to the Tourism Sector**



Note: Not all types of compensations have to be paid in cash or disbursed directly to the providers of services.
Source: Chaves. Luis 2006

The traditional institutional setup of a PES scheme includes four bodies: 1) users or beneficiaries, 2) providers, 3) intermediaries who take care of administrative tasks, and 4) the actual fund, which will have its own organizational composition, such as a technical committee and staff, and is the binding center with the other entities.

The Fund pulls together all contributions from beneficiaries and compensates the providers. The funds are regularly managed by a committee usually consisting of representatives of the service beneficiaries, local authorities, and other stakeholders, including the donor organization, whenever the scheme is externally funded.

2.3.4 Existing Payment of Environmental Services (PES) funding mechanisms in the Caribbean

Payment mechanisms do not necessarily involve cash payments and can be collective or individual. Many payment mechanisms have been formulated, proposed, developed and implemented with the cooperation of national and international donor organizations among others. The WWF for instance, has documented its experiences and good practices around the globe.

To learn more about PES schemes and economic mechanisms, the International Institute for Environment (IIE) has recently identified 280 existing and proposed payment plans for the payment of environmental services. The WWF also provided a matrix of 52 financial options grouped in different categories¹⁵.

Although the PES concept has already been put into practice and some of its funding mechanisms applied in many Latin American countries, the concept applied to tourism is not always clear or properly developed and is generally unknown. Based on research findings, there is no country in the Caribbean sub-region that has formally adopted, according to the PES definition, a formal institutional framework, and the PES concept and scheme.

To illustrate how some of these types of PES funding mechanisms operate in other sectors and environments and how successfully they have been implemented, we continue with some examples that can be applied or become a benchmark in the tourism sector.

For example, in an IDB Project and PES scheme in Costa Rica, farmers benefit when they carry out conservation activities and/organic farming. The project pays 30% of the investment costs for farmers to change to conservation modalities. This 30% represents a payment for environmental benefits created by the producer. The remaining 70% of the investment is a credit to the producer from the National State Bank, at the usual interest rate. This can well apply to the conversion of more natural and eco-friendly types of tourism development in different destinations and regions and small or medium size operators that usually lack capital investment to start operations.

In tourism-related activities, and as an example of **non-cash payments**, we can mention a scheme found in Ecuador, whereby the sale of food and /or handicrafts could be used as compensation for families that work in conservation areas and that perfectly applies to the tourism industry.

With regard to **water related PES schemes and funding mechanisms**, there have been several initiatives in Latin America to improve the availability and quality of water for human consumption, mainly in urban areas, as well as the availability of water used to generate hydroelectric energy. In some cases, such schemes have been financed by users of local initiatives, such as the municipal water supplier or the hydroelectric company (through an increase in the residents' water rates or part of the electricity bills). Water for human consumption and hydroelectric energy generation is critical to some Caribbean islands, both in terms of production and availability, which will tend to worsen as tourism and infrastructure increase.

External support schemes are usually financed by an initial fund provided by a donor and replenished by the payments of the service users. Programs can also be financed by other sectors, such as a fuel tax in Costa Rica, or by imposing a tax on hydropower production, like in Colombia. The Costa Rican example of a funding mechanism derived from another sector has proven to be successful in terms of raising funds and creating awareness in consumers regarding environmental services and the availability of funds from other sectors.

PES charges based on the same funding mechanisms may vary depending on the economic costs of their provision and many other factors that affect the tariffs usually set by governing bodies. For example, in one scheme, the payment amounts to 6% of the average water invoice for domestic users, while in another, the municipality sets aside 20% of the residents' water charges to finance the PES scheme (Ambrose, 2002). For instance, the capture of carbon and forest related service providers are compensated on a hectare basis and land use. Payment sums are established in relation to the existing funds under a given scheme, the opportunity costs of the service providers, and the assumed services of the particular type of land use.

In Ecuador, some years ago, a farmer received US\$12 per hectare for primary forest conservation, while a farmer in Costa Rica with a similar scheme can receive US\$57 per hectare for the same land use. The disparity reflects the differences in opportunity costs for service

providers and the funds available under each PES scheme, which vary according to the program, regions, country, donor agreements, and fund management.

Successful PES Economic Incentive Schemes

Some PES funding mechanisms are made to operate mainly as economic incentives and contribute to shape producers' and consumers' decisions. Following are some successful PES economic incentives schemes that have contributed within the past 20 years to recover 10% of the total forests in Costa Rica. They have had a significant direct and indirect role within the country and the tourism industry in general, by strengthening the image of ecotourism destinations, providing cost-efficient environmental services, and adding scenic value to tourism.

1. Reduction of income tax payments to promote reforestation and obtain the raw materials that a country or region would need to avoid natural forest destruction. Applied to tourism, the income tax can be reduced with the development of eco-friendly infrastructure and the use of wood produced for this purpose.

2. Charging and issuing tax payment certificates. These certificates are tax-free registered instruments with which individuals or associations can pay any kind of tax. They can be paid in advance or not, particularly to small proprietors that do not have the resources to make an initial investment. This type of mechanism can contribute to the development and expansion of rural tourism, agro-tourism and ecotourism for small and medium size enterprises that require initial funds to invest in tourism-related projects.

3. Raise Municipal and organizations funds. An example of this activity would be to impose a tax on a commercial activity, such as forestry, that assigns a certain percentage of the sums collected for wood extraction from a specific area. Regional and municipal organizations use the collected sums to apply them in reforestation projects, manage hydrographic basins, establish nurseries, encourage extension and promotion, and/or build infrastructure works. This method enables municipalities to capture additional funds from derived illegal activities with severe consequences on their regions and reinvest in environmental services related to new tourism initiatives.

4. Hand out resource protection and conservation certificates, such as the conservation of primary and secondary forests, to compensate proprietors for the environmental services generated by preserving their forests, according to the corresponding exploitation and prohibition periods.

5. Provide soft credits. They are in the form of trusts and provide credits to small and medium producers. They may be granted to an organization with the goal of favoring small and medium producers and landholders, including local stakeholders in the tourism industry.

How these PES funding mechanisms can be effectively applied to the tourism industry requires an understanding of issues such as externalities, political willingness and the acceptance level of the tourism industry to buy into each scheme. The reality of its implementation within the tourism sector is discussed next.

2.3.5 Successful example of PES economic systems and applications to Tourism: Environmental Services

Although, not necessarily institutionalized and formalized in a PES scheme, there are successful examples of existing funding mechanisms in the tourism industry regarding environmental services. These can be used as examples for the development of PES schemes, funding mechanisms and application to tourism. Following are three examples of such initiatives and work conducted.

A. "Good practice in the Caribbean" Bonaire Marine park scuba diving fee and WTP

Bonaire, a small Caribbean island, is surrounded by fringing reefs that provide the island with valuable resource for the tourism industry. In order to protect these important resources Bonaire Marine Park (BMP) was established in 1979 and included not only coral reefs, but also mangroves and sea grass beds, as a multiple use park with fishing and diving restricted in certain zones. The park started operations with a very small tourism fee and it operated that way until the NGO funds ran out, although supported by dive operators. In 1992 the introduction of a US \$ 10 diver fees was implemented and based on the willingness to pay survey, by the end of 1992 the park was able to finance itself. 92 % of

visitors agreed that a user fee system should be set up. Approximately 80 % was willing to pay \$ 20 per diver, per year. \$ 27.50 US a day was the average calculation of those willing to pay. The fee has been collected through dive operators. Besides contributing to pay for operational and maintenance costs, 70 public dive moorings have been established, as well as other research and monitoring programs, and educations activities for local children and teachers have taken place. In order to have new projects the park has to start looking for funding agencies for support. While new studies indicate that tourists are WTP, there is a great opposition on the part of the dive industry to increase the present fees. New fees considered derive, for example, from tourism services for guided snorkeling, windsurfing, and yachting and private mooring fees. (Cesar, Westmacott, Emerton, Wells, Draft 2000 and Scura and Van 't Hof and DeMeyer)¹⁶

B. Tourism PES and Agro-tourism potential in the Dominican Republic

A recent study on environmental services, the tourism sector, and Agro-tourism in the Dominican Republic (DR) threw some new exceptional findings that might complement this paper in terms of lessons to apply to the rest of the Caribbean countries. The majority of tourists that visit these places are people who enjoy beaches. Around 90% of those interviewed indicated that they had relevant preference for recreational tourism *i.e.* sun, beach and sand. Others had high preference levels for cultural tourism including adventure tourism, and sports tourism. Eco-tourism and agro-tourism were identified as the activities with the lowest percentages of relevance. The tourist activities most commonly offered as complimentary to beach tourism are adventure tourism and cultural tourism. About 30% of the tourists in the survey were offered eco-tourism as an activity to be enjoyed in the Dominican Republic, 19% was offered agro-tourism and 14.9% of them participated in agro tourism.

The study revealed that the majority of tourists with preferences for agro-tourism preferred to enjoy the rural landscape and explore local agricultural cultures. A small minority was interested in how organic fruits and vegetables are produced. The percentage of tourists who wanted to get involved in farming activities was low. This distribution of preferences among agro-tourist activities is the same as the distribution among tourists who had demonstrated having relevant preferences for activities other than agro tourism. The agricultural practices considered as most important are those that best preserve natural landscapes and forest resources, followed by the conservation of habitat, biodiversity, and agricultural traditions and cultures.

The DR has had a relatively well-known reputation as an organic producer of goods like coffee, bananas and cocoa. The Dominican tourist sector can take advantage of this reputation to increase product differentiation and compete with other tourist destinations. An interest in organic production can also be exploited by local hotels when selecting the food they offer to tourists. An adventure tourist has a higher WTP than agro-tourism activities.

The study also evaluates tourists' WTP for the existence of practices that reduce agricultural negative externalities and; agricultural practices that promote conservation and organic agriculture. While some tourists would think that the adoption of conservation practices would only have a local or regional impact (and consequently, no direct impact on their way of living), others perceive that the adoption of these practices would have global benefits that would impact them indirectly.

The study determined that tourists are WTP for related agricultural environmental services or practices that reduce negative externalities. People younger than 25 years make up an important segment of the tourist market willing to pay an extra amount of money to encourage the adoption of farming practices that create positive environmental externalities. Tourists from the USA and Canada tend to be willing to pay less for positive externalities resulting from certain conservation practices than Europeans.

Extrapolating from the sample data and the number of tourists that visited the DR in 2002, we estimate that about 2.4 million tourists could be interested in participating in an agro-tourism activity in the country, and about 1.8 million tourists are willing to pay for the existence of positive externalities related to the adoption of conservationist farming practices. Agro-tourism offers the potential to involve 78% of the tourists that visit the DR, who are attracted to positive externalities associated with the adoption of conservationist farming practices. Some 60% of agro-tourists stated their interest in organic farming systems rather than the conventional ones. (Herrera, Lija, 2004)¹⁷

C. Tourism and Biodiversity Synergy, Environmental services good practices

The National Biodiversity Institute (INBIO) in Costa Rica developed in 1989 a bio-exploration program through which INBIO, international industries and the academic community jointly collaborated in the exploration of compounds and genetic material produced by organisms that live and give an added value to biodiversity.

Bio-exploration was integrated to the task of a national inventory of biodiversity. An agreement between the Ministry of Environment and INBIO regulates the sustainable recollection of biological materials in protected public areas to increase awareness of biodiversity in Costa Rica and share the derived benefits.

To date, there is a background of important agreements in bio-exploration from INBIO. Generally, these agreements state that 10% of direct contributions for INBIO should be transferred to Costa Rica's Environment Ministry (MINAE), which is responsible for the management of country's restricted areas. Moreover, 50% of any royalties eventually obtained per fee will be transferred back to the SINAC. The agreement has contributed more than US\$ 500 thousand dollars to the SINAC

within the last 11 years. The bilateral donors and the non-governmental organizations (NGOs) have also been a source of financing for INBIO and Costa Rica, including intermediaries in schemes such as the exchange of external debt for nature that have been incorporated.

A recent complementary project for financial self-sufficiency from INBIO and the establishment and development of a project for "educational tourism" of US\$ 4 million is known as INBIO Park. INBIO Park has been a source of income for national parks, taking advantage of its convenient location to provide students, the general public and international visitors with a brief and simplified introduction to biodiversity and national parks. This has been accomplished by using live samples of ecosystems planted in territories surrounding the central offices, thus contributing to the tourist sector, biodiversity and the education and appreciation of the citizenship, including by young people. It is a project that came true as an example of good practices in tourism and biodiversity funding mechanisms that apply to environmental services. The rights to intellectual property must be shared and they benefit the scientific community of Costa Rica and all the different levels of ecotourism, from the inquisitive tourist to the scientific investigator. (INBIO)¹⁸

2.3.6 PES application to tourism

Complexity and size of the tourism sector. Tourism is not a cohesive industry and provides the market with a range of diverse products and services. The tourism sector embraces many different types of economic sectors. These include a) transportation - airlines, boats, bus companies, rental cars; b) lodging - hotels and other accommodations; c) tourism- sightseeing attractions and destinations, festivals and events, tour guides; d) shopping and endless ancillary services. Therefore, when applying PES schemes in the tourism sector, it is necessary, first, to clearly identify its users and providers, which may in some cases be difficult and, secondly, measure the required contribution and capacity of each sector to compensate for environmental services. For example, a resort of 1500 hectares, with a golf course, residential and hotel facilities and a large important biological reserve, might need to compensate for environmental services, but at the same time may be classified as a provider of environmental services that capture carbon and protect water sources generated by maintaining the biological reserve intact.

In most Caribbean countries, the major businesses are members of trade associations or boards. The majority of the tourism industry is comprised of small and medium size enterprises, which are much less organized or likely to directly participate in new initiatives. Consequently, it might be difficult to bring environmental service dialogues to such a large group of stakeholders unless national and tourism regional organizations can lead the initiatives during the whole process.

Demand economics versus Supply Economics. The tourism sector in the Caribbean has been mainly managed by "demand economics". Such new approaches and the implementation of any type of PES scheme has required that the tourism sector respond to "supply economics" and better understand the pressing issues and importance of ecology economics. This is in order to achieve sustainable tourism. The foregoing is expressed in light of serious concerns on preservation, impact, and repair of social and environmental surroundings.

Besides focusing more on marketing efforts, Caribbean countries are required to seriously concentrate their efforts on managing the "supply" side of their businesses in a more effective manner to become more competitive and foster demand. Guaranteeing sustainable services, for example, will contribute to sustainable tourism. If we do not take this direction, the tourism product becomes homogeneous and disregards its destination services. As a result, these destinations will likely lose their appeal and the traveler might not have a reason to return. One of the ways to bring in the differentiation and positioning of a product and/or brand is by improving and commercializing sustainable tourist services at a given destination.

Free Riders. Unfortunately, as some players of the private sector see it, the tourism sector has become an opportunity to make quick profits, and the Caribbean is no exception. This situation may deteriorate further if it continues to attract more free riders to the current systems, therefore, causing more serious problems if environmental services continue to be considered "cost free goods".

PES and Tourism. It is not possible to achieve sustainable tourism without effective sewage, solid waste, or drinking water treatment systems. Therefore, the sustainability of environmental services may not be avoided as a basic precondition for any tourist destination or development, regardless of the type and nature of the product.

Traditional environmental services, such as access to drinking water, sewage treatment, garbage collection, as well as the ecological environmental services mentioned above, including the scenic value of the destination, are essential to tourism development. They add value to the destination and contribute to the safety of tourists and locals. Dirty beaches, bad odors, and a careless urban centre are factors that scare off tourists and will attract “trash tourism” and less quality tourists and tourism.

In sum, the industry must realize that the development of tourism in the Caribbean region not only depends on promotion and marketing but also deeper commitments and challenges for communities, politicians, investors, and the public and private sectors that seek a common well-being. The pollution generated by tourism requires corrective human environmental services and prevention as well as legislation and regulation to help maintain the quality level of the intended tourism level.

It is, therefore, fundamental to understand the difference between the price and the real value of environmental products and services to realize the need to consider PES schemes in the tourism industry. However, are tourists or the private sector willing to compensate for the value of these environmental services? This will be discussed next.

User pay principle. First, we do understand how tourists (foreign and domestic) attain benefits from environmental services. Tourist service facilitators that offer and intervene with tourist products also obtain benefits by selling or offering services such as airlines, accommodations, recreation, shopping, leisure, drinks and food. Moreover, local residents, the industry, and other sectors that contribute to the tourism sector and tourist services also benefit from those facilitators that offer income sources, such as employment, and benefit from the distribution of tax income. Local residents also benefit from these environmental services in tourist and recreation zones, as well as from the internal consumption of said environmental services.

According to the previously elaborated theory, those who benefit, or users, should pay for environmental services. For this reason, an economic assessment of their value and a comparison with the sector willingness and capacity to pay or charge is essential.

Tourism in the Caribbean has been built upon the traditional appeal of excellent beaches, pristine waters, a high-class marine environment suitable for a range of recreation activities, and warm weather conditions all year round. The region is considered, with some exceptions, as an upper market high spending destination. The average spending per tourist is 30% higher than the world spending average documented some years ago (CTO and CHA, 1997). The natural beauty of the coastal areas, clear waters and beaches have been a paradise for divers, snorkeling, and tourists who search for warm weather and relaxation.

But, are all Caribbean tourists willing to compensate for environmental services provided by the islands? If we expect tourists to pay for any additional resources, there must be some kind of logical and rational justification. Fortunately, during the last couple of years, studies to assess the value of important resources, like reefs and coastal recreational areas, show positive and conclusive results.

Valuating tourism environmental services. Among different evaluation methods for environmental services, the travel cost method has been commonly used at various destinations to estimate the benefits of a tourism resource and the annual recreation benefits thereof. For example, a recent study conducted by economists revealed that domestic and international travels to the Great Barrier Reef in Australia, which amount to a million visitors a year, provide

between 700 to 1.6 billion dollars for recreational benefits a year. The study conclusively demonstrates the high benefits associated to tourism from the protection of coral reefs. The same can be said about the value of the Caribbean coral reef and the tropical rain forests in Dominica, Haiti, Cuba, Trinidad and Tobago, St Lucia, Guyana, Dominican Republic, St Lucia, and Belize, among others.

The study estimated an average value of the Australian reef between US\$ 350 and US\$ 800 per visit. In comparison, a similar study in the Caribbean estimated an average economic value for the coral reef of Belize of US\$ 367 per visitor.¹⁹

Other examples in terrestrial zones, for comparison purposes only, indicate that each visit to a tropical rainforest in Costa Rica costs about US\$ 350; bear watching in Alaska on Mc Neil River US\$ 250 per visitor; Lemur watching in Madagascar between US\$ 276 and US\$ 360 per visitor.

Another evaluation method estimates that the Costa Rica Monteverde Cloud Forest reserve gets revenues over 4.5 million dollars from tourist activities. This amount represents US\$ 1250 per hectare, compared to the US\$ 75 average per hectare of land outside the reserve. As for coral reefs in Florida, they estimate US\$ 1.6 billion a year in tourism and recreation resources alone, in terms of revenues generated.²⁰

Besides its biodiversity value, the Caribbean has some of the most spectacular diving grounds in the world and numbers continue to increase. More than 60% of all visitors to the Caribbean are interested in snorkeling, around 30% in diving and the majority of visitors come to view the reefs, the safe and clear waters, and the beauty of its sandy beaches. This suggests that tourists are responsible not just to pay for the use of these resources but also to compensate for the value of environmental goods and services provided by the visited destination and areas.

Recently, whale watching has become a shown significant potential in several islands of the Caribbean region. A study of 16 Brydes whales in Japan revealed that whale watching could generate around 41 million dollars over a 15-year period (if left alive; if killed, it would generate only 4.3 million dollars for the same period). The very fact that people are willing to travel long distances to see natural sites and biodiversity illustrates the value of tourists and tourism industry.

Assessing value to environmental services for tourism. Finally, perhaps one of the most important issues that affect any type of assessment of tourism's economic value and environmental services is not how much it is worth, but its value to mankind. This includes the value that this service represents to local people and communities that often have no option but to use the environmental resources of their land to meet their basic needs. The valuation of environmental goods and services differs largely from local people and international tourists that come and go.

The United Nations Convention on Biodiversity estimates that the world has "ecosystem goods and services worth up to 5.200 billion dollars a year" but the main question lies in who is paying for them and who is benefiting from them. One of the main threats of any payment of environmental services scheme is the ability to identify that is the real beneficiary and the degree of benefit. There have been some studies in terms of integrated holistic approaches and evaluation of all environmental services for all sectors. The application of said methodology has thrown total values ranging between US\$15 and US\$ 2671 per hectare, per year, in different parts of the world.

Further research is required to investigate the total benefits, particularly in the tourism sector, derived directly from the water and electrical supply of water, CO2 and marine and terrestrial forests, biodiversity, as well as the scenic beauty and the profit it yields to us all.

2.3.7 Tourists' willingness to pay for environmental services

Studies have shown that tourists' willingness to pay (WTP) depends on different variables, such as education level, age, income, travel experience, environmental sensitization, country of origin, interests and many other socio-demographic aspects of the visitors. Tourists also tend to perceive tourism resources differently and it is obvious that their willingness to pay and compensate for environmental goods and services reflects that difference.

For example in other parts of the world, such as the case of Namibia, of all the tourists who visit its national parks, 72% are willing to pay for funds to protect wildlife and community-based conservation and 57% are willing to pay for community funds.

In regard to specific environmental goods and services, a study of demand and willingness to pay for environmental services done in Sweden (Hokby and Soderqvist, 2001) stated that income tended to influence WTP in a positive and significant manner. This can have a significant meaning for the tourism strategic marketing and product development in the Caribbean.

It has been shown that a person's willingness to pay is affected by their income and educational level and not by their culture or nationality. For locals and domestic tourism in some sectors, affordability to pay (ATP) is the key issue more so than willingness to pay (WTP).

Concerning maritime and costal resources, a more recent study prepared by professor James Casep 2005²¹, on the Mesoamerican barrier reef system indicated that tourists are willing to pay some economic value for environmental services. The results were based on an adapted cost value travel method and approximately 400 interviews with tourists from the United States (68%), Canada (10%) and Europe (12) about their willing to pay for specific environmental services. After a definition was given to them 99.2 % of the tourists surveyed believed that the Mesoamerican barrier reef system should be protected and 81% agreed that it is reasonable to charge additional fees to ensure their protection. 87.7% of the tourists answered that they are WTP an entry fee to Mexico if they can be assured that it would go towards coral protection. 87.4% of the 400 tourists surveyed snorkel and 32.4-scuba dive. The WTP was calculated between \$22 and \$ 34 additional per person for this purpose alone. 82.2% agreed that environmental quality is important when choosing a destination. An interesting finding of this particular study is that 21% of the surveyed tourists participated in an environmental education program during their stay and this provides some good ideas in terms of the direction of a new generation of tourism product development more inclined towards ecotourism.

Entrance fees paid by divers to enter maritime sanctuaries also constitute a potentially significant revenue source to finance coral reef conservation. Different studies indicate that most divers would be willing to pay entrance fees to marine sanctuaries where fishing, one of the major threats to coral reefs, was prohibited. This study also showed that large revenues could be collected from entrance fees to support coral reef conservation that diving tourism is paying off in other destinations, and that tourists are willing to pay larger sums of money for clean and eco-friendly dives. Divers already contribute to environmental services and protection with significant sums of money for diving in European sites.

One major constraint is that recreational value and derived benefits, including the scenery value of protected areas of the world, are seldom reflected in the entrance fee. For example, a recent study concluded that, typically, the cost to enter protected areas represents 0.01 to 1% of what visitors pay in relation to the total cost of the trip being made.

2.3.8 Willingness to pay: Price versus estimated value

As in the case of terrestrial forests, many environmental services contribute to the development of nature-based and recreation tourism. However, for nature-based tourism and ecotourism, it has been difficult to estimate the share of forest-based services within the markets. Estimates vary

significantly. Nature-based tourism activities provide increased financing for management of the protected area, but in many cases they generate only a small portion of the funding required for the protection and operation of said protected areas (one fourth as in the case of Costa Rica). In most countries, both developed and developing, tourism-based revenues account for much less - usually 0% to 15% (Katila and Puustjarvi, 2003).

A World Bank report on nature tourism and economic development concludes that many protected areas that often supply the most valuable part of the nature tourism experience charge relatively low entrance fees and, therefore, capture little of the economic value of tourism.²² Outside protected areas, hunting and ecotourism leases are a significant source of revenue for forest landowners in some regions. Including annual hunting and fishing rights for the same species in America, they can range from US \$ 5 to US \$ 100 per hectare.

The growing awareness of the value of the protected zones by established low user fees has also taken officials and park administrators to see their resources within a broader market context and reconsider the price charged for the recreational use thereof and establish ways to generate additional income *in situ*, based on the concept that the user pays. In fact, protected areas in the Caribbean still fail to capture the true benefits from the share of the growing tourist revenues, both in terrestrial and maritime zones, and take advantage of the “green consumer” and the growing market of ecotourism and other forms of nature tourism.

There is also a significant interest in generating additional funds *in situ* that can be implemented as possible legal collecting and funding mechanisms to take benefits.²³

It should be remembered that the compensation of environmental goods and services goes beyond covering financial capital costs and maintaining the operations carried out for environmental services compensation.

Concerning different payment levels for international tourists and domestic tourism, for example, the Galapagos has a changing scale of entrance fees to the park, ranging between \$ 6 charged to Ecuadorian citizens and \$ 100 charged to most adult foreigners. Half the entrance fees are devoted to the maintenance of the park and the surrounding maritime reserve.

In some instances, gradual pricing is introduced such as departure and tourism taxes, sometimes without much research and recommendations from specialists. The truth is that many countries depend on tourism activities and have a difficult economic situation regarding the management of their protected areas and other natural resources. This has been the justification for incremental increases of taxes instead of incentives.

Certification Programs PES schemes are not usually designed as voluntary mechanisms, but rather as voluntary agreements by all stakeholders to pay the necessary cost. In this regard, voluntary certification programs contribute to environmental services in many ways.

For example, an encouraging finding by recent study indicates that 92% of tourists are willing to pay more for greener hotels. It has been estimated that the Mexican Riviera will increase its room capacity, within the next 20 years, by 75 thousand rooms, which will have a significant impact on environmental goods and services. Certification programs in the tourism industry can help to mitigate these impacts and monitor changes in the industry. Moreover, applied schemes and technologies can help customers better identify the properties and services from which they can choose.

To date, however, certification programs have had limited success. International hotel certification programs such as the Green Globe or the Blue Flag for the management and protection of beaches and marinas haven't certified as many properties and beaches as expected. The same goes for gaining country involvement. Hotels and resorts affiliated to Green Globe in the Caribbean account for 57 certified properties in the Caribbean and 12 others are benchmarked in

only 13 countries of the 32 countries of the sub-region. International Blue Flag in the Caribbean has only 9 beach affiliates and 2 marinas. Moreover, they have only been successful program in the Bahamas, Puerto Rico and Bahamas respectively. There has been some reluctance from the industry to Green Flag regarding the high costs of the certification program compared to its benefits. For example, the Blue Flag initiative requires that the data obtained, such as water quality, be officially published. In some Caribbean countries this is considered a sensitive issue in terms of potential bad publicity and detrimental effects to the tourism industry.

So far, no Caribbean country has succeeded in creating its national certification scheme as Costa Rica. This Central American country has established two certification programs: a) the Sustainable Development Certification (*Certificación de Desarrollo Sostenible*) and; b) the Green Ecological Flag (*Bandera Ecológica Verde*) to protect and monitor beaches in Costa Rica. The Green Ecological Flag program, funded and managed by the public water authority of Costa Rica *Acueductos y Alcantarillados de Costa Rica*, has proven to be a success for local, national, and international tourists in terms of service given to local communities and its initiative to protect the environment.

2.4 Challenges and Opportunities working with PES in the Tourism Sector in the Caribbean

With ongoing globalization of services and the constant pressure on the part of tour operators, mainly European, to adopt greener, safer and more efficient standards in the tourism sector, it seems logical that Caribbean countries adapt to the global demands of products and services, for the tourism industry, and that certification programs become more important. Certification programs should, therefore, include the payment of environmental services and apply new criteria to achieve certification. The existence of these criteria for tourism certification programs, however, are still missing.

Voluntary certification schemes in the Caribbean, although successful on an individual basis and in some regions of the world, have yet to prove that they may be used as part of a national and/or regional strategy in the Caribbean. Certification schemes may be very effective to monitor and evaluate the status of environmental services and as management facilitators.

PES schemes have gained popularity in many Latin American countries as innovative instruments to finance investments and as promoters of natural resource management and environmental conservation. Since most schemes are very recent and have operated for less than five years, it is difficult to jump to conclusions regarding their sustainability.

As a word of caution, the cost of starting and setting-up certification programs can be high; the evaluation of environmental services is controversial and monitoring and evaluating the results and compliance with the programs can be costly. Medium and long-run financial sustainability can be at stake. PES schemes financed by funds initially provided by a donor are replenished by contributions of service users. Donors often provide funds for the establishment and operation of the scheme's institutional framework, but they seldom cover the administrative costs, which may be high.

There is a general willingness on the part of tourists to pay for studies to improve water sources, for example. Nevertheless, due to other technical reasons, including political, the set fees are significantly lower than what studies recommended. Consequently, all externalities are not adequately taken into account.

In order for PES schemes to become effective, both users and actors involved must be convinced of the benefits of the said mechanisms. There must be consensus regarding services and activities in order to achieve the same, as well as monitoring systems to avoid contract breaches and settle disagreements. PES schemes do not usually provide direct cash compensation. Instead, funds are placed in a financial investment fund. The funds may be invested in

conservation projects, environmentally friendly developments, and towards the establishment and implementation of management plans, including tourism initiatives.

Reengineering PES. At the most recent International Conference of PES organized by the Gund Institute for Ecological Economics, in Costa Rica in March 2007, it was argued that for PES to become more effective and applicable to the sector such as the tourism industry, existing evaluation methods must also be revised and models should be improved, adapted and new technologies must be utilized to improve evaluation methods. Some of the limitations of these PES evaluation methods applicable to tourism are as follows:

1. First, the assessment of species alone in tourism destinations, instead of their biodiversity and the entire ecosystem is not enough.
2. Secondly, some methods of assessing nature may lead to the “commoditization” of species with one purpose only and can be used to justify or reconcile recreational activities; for example, hunting with responsible ecological tourism, as it is the case of some reserves in Africa. The argument has been that when certain types of species become sick or old, it is better to have a tourist pay 20 to 30 thousand dollars to kill them (as a one shot affair) and use the funds back into the conservation and preservation of the same species or another related project. Therefore, how far can we go, from an ethical, moral and nature perspective?
3. Some evaluation methods used are based on an estimated number of visits or tourist arrivals and do not allow comparing areas where tourism recorded numbers are low or where tourism does not yet exist, although benchmarking of economic tourism values can apply.
4. Measured values are usually applied to very specific geographical areas where only the number of visitors is recorded. This makes it the most difficult tool to apply in areas with no protection and encroachment, and even more difficult when tourists can disperse to different zones for recreation and tourism purposes. The contribution of tourism will differ depending on the diverse areas and the duration of their visit. Therefore, the impact of the activity will differ and any effort to calculate the payment of environmental goods and services from these tourism activities can be difficult and misleading, when not applied correctly to the entire area or ecosystem in question.
5. An important issue is that the tourism industry is very dependable on severe weather changes which requires, for example, valuable wetlands services as protection. Marshlands alone, thanks to their role, reduce flood damage and although coral reefs are highly affected, they can protect tourism resources and infrastructure from disasters when they have been planned and built according to certain standards. Can this contribution to the tourism industry be measured and should the cost of protection be contemplated and included within a tourism PES scheme?

In sum, after years of formulation, development, experimenting and implementation of PES schemes and some success stories from sectors such as Forestry and Water Resources, there are still vital challenges to be met for the future. There is an urgent need to conduct more research and studies, such as the correct identification, quantification and assessment of environmental services, upgrading of payment schemes, development of new models and the correct identification of all users, providers and intermediaries responsible for the effective management of such schemes.

Without a doubt, the overuse of coastal areas associated to the increase in tourism in the Caribbean region, the required services, and the normal growth of the local population will affect the environmental resources and services in most islands. The call for development and implementation of sustainable tourism and the compensation or payment of environmental services is fully consistent with the Convention on Biological Diversity and its guidelines on tourism. The United Nations Framework Convention on Climate Change, the Kyoto Protocol and other sustainable development commitments ratified by each country of the Caribbean region make their implementation morally mandatory.

It is our continuous obligation to convert tourism development into sustainable practices. Sustainable tourism means sustainable development; in other words, providing future generations with as many opportunities and resources, or even more, as the previous generations had. The question is how to accomplish it.

Tourism growth in the Caribbean sub-region shall continue to put pressure on and to deteriorate environmental quality and biological diversity unless the necessary policies and measures are

taken to counteract future damage. As tourism keeps on growing and climate change continues to impact us all, some basic questions come to mind. Is the tourism industry or are tourists paying their fair share for the use of environmental services every time they travel? Are the existing mechanisms capable of preserving tourism resources in an effective and efficient manner? Are there any additional economic mechanisms available today to compensate for the use of environmental services and protect natural resources in a sustainable way? To answer some of these questions, let us take a look at some good practices related to environmental services in the Caribbean.

SECTION 3 “Best Practices” with Environmental Goods and Services in the Caribbean

3.1 Introduction

Notwithstanding the above, there are some examples of good practices in the Caribbean tourism sector applied to the use of economic and financing mechanisms. These include, for example, the conservation and preservation of natural resources, which assist in the compensation of environmental services and strengthen judicial and administrative structures.

It is also important to remember that PES schemes until today have focused mainly on resource compensation, such as carbon capture, water, biodiversity and, in a very limited way, on the aesthetic value through a tourism experience.

Understanding existing funding mechanisms is crucial to adapting them to our own operating environment. Also knowing how donor organization funding mechanisms operate helps with negotiations and in obtaining and shaping our own realistic schemes, based on donor possibilities.

The key to developing PES for the tourism sector is to learn about different prospects and to create a portfolio of diverse revenue streams based on different funding mechanisms customized to each destination and all stakeholders.

The application of funding mechanisms in the tourism sector for the protection and conservation of natural resources in the sub-region is varied. There is a long list of independent initiatives, some more efficient than others, which are usually combined to maximize opportunities.

Following is a list of the main existing funding mechanisms researched in the sub-region and some of the countries that have documented practices with them. Some of these funding mechanisms have been applied successfully in different countries of the region and are instruments that may be used for a PES scheme as a starting point for consideration in the tourism sector.

- **Entrance Fees:** Cancun; Puerto Rico
- **User Fees:** Saba, Netherlands Antilles, Bonaire, Curacao, St. Eustatius, St Lucia Dominica;
- **Concessions and Leases:** British Virgin Islands; Puerto Dominica;
- **Direct Operation and Commercial Activities** Saba, Netherlands Antilles, St Lucia, Antigua;
- **Taxes:** Belize and six Eastern Caribbean countries; St Kitts and Nevis
- **Volunteers and Donations:** Saba, Antigua (WWF) ²⁴

3.2 Case Studies

From the examples of funding mechanisms, we have selected three cases. They represent different countries, organizational structures, locations and applications with varied degrees of success. They have been selected because they involve various public and private actors and exemplify mixed forms of funding mechanisms in diverse institutional and legal frameworks. These cases studies do not seek to be an exclusive evaluation of the operations of the organization and public entities described herewith, but rather illustrate good practices of certain management criteria derived from information provided by their staff and input from other sources. In addition, information was obtained during conversations with officials during 2005 and 2006 at all three sites.

The objective behind presenting these cases is to: a) explore, compare, and analyze the way in which these funding schemes operate and are managed, b) examine how different funding mechanisms apply and, c) evaluate their efficiency and effectiveness. Criteria utilized in the case study selection process included: analysis of the institutional regulatory frameworks, management capacity for planning, implementation, product development and marketing, monitoring and evaluation. Additional criteria such as the economic and financial sustainability of each case, the impact and benefit to the communities and how effective these have been in terms of accomplishing environmental objectives through the compensation of environmental services were also considered. The research was conducted through primary and secondary sources, including visits to the sites and interviews with key administrators.

The first case study of the **Island of Dominica** illustrates the government funding mechanisms where user mandatory fees were used as environmental levees for the island Solid Waste Management Authority, conservation of protected areas and community educational and awareness programs.

The **Tobago Buccoo Reef Trust** case study, exemplifies the importance of tourist awareness programs and voluntary contributions to compensate for carbon offset produced by tourism activities. The case study also looks at the role of NGOs to rely on local economic and human synergy support from local and international organizations for donations and grants from donors and sponsors for the development and promotion of initiatives. Direct operational and commercial activities as important funding mechanisms for the Trust is also discussed.

The **Case of the Belize Protection Areas Conservation Trust**, a government-private sector-community organization illustrates the importance of a suitable legal framework required to facilitate the management of environmental services. The Belize case study illustrates the effectiveness of combining different funding mechanisms (such as fees collected from recreational permits and concessions, leases, passenger head taxes, user fees, grants and donations) and for the possibility of the trust to reinvest in revolving endowment funds.

A better understanding of the pros and cons and the possible application of each case for the development and implementation of tourism PES schemes in the Caribbean provides benchmark experiences and enriches the discussion around the different mechanisms. The following cases aim to provide policymakers with examples of good practices and models that can generate interest and opportunities in other countries in the region for new initiatives that can be supported by stakeholders, institutions, and donor organizations.

3.2.1 The Island of Dominica: The Role of Government in ecotourism, conservation and environmental services.

(i) Introduction

Dominica is called the Nature Island of the Caribbean due to its rich variety of flora and fauna and extensive forests. Dominica's tourism is based primarily on the island's strong conservation efforts and the preservation of its cultural heritage.

The conservation of the island's pristine ecosystems, its marine resources and biodiversity is helping to create a focus on nature-based tourism or ecotourism, as compared to sun, sand and sea (SSS) tourism.

The main market niches in Dominica's nature tourism are soft adventure, hiking, bird watching, wellness and spa activities, diving and snorkeling, and its history and culture particularly around its indigenous Carib or Kalinago populations.

As a result of early conservation efforts, over two-thirds of the island is now under some form of protection. Currently, there are three national parks. Tourism development became important after the demise of the banana industry as a consequence of the dismantling of preferential access to EU markets in the early 1990's.

Recent statistics on tourism in Dominica reveal that the sector's contribution to GDP has exceeded 19%. Tourist arrivals in 2004 totaled 79,964, an increase of 9.6% over 2003. The cruise sector, which has grown tremendously over the past decade, is well over 300,000 visitors on average since the early 2000's. Tourism contributes more than 19% to the island's GDP. The financial contribution to the economy was estimated in 2004 at EC\$164 million. More than 2,500 people are now directly employed by the sector, while another 3,000 have some form of indirect employment.

(ii) Dominica's funding mechanisms for ecotourism and environmental services

In 1997, the island imposed a mandatory user fee for non-residents entering the 11 designated sites. The current fee system charges each visitor US\$ 2.00 for a site pass; US\$ 5.00 for a day pass and US\$ 10.00 for a week pass.

There is also a US\$1.50 environmental levee imposed on all non-nationals leaving the country, while cruise ships are expected to pay a fee to the Solid Waste Management Authority to handle ship-generated waste in the island's main landfills.

The user fee system was introduced with the purpose of repaying a loan of EC\$16 million granted by the Caribbean Development Bank for the improvement of access and construction of facilities in several of the leading tourist sites around the island. The fee collected by the National Parks Service of the Ministry of Agriculture goes to the consolidated fund, but portions of it are being used to employ park wardens and pay for the maintenance of the sites.

The existing system is currently under review to allow for a higher fee structure and analyze in – depth issues such as conservation programs, maintenance, and the employment of guides and wardens. This is being done simultaneously with a review of the National Park Service aimed at creating a more autonomous body with the power to collect fees, institute a new management system of the park, and develop more innovative and sustainable programs for nature conservation in the island. The SSMR (Soufriere/Scotts Head Marine Park) also charges a US\$2.00 fee to users of the park which is used towards its conservation.

Monies collected from the environmental levee go to the consolidated fund to help pay back the loans of the Solid Waste Authority and maintain the landfills and other services. The Authority has also instituted a fee system for landfill users.

Although a proactive and focused program for the co-management of the park system in Dominica does not exist, the Ministry of Tourism and Forestry and Parks has been collaborating to institute some degree of co-management to involve some local communities. In several of these facilities, concessions have been granted to local community groups or entrepreneurs to manage these facilities.

Most of the popular and newly established sites are now owned by the government, either as part of the National Parks regime or state lands. These resources are currently managed by the National Parks Service, which is a division of the Forestry and Parks Department of the Ministry of Agriculture.

The marketing of the island's resources has been entrusted to the Tourism Division of the National Development Corporation. However, the forestry division working with founders and others has been producing brochures, posters, documentaries and other material to educate the public and build regional and international awareness of the importance of these resources.

In 2001, the island's total population was recorded at 72 thousand inhabitants. Socio-economic challenges faced by Dominica include a high unemployment rate of 15.7% in 1999 (Labor Force Survey), a contracting agricultural sector, a reduction in exports, a declining foreign investment, an expensive and limited labor force, and a relatively large public debt to service. Dominica is also prone to natural disasters, particularly hurricanes; deforestation is considered to be a major contributor to biodiversity loss, and the installation of coastal sea walls and other coastal degradation mitigating and improvement measures may have negative impacts on marine ecosystems.

Regarding environmental services for local inhabitants, 94% of the population has access to potable pipe-borne, reliable, and safe water, since reservoirs and water catchment areas have been developed island-wide. Concerning energy, Dominica is still in the initial stages of developing geothermal generation projects that will allow for more efficient use of its resources.

(iii) Challenges and opportunities

Dominica's biggest challenge is the financial constraint faced by the many public institutions. These organizations are providers of key basic environmental services to the local community and are having a large imprint on the resources of this small island.

Dominica is facing a number of serious threats regarding the management of watersheds, forests, and biodiversity ecosystems. In Dominica, the major competing uses of water are agriculture, industry and domestic supply. Other than the use for potable water and hydro electricity generation, individuals and communities living adjacent to streams and rivers use those resources for activities like cooking, drinking, bathing, fishing, washing, farming/irrigation and nature-based tourism activities. Additionally, a few industries utilize adjacent watercourses for a range of processing activities, including bottling and mining.

The greatest threat to coastal degradation and biodiversity loss on the island is associated with poor agricultural practices and land management which causes soil erosion and creates sedimentation. There is also land-based pollution resulting from the industrial sectors that discharge waste into the marine environment, which leads to the siltation of coral reefs and affects fishing banks. Illegal beach mining has had a negative impact on the coastline, further increasing the threats posed by natural disasters and potential climate change impacts.

Coral reef destruction due to anchor damage is particularly evident in the Portsmouth and Castaways areas and this may be partially attributed to the tourism impact on the areas in question. The magnitude of the damage is less in the Soufriere/Scottshead Marine Reserve (SSMR) where it is subject to a US\$ 3000 fine. Coral harvesting for tourism craft leads to erosion of the beach profile, therefore, making the coastline more fragile to beach activities.

However, the single greatest source of marine pollution in Dominica is caused by improper treatment and disposal of sewage. The discharge of untreated sewage and other liquid waste directly into the coastal and marine habitats has a severe negative impact on biodiversity.

There are some limited training programs offered at different levels for natural resource management. The Dominica Conservation Association has made, through a public education program, some significant contributions to public awareness and education, particularly at the school level. More funding for natural resource management and protection programs is required given that stakeholders' participation and public awareness activities are required nationwide.

Investment and capitalization on these resources, including protected areas (forests, water, biodiversity and controlled forms of nature and adventure tourism), will contribute to the conservation of these protected areas and their buffer zones and help compensate for environmental services, to both locals and expected tourists.

The risk for Dominicans lies in under-valuing the country's remarkable common resource and natural capital, allowing it to degrade and transform the habitat for future generations. The economic future of Dominica will depend on the management and sustainability of its natural resources.

While the current economic system of "*caja única*" (one sole collector) of the government allows it to capture rents from the tourism sector and has served, in one way or another, to its conservation, there are new challenges. In other words, it is necessary to have a better link between tourism and conservation. A formal PES fund set up can be considered a new management modality in the future, in which case legal changes might be required, to guarantee that funds collected by the tourism sector and mainly from nature-based activities go through a mechanism scheme back to its providers.

The assessment of Dominica as a first world Green Globe Destination is currently under consideration and although Green Globe focuses on the assessment of properties and environmentally sustainable practices, it could be possible to discuss with Green Globe the adaptation of the certification for the inclusion of a PES trust fund scheme that contemplates the necessary funding mechanisms and a management structure. Green Globe can also serve as the independent agency to monitor and evaluate the program, as well as to certify the efforts of all stakeholders involved while providing management capacity and technical advice required in the process.

3.2.2 Tobago's Buccoo Reef and the Buccoo Reef Trust (NGO)

(i) Introduction

Trinidad and Tobago are the two most southerly of the Caribbean countries and have various natural and attractive tourism resources. Tobago contains the oldest legally protected forest reserve established in the Western hemisphere, in addition to mangrove wetlands, sea grass beds and coral reef systems. These coastal and marine ecosystems are located all around the island.

The economy of Tobago depends on tourism and fishing. Currently, there is an intensive use of marine and coastal resources for tourism and other commercial and subsistence purposes and there is continued interest for tourism and infrastructure development in the Southwest zone.

Biodiversity management in Trinidad and Tobago is governed by the Forest Act, the Conservation of Wildlife Act, the Fisheries Act, and the Environmental Management Act as well as laws that provide protection to the biological resources of the islands. This also includes several acts from the Tobago House of Assembly concerning the protection of the environment, land use and enforcement. The Marine Areas (Preservation and Enhancement) Act provides the basis to

designate restricted areas for biodiversity protection, recreation or research of marine flora and fauna. To date, it has been used for the protection of one area only – the Buccoo Reef in Tobago as a marine park in 1973. The Buccoo Reef is the oldest and largest fringing reef.

In this island, important lagoons and mangrove swamps are rapidly being destroyed by a combination of human activities. The mangrove areas are being cleared to accommodate different types of speedy hotel infrastructure and other developments. This has incremented the sediments in the coastal areas, thus endangering some valuable habitats and creating negative impacts on the reef system and the marine life caused by improper treatment of sewage from housing complexes and hotels bordering the Buccoo Reef Complex (Lapointe 2003). The Buccoo Reef, the most popular visitors' area, is a major tourist attraction for Tobago beach lovers, divers, snorkelers, coral reef glass bottom tours and other recreational activities, such as kite and windsurfing boats to view the corals.

(ii) The Buccoo Reef Fund's (BRT) success and funding mechanisms

The Buccoo Reef Fund (BRT) was created to protect the coral reef and other concerns related to the well being of the marine environment of the island. As a non-profit organization registered in Trinidad, it was specifically established to assist the government and communities in addressing the threats faced by Tobago's marine environment and to explore opportunities for the sustainable development of marine tourism, fishing and aquaculture in the Southern Caribbean region.

The core strategy of the BRT is to build and operate the Tobago Marine Research Centre (TMRC) as an internationally recognized institution for marine research and education. The centre will also serve as an information and learning centre for schools and the community.

The success story of the BRT has been attributed largely to the financial support of donors and sponsors such as large international companies with operations in the Caribbean, foundations, and international trusts. Support for BRT's activities has been effectively obtained from a number of donors including community development funds and international organizations like UNEP, IDB, GEF and the World Bank. It has also had political support mainly from the Tobago House of Assembly.

Part of the BRT's success is derived from the successes of environmental resource programs, promotional campaigns and BRT's collaborations with private industry such as international tour operators associations (like the Travel Foundation), and sponsorship from large companies, like Angostura Holding, BWIA, and CI Financial among others.

BRT's success is also attributed to its legal status as an NGO. Except for some regulations, it enjoys a far-reaching economic and financial independence compared to other types of government and mixed forms of institutions, therefore, allowing it greater flexibility to respond to opportunities and make decisions. In addition, as an NGO, it is possible for donor organizations to consider it as part of their lending portfolios.

BRT has appointed a number of key distinguished and influential individuals to its Board of Directors, consisting of individuals from different backgrounds and sectors with high technical and management capacity.

The Travel Foundation's (TF) support to BRT has been fundamental for the success of this ambitious strategy. The Travel Foundation is an independent UK charity that aims to help tourism make a positive contribution to places visited by tourists as a "positive contribution to the natural environment, helping to preserve endangered wildlife, protect and enhance areas of outstanding beauty and save precious natural resources" as a "positive contribution to local people in need and preserve unique traditions and cultures for future generations"²⁵. The Travel Foundation works in close partnership with the UK travel industry, governments, and conservation and campaign groups to meet the said goal. Recently, the Travel Foundation has been promoting

climate care to offset zone emissions, but only as an education awareness campaign, and not as a tool to directly compensate the cost of travel on environmental services.

The Travel Foundation began its cooperation with BRT with a series of sustainable tourism initiatives in Tobago in 2004, since Tobago is a very popular destination for UK package tourists (who account for approximately 65 % of all visitors to the island, around 30 thousand in 2004). The way the TF contributes financially to BRT's programs is based on one of the following mechanisms as voluntary options available to tourists:

The voluntary contribution of 2 English pounds per person can be made easily from their mobile telephones at home or by adding it to their final invoice through the tour operators that made the booking (some tour operators include large charter operators such as First Choice, Virgin Atlantic, etc). Other methods come from donations from private individuals or enterprises in the tourism sector or other sectors, as well as from the merchandising and sale of "insider publications" that explain, provide tips, and promote sustainable tourism practices, including a TF code of tourism conduct.

The T&T tourism board has also supported and collaborated with some of its programs and the tourism private sector, such as local tour operators, sailing charters, diver operators, nature lovers, fishing association. Even the Tobago taxi association has joined to contribute to the success of BRT.

(iii) BRT achievements

Some of BRT's conservation achievements and initiatives in the tourist island of Tobago are condensed as follows:

Education. The Buccoo Reef Trust began educating primary school students in 2003. Fifteen primary schools were selected by a board of principals, teachers and facilitators to participate in the pilot phase of this project. One of the 15 schools chosen had learning disabled students. The objective of this project was to sensitize students to the coastal environment.

Educational activities continued in 2004 and 2005 at both primary and secondary school levels and also at the community level, through exhibitions. Again, the program focused on ensuring that children know, interact with, and appreciate the marine environment. 966 students from 39 primary schools spent 5 classroom hours and one third of the students had the opportunity to visit the reef by taking a glass bottom tour. For secondary school students, BRT held a unique session for 33 young students to assist them in collecting information for their Geography School Based Assessments (a component of the Caribbean Examination Council Ordinary Level Examination), including field trips lectures that cover coral reef and mangrove ecology, oceanography, fisheries management and other important topics.

Biodiversity and Research. The Buccoo Reef Trust has entrusted funds for the establishment of a demonstration scale conch farm and training programs for Tobago. Conch can reach a marketable size (not queen conch) in eight months. Conch, lobster, and grouper are species particularly vulnerable to over-fishing and are already becoming scarcer in Tobago's inshore reefs.

In regard to environmental goods "In 2004 the Buccoo Reef Trust embarked on an Inter-American Foundation (IAF) funded sea moss cultivation, processing and marketing project that sought the development of a sea moss cultivation industry in Tobago, by providing the relevant resources, training and scientific support to farmers and processors. It is hoped that this project will contribute to reduce poverty in coastal communities by providing skills for an alternative income generating opportunity".

The Caribbean Sea moss (edible seaweed species) can be used to make food and drinks. The gel extracted can also be used as a thickener or stabilizer in milk based drinks, non-Jell-O gels,

bakery products, soaps, skin care products and even as a potent aphrodisiac without any scientific evidence proven yet. It does provide a good source of complex carbohydrates, proteins, vitamins (A, D, E, F and K) and, minerals (iron, zinc, copper, calcium, nitrogen, potassium and sodium)

Mitigating the impact of tourism and conservation. The Buccoo Reef has 11 new moorings. The project was initiated by the Buccoo Reef Management Committee in 2005 and later received the official approval from the Tobago House of Assembly and Maritime Services in Trinidad. The installation of these moorings was undertaken as a collaborative effort between the Reef Tour Operators, the Buccoo Reef Trust and the Department of Marine Resources and Fisheries of the THA. The Reef Tour Operators played a key role in the project, advising on the most suitable mooring system and identifying the exact locations where the moorings were needed. The success of this program can be attributed to the participation from multi-stakeholders from the planning to the implementing stages.

This year, twenty-eight participants have graduated from the Reef Tour Guiding Training course, which was jointly sponsored by the Department of Tourism (DT) and the Department of Marine Resources and Fisheries (DMRF) of the Tobago House of Assembly (THA). This course is part of the Trinidad and Tobago Tourism Industry Certification (TTTIC) system.

Edutourism. In 2005, the Inter-American Development Bank (IDB) granted funds for the production of an educational movie of the Buccoo Reef trust for public awareness purposes and sensitization, while providing technical information to train tourists, operators and government employees on sustainable tourism practices. A video and brochure were presented at Tobago's airport's arrival hall and on board Excel Airways. The film gives tourists tips on how to make the most of their visit by following some basic eco-friendly tourism practices.

BRF and the foundation have been working with hotels in Tobago and farmers on the 'Adopt a Farmer' Project and organic school garden projects to grow and harvest their own organic herbs and sell them to several hotels in 2006. It might soon introduce a micro credit scheme for farmers and conduct a number of training sessions for industry staff, including hotel personnel and guides on the protection and guidelines for turtle watching tours.²⁶

(iv) Challenges and Opportunities

Increasingly, hotels in the Caribbean are choosing to comply with environmental certification schemes, such as Green Globe 21, Biosphere Hotels and ISO 14000, but very few hotels have been certificated in Tobago yet. To date, Tobago has no Green Globe properties, while T&T has no Blue Flag program.

'Macro-economic benefits' are derived from total annual visitor expenditures and studies have demonstrated their relevance to southwest Tobago. The results are estimates of Net Present Value ranging from US\$ 9.1 to US\$ 18.7 million over a 10-year period for tourism and recreational activities coming from the Tobago Buccoo Reef and its coastal areas.

While voluntary donations are always welcomed, the issue of financial and economic self-sustainability remains active under this scheme. A recent survey revealed that international visitors to Tobago's Buccoo Reef estimated a value range of US\$ 3.70 to US\$ 9.30 for visiting the Coral reef and its protected areas. The statistical mean included those not willing to pay.

In 2006, a new regional program began with help from the World Resource Institute to conduct an economic valuation of all goods and services (including tourism and recreation) derived from coral reefs and the ecosystem of the Tobago's Buccoo Reef. The program started out well and should provide enough data to assess the value of these magnificent resources and the natural value in terms of environment goods and services provided to the tourists, the tourism sector, and locals, and a solid base of information and opportunity to develop a PES scheme down the road.

In 2004, the Buccoo Reef Trust received the yearly environmental award for its contribution and use of funds for different programs from the World Association of NGO's (WANGO).

3.2.3 Belize and its National Protected Areas Conservation trust (A Government-Private Sector-community organization)

(i) Introduction

Belize is a country with significant biodiversity. 93% of its territory is forested and it is home to the second longest coral reef in the world. It also has the largest system of caves in Central America. With only 250,000 inhabitants, its population density (10 people per square kilometer) is one of the lowest in the world.

Based on current figures and others projected until the end of the year, the number of overnight tourists in Belize will exceed 248 thousand, while the arrival of cruise tourists has been calculated at around 783 thousand by the end of the year (approximately $\frac{3}{4}$ of all total tourism arrivals to Belize).

During the last couple of years, the cruise tourism industry has been one of the most dynamic and fastest growing components of the leisure industry in Belize and some analysts are worried about the serious implications of this huge growth and its overall negative environmental and social impacts. Tourism accounted for nearly 19% of GDP. These economic benefits were earned primarily through visitors' enjoyment of coastal resources, such as the coral reefs, cays, and marine wildlife, since approximately 60% of the visitors to Belize have a coastal experience (BTB 2002).

The Belize Barrier Reef is the second longest in the world and the longest in the Western Hemisphere. In addition to its natural capital, Belize enjoys about a thousand registered archaeological sites, including naturally formed caustic caves that contain evidence of prehistoric use. Consequently, all those cultural resources, whether on land, the seabed or caves, need to be managed and protected. To protect and manage all these natural and cultural resources, 42% of the national territory is under some form of conservation status.

Belize's tremendous biodiversity combined with its beaches and pristine water has made it an attraction park for scientists, nature lovers, and tourists alike.

High concentrations of a growing population are having noticeable effects on the country's natural resources. Unsustainable agricultural practices and deforestation of tropical forests are a major concern. In addition, the provision of adequate basic services to the growing scattered rural population is expensive. The economy has traditionally depended on the extraction of forest products that account for 20% of the GNP. Besides tourism, other important economic activities are the production of sugarcane, banana, citrus, seafood, and livestock.

(ii) PACT's creation and significance

Faced with the challenge to balance the correct use of resources, the government has recognized its significance and provided some examples of good practices for collaboration schemes among the government, the private sector and local communities. It has also created a framework for successfully financing the protection of natural and cultural resources.

The Government of Belize has expressed this commitment by: a) enacting and approving the Environmental Protection Act, a part of the National Parks Systems Act; b) implementing the Ancient Monuments and Antiquities Ordinance; c) supporting an integrated management approach of the coastal zone and; d) declaring protected areas on land and in the marine environment. In view of the need of a new management and operations framework, the Belize cabinet passed a law in 1996 and created the Protected Areas Conservation Trust (PACT).

“The Belize Protected Areas Conservation Trust (PACT) was created in 1996 with the objective of generating sustainable financing for the country’s protected areas. Belize’s commitment to this initiative was the capitalization of the fund through a conservation tax paid by foreign tourists upon departure, protected area entry fees, and taxes paid by cruise ships visiting Belize. This initiative reflects the potential of local resource generation for financing sustainable initiatives” (PACT)²⁷

After years of consultation, studies and workshops, and initial funding and resources provided by *USAID*, PACT was established as a statutory parastatal organization. PACT is composed of different representatives of civil society, government, the private sector, and international conservation organizations. In accordance with regulations, PACT must have a private-sector majority to its board of directors and be capitalized through independent fund generation mechanisms.

(iii) PACT’s success and funding mechanisms

With the approval in 1996 of a *USAID* project for the development of a national system, PACT was basically created to respond to two objectives and fundamental questions: 1) to raise funds from national and international sources to consolidate the national system of protected areas and; 2) to strengthen the protected areas system. The funds are currently generated as follows:

A one-time charge of US\$ 3.75 as a conservation tax for overnight visitors departing the country by air, sea, or land. These revenues generate annual flows that represent around 80% of PACT’s total income.

PACT receives 20% of the US\$7 per passenger head tax paid from cruise ships for their visits to Belize. This represents around 7%, if not more, of its total revenue. The remaining 80% goes back for the management of the newly built Tourism Village in Belize City.

There are additional revenues based on specific recreation permits in protected areas that contribute to around 6% of the total revenue. Today, 5% of the revenue comes from reinvestment and some as part of an endowment fund whose objective is to give continuity to management in case the forecasted annual resources are not achieved.

PACT has not relied on other methods of capitalization. Currently, suggestions for PACT’s 2nd strategic management are underway. This plan recommends other financial mechanism sources rather than depending completely on tourism industry arrivals. The organization has revised its first strategic plan for future fundraising and amendments to the acts have been requested. These amendments will basically allow the agency to become more autonomous and have a more efficient process.

Part of PACT’s success comes from its legal and structural composition. The PACT governing body consists of a Board of Directors, made of up seven members representing NGOs, the private tourism sector, the community council, marine protected areas, the Ministry of Tourism, the Ministry of Natural Resources, and the Ministry of Finance. A Projects and Scholarships Committee participates and assists in the evaluation of projects. PACT also has a well-established Advisory Council of 11 members, including specialists in terrestrial and marine protected areas, tourism, environment, environmental NGOs, and others. The Council advises the executive staff on the identification and evaluation of projects before they are presented to the Board of Directors for final approval. The executive staff is the operational body of the Trust. Average administrative costs have been estimated at 45%, including costs associated with the management of assets. In legal terms, PACT is a corporate body, with perpetual succession and a common seal. It is capable of acquiring, holding, and disposing of real and personal property.

Presently, PACT is responsible for 94 public and private protected areas. PACT keeps on making small and larger donations to NGOs and government agencies working with protected areas and

all the activities supported by PACT are related to the sustainable management of protected areas.

One of the eligibility requirements is a minimum contribution of 25% in counterpart funds. Funds are channeled to activities that relate to the reduction of erosion and the degradation of ecosystems, while they promote awareness in the communities, sustainable practices and effective management. In some cases, the Trust also evaluates the impacts of the Projects it supports.

PACT receives monthly disbursements of funds and the resources are channeled to finance the Project and managed in sub-accounts. Recipients of Trust monies may include "an individual, organizations, governmental or non-governmental agencies, communities or institutions involved in the conservation and management for sustainable use of Belize's natural and cultural resources". (PACT statutes)

The priority areas have been terrestrial and marine, natural and cultural resources and are subdivided into 4 categories: a) natural protected areas; b) eco-cultural tourism developments; c) improvement of archaeological sites and; d) provisions for community participation.

(iv) PACT achievements. PACT assists protected areas and contributes to the demarcation of areas by conducting ecological and scientific assessments, preparing the management and economic use plans, and supporting the monitoring and program surveillance.

In fostering eco-cultural Tourism Development, PACT assists in marketing programs of specific areas of tourist potential and by supporting the establishment of tourism information and interpretation centers and other facilities in buffer zones, thus contributing to sustainable tourism.

PACT is also responsible for the protection and management of Belize's archaeological resources. Besides the support provided to perform the assessment required *in situ*, PACT contributes to the development of the required tourism infrastructure and manages these resources. Out of all the numerous archaeological sites, only ten are open as tourist attractions. More sites can be opened to the public. However, it is a very costly process that requires considerable time and effort.

PACT community activities have facilitated the participation and support from local community-driven projects and local initiatives, environmental education and public awareness, mainly to communities adjacent to the protected areas.

(v) Challenges ahead. Since the early eighties, when the tourism industry had an annual growth rate of around 8%, the average throughout the Caribbean countries, the cruise industry in Belize, particularly during the last 10 years, has doubled and skyrocketed to very high figures. This dramatic and fast increase of the cruise sector in Belize has worried stakeholders due to its impact on natural resources and ecotourism and cultural tourism activities that make up the majority of overnight tourists.

The Belize hotel association, a strong stakeholder and "grassroots group", has been very critical of a rather controversial cruise tourism policy and exception clauses that might go against the country's commitment to place itself as a priority ecotourism destination. This has not affected PACT in terms of funds, but there has been serious discussion of the environmental impact caused by cruise liners and whether compensation for environmental services and impacts have been included and calculated in the per head fee currently applicable.

For example, the Coastal Zone Management Authority from 2002 to 2004 clearly stated that the Cay was under great pressure due to the lack of effective tourist management while on the island.

The Cay, which is only 1.2 acres, regularly has an excess of 200 people on the island. On one particular day, observations showed 14 incidences of "reef walking" and, on another, seven boats were reported "anchored" on coral heads. PACT is interested in assisting in new cruise impact studies that will involve carrying capacity analysis. Fourteen more marine protected areas are planned for June 2007.

In terms of resource degradation, some argue that ancient Mayan ruins are under pressure from the thousands of cruise passengers trampling over the sites. Riverside erosion is increasing rapidly due to high-speed boats taking cruise passengers to some of these archaeological sites, while reducing the total tourism experience for eco-tourists, nature lovers who arrive in smaller groups, or independent travelers to enjoy peace and quiet.

Some argue that the tourism head tax must be increased but there is plenty of controversy as to who should pay. Tourists have repeatedly demonstrated, through willingness-to-pay studies, that they are willing to contribute to conservation efforts and this is what PACT is advocating, according to the recommendations of the PACT second strategy management. Indeed, the first strategic management plan recommended that the tourism head should be US\$ 10 as the WTP study demonstrated. The present tax is US\$ 7 per head.

From the financial contribution of cruise tourists versus overnight tourists that spend more days in the destination, some calculated that overnight tourism accounts for well over BZ\$270 million that goes mainly through the official banking system mechanism of tourists paying in cash or by credit card. Cruise tourism accounts for BZ\$40 millions, all paid in US dollars. However, how much actually stays in Belize and passes through the official banking system has been questioned. It has been recorded also that overnight visitors, on average, spend between US\$150 and US\$200 per person per day, while cruise passengers, on average, spend US\$45 per person per day.

Since the early beginning, PACT has tried to create an independent private foundation with the legal intention of capturing grants, donations and other types of resources, which cannot be raised under the present structure. The foundation's main objective would be to finance the conservation of PACT's protected areas. PACT has already received donations but has held onto these funds until the foundation is in place and has been legally established.

PACT works with the other 3 national protection agencies but it will be more effective and work closely with the Conservation division, the Ministry of Natural Resources; the Institute for Coastal Management, and the Institute of Fisheries, Ministry of Fisheries that also collect user fees. A more effective interjectory coordination is desired.

A major concern for PACT relates to the community's livelihood and on how to assist, convince, or make communities stop depending on agriculture and fishing practices and provide them with real alternatives in ecotourism (such as recreational fishing opportunities to partially alleviate poverty).

PACT's marketing and promotional activities have made it an international household name. Now, however, one of the organization's biggest goals is to focus on the protected areas and receive the support of Belizeans and local organizations.

Although not yet contemplated, PACT has recently participated in seminars and workshops (CATIE in Costa Rica) to learn more about PES. In particular, it learned how PES could be applicable to its watersheds and water companies that produce energy and bottled water as a new option to compensate for the state of environmental goods and services. Currently, Belize is undoubtedly at a very crucial stage in the management of its protected areas and the endowment of capital, and natural and social resources.

In sum, Belize's population has grown as a result of the country's economic development and growth in income generated by nature-related tourism activities - mainly diving and ecotourism. After an accelerated growth in the tourism industry, there is now a growing concern by different sectors on how to imagine a balance between this growth in tourism development and the nature that provides their subsistence and is the base for the tourism sector's success.

Figure 2. Comparison Matrix of Cases and good Practices: Economic and Financial Mechanisms applied to the Tourism Sector

	Belize Ecotourism/ Conservation	Tobago's Buccoo Reef Trust	Belize PACT
Institutional and Regulatory Framework	Regulated by different laws from different government agencies but not as an independent agency to manage	Non-profit organization (NGO) with links to the private and public sectors, allowing for more autonomy. Composed of an influential Board of Directors and a Technical Advisory Board	Parastatal Government entity established as Trust by Parliament. Board composed by wide participation of stakeholders plus Advisory Board
Economic and Financial Sustainability	Site user fees and an environmental levee from cruise tourists go to a consolidated fund	Financial Support based on donations and grants from national and international enterprises and institutions, foundation and Travel Foundation (made of English tour operators)	Funds generated by different means including conservation taxes for cruises and overnight passengers, investments and licenses to independent endowment fund
Planning	Central government planning with inter-sectoral agency coordination currently being reviewed with the purpose of creating a more autonomous body	Highly focussed on a core strategy, objectives and mandate partially as answer to the coral reef and other marine environment concerns of the Tobago Island	Based on a strategic plan presently being revised and by its statutes. Receives monthly disbursements and resources are channelled to the financing of independent projects through selected NGO and managed by sub-accounts
Product Development and Marketing	Basically in the hand of the Tourism Division of the National Development with limited support from Forestry division	Decidedly diverse and promoted efficiently in the Island and abroad. BRT is planning a Tobago Marine Research Centre for marine research and education.	PACT keeps identifying new programmes in different areas that market mainly to international donor organizations and conservation agencies effectively.
Implementation	Most sites are owned by the government and resources managed by the National Park Service, a division of the Forestry and Parks Department of the Ministry of Agriculture	The BRT effectively assists government and communities through participatory stakeholder programs that are implemented with their cooperation	PACT's responsible for the protection of sites and management of the Fund. The management of operations of each is given by PACT to national and international NGOs

Monitoring and Evaluation	Evaluation of economic impact of tourism has been done in the past. Evaluation of the value and impact of environmental resources has been limited	An economic valuation of the benefits from environmental services (including tourism and recreation) been conducted. WTP studies have been done as well as monitoring of the reef	There is ongoing ecological and scientific assessments and some monitoring and evaluation of the programmes are done by outside contracts and some within by technical committees. Impact studies on cruise tourism and environment are under consideration. WTP studies done
Impact and benefit to the communities	Effort to institute stakeholders co-management schemes and involve local communities, through concessions granted to communities and entrepreneurs to manage facilities	Environmental education at primary and secondary schools, edutourism, research on alternative livelihoods for the locals such as conch and seaweed production schemes	Encourages and facilitates the participation and supports local communities with driven projects and local initiatives, environmental education mainly in the areas and communities adjacent to the sites
Effectiveness in terms of accomplishing environmental objectives	Monies collected contribute: Maintenance of solid waste land fills and other environmental services, constructions and operations of facilities in protected sites	Success resides in tangible results of the diverse environmental resource programs	Responsible for the protection of 94 public and private areas and their conservation.

SECTION 4. Lessons learned

Following, is a summary of lessons learned derived from the three good practice cases and other examples discussed earlier in this paper. These cases provide us with some insight on the potential, constraints and opportunities of the development and implementation of PES schemes and the use of specific funding mechanisms in the tourist sector.

1. Continued tourism growth requires concrete actions and integrated policies

Tourism will continue to grow, and the Caribbean is not an exception. As a consequence, it will continue to develop especially in areas that are more attractive to tourists because of their natural beauty. Some of these attractive places have been recognized as the most sensitive biodiversity “hotspots” and ecosystems in the world, as is the case of the Caribbean reef. This situation poses a threat to natural resources and the environment. Those countries depend economically on the tourism sector for their subsistence and progress.

The natural resources of these countries are affected by several threats, mainly human-related activities and those related to the tourism sector. As in the three cases of continuous tourism growth and environmental pressure in Belize, Tobago and Dominica, it is not only important to recognize the threats and value of these resources but also to take corrective actions based on clear strategies and the implementation of initiatives for the correct and most efficient use of these limited resources.

Trying to exclude environmental issues and to focus strictly on short run profits is bad business. Satisfying only the immediate demand, being careless about the use and preservation of natural resources and the services they provide for the tourism industry to succeed is like killing the goose with the golden eggs.

2. Choosing the institutional and regulatory framework

Some corrective actions, as in the case of Belize, and the formulation of an independent government body (PACT) exclusively responsible for the protection and management of protected areas might be considered necessary in many Caribbean islands. In addition, it can become more effective than traditional institutional and regulatory frameworks, as in the case of Dominica, which requires an overhaul to guarantee the economic and financial sustainability of the services in question.

Through the case studies and examples herein presented, we learned that the funding mechanism being sought, requires an appropriate institutional and regulatory set up. This is crucial for the efficient management of environmental services. Whether the PES scheme is managed independently as an NGO structure, as in the case of the BRT, as a parastatal government entity as in the case of PACT, or by a centralized government such as the case of Dominica where services are regulated by laws of different government agencies, it all depends on each particular case and context.

Although new legislation may or not be required, it is very important that each PES scheme conform to the reality of each country and not vice versa, and adapt the scheme to fit a donor or specific funding mechanism. More autonomous and independent entities (semi-official, private, or non-profit) are essential to assure the efficiency and effectiveness of any type of PES scheme under consideration. PES schemes must be not only well managed but transparent in terms of the use and allocation of funds.

The creation and development of independent organizational structures, like PACT in Belize, represent an innovative strategy for the generation of non-traditional revenue to support environmental management practices and compensate for environmental services to and from the tourism sector.

The existence of a foundation or a similar type of framework like the Buccoo Reef Trust as a non-profit NGO facilitates the procedures to allow and raise funds, receive gifts, grants and other donations from individuals, corporations or other foundations, including bilateral and multilateral organization programs that current legal structures do not permit.

3. Constraints of the evaluating methods of Environmental Service

One weakness found in these environmental service payment schemes is the lack of consensus regarding the total valuation of said services and the need for further research. For instance, three islands, namely St Lucia and Trinidad and Tobago, are now starting a project for the full valuation of coastal resources and their reefs, including the economic value contributed by the tourism sector.

In these three cases and in other examples from the Caribbean presented in this paper, we can see the willingness on the part of tourists to pay for the use and conservation of environmental services, which they consider indispensable for the sustainability of each destination and their own enjoyment as well.

Logically, not only international tourists benefit from these resources, local ones do as well. Unfortunately, a clear problem is that most user fees are currently used as a financing mechanism to contribute to the conservation and the compensation of environmental services that have been established at a value lesser than the one originally assessed and recommended.

The payment and compensation of environmental services (PES) represents a new way to promote the conservation of the natural resources. Environmental or Ecosystem services are the benefits that individuals get from natural capital (nature), such as energy derived from water, drinking water, clean air, atmosphere, biodiversity, and ecosystems that make our life possible on the planet. This is in addition to the benefits that they provide in terms of scenic value and recreation, as is the case of tourism-related activities.

This is the way to compensate for externalities created by market conditions where user fees are not only based on economic marginal utilities but include the value of nature and social capital. Paying for environmental services in the tourism industry is a way for society to acknowledge its responsibility for the sustainable management of its resources and their future.

When externalities are not considered and built into the system and if users of these types of environmental services do not compensate the providers of said essential services, two things will happen. Free access to the use of the shared use resources creates negative externalities among users and providers, which finally leads to the over exploitation of such resources, as it has been the case of many islands in the Caribbean region that have been seriously affected by said externalities.

Undervaluation of public and semi-public goods on the part of the public sector continues to generate a non-stop deterioration of tourist destinations, since public investment deficits reduce the profitability of tourism services, which in turn affects the industry's private sector.

The environmental degradation caused by this situation, in combination with an obsolete infrastructure of basic environmental services of some tourist destinations, may be one of the main reasons for the loss of competitiveness that many countries in the Caribbean face today.

4. Limited experience of PES practices and funding mechanisms in the Caribbean

A few cases of PES schemes have been developed in the Caribbean region to enlarge and design PES schemes in the tourism sector. It is necessary to learn from previous experiences in other sectors, such as the contribution to the forestry sector, water resources, and biodiversity that indirectly contribute to strengthen the tourist product and landscape beauty.

According to this research, it is not possible to say that the Caribbean region currently has a formal PES scheme specifically established for the tourism sector. PES schemes are just starting to be taken into account and recognized, compared to other Latin American countries that already have several programs, some of which have already shown good results. What is a reality in the Caribbean region is the need to integrate awareness and promotional programs to bring the benefits of the schemes out to all the stakeholders involved. The different institutional boards must also have a wide participation of stakeholders including the local communities.

In this paper, we discussed different financing mechanisms and the way in which they operate. The effectiveness of the chosen mechanism does not depend on the mechanism itself but rather on the ability of the mechanism to contribute to molding the consumer's behavior and convince the tourism industry of the need, importance and significance in terms of its contribution to the sector and the environment. The good practices examples in the Caribbean region concerning the compensation of environmental services can hardly be documented, but research offers enough evidence that this is possible if there is a clear understanding of the issue, as well as a willingness and support on the part of all stakeholders involved, as in the case of the BRF in Tobago.

PES schemes in tourism should not necessarily involve cash and they can be calculated in different ways, including fiscal incentives, credits, educational and awareness programs, and even compensation through exchange of goods, tourism services, labor, equipment, and infrastructure.

In terms of funding, it has been recognized that locally funded PES schemes contribute to long-run economic self-sustainability, however, funds are critical at initial stages, especially for conducting technical studies and demarking territories. Besides, one of the key successes for any type of financial mechanism lies on its management capacity to capture resources from different contributors and donors, as with the Buccoo Reef Trust.

George Washington University, Conservation International (CI) and the United National Environment Programme (UNEP) have developed a database that includes the details of over 350 sustainable development projects being financed by 55 developmental agencies around the world, totaling over 7 billion dollars within a 5 year period. However, it didn't include the private companies that are willing to invest in biodiversity and tourism-related programs.²⁸

Understanding the existing funding mechanisms and businesses is essential to adapting our operating environments. It is also important to know how donor organizations and their funding mechanisms operate in order to get their assistance according to our own scheme, business, and negotiation strategies. This is very clear in the case study of BRT and less significant with the PACT, which depends largely on donors' contribution for the development of its programs.

5. Mass tourism and diversification

Although in some cases the creation of a legal or regulating framework is not a precondition to adopting and implementing a PES scheme, these changes alone will not be enough to mitigate some of the existing problems. The impact of incessant infrastructure development and unregulated and/or uncontrolled massive tourism must be taken into consideration in each country in the region to reinforce and complement any type of scheme.

The diversification of the tourism product in the Caribbean is also essential to balance the present impact of SSS tourism. Nature-based tourism and activities complement traditional SSS tourism activities such as soft and hard nature tourism combined with a recent demand for adventure tourism activities. This includes, for example, trekking, canopying, fishing rafting, tubing, horseback riding, canoeing, and climbing) which are all activities that stimulate the well-being of individuals in open areas; complement other land and water-based activities, such as ecotourism, agro-tourism, edutourism, geotourism, ecoethnic tourism and many others that contribute to the merging of nature, biodiversity, scenic value and tourism. The potential of agro-tourism has been clearly illustrated in the Dominican study as an example of diversification.

6. Buy-in of the tourism industry and PES

The tourism sector is a highly competitive global industry that operates with narrow profit margins. Any PES scheme considered appropriate must promote the removal of subsidies, penalize any degrading activities, and replace taxes for more positive incentives in order to promote market activities that attain sustainable economic and environmental objectives.

It is essential that the any type of PES design guarantee industry players and stakeholders that the funds collected under the scheme will be invested in activities where the funds have been raised. Tourists are willing to pay but, as we observed in the case the of Buccoo Reef Trust, they want to see tangible results to their pledges in return. Less effective and transparent is the case of Dominica where all funds collected go to the main government to be distributed for different purposes and agencies.

7. Communication strategy and stakeholder participation

Compensation modalities and payment mechanisms have been discussed in this paper, but it is imperative that these be discussed in advance by all relevant actors, users and providers and, especially, by those most affected by said scheme. It is also crucial that any type of action be taken, as for example, the introduction of fees along with a strong communication strategy and leadership on the part of agency boards (directors and advisors), as in the case of PACT and BRT. In-house marketing is essential to promote and disclose continuous information.

Caribbean countries must realize that their citizens have to understand the critical need to solve the issue of self-managing and protecting valuable resources. This can only be achieved through active public and private participation of all stakeholders involved.

Section 5: Recommendations on PES Tourism Schemes and Challenges

This study has drawn recommendations for Payment for Environmental Services in the tourism sector for the following groups and actors in the Caribbean Region: a) policy and decision makers in local and national governments; b) local organizations, tourism sectors, environmentalists, economists and ecologists; c) academic institutions and research centres; d) organizations cooperating and executing programmes and projects and; e) regional tourism and environmental organizations represented in the Caribbean.

1. PES and the cost of air travel

In developing countries, tourism is largely based on air travel which has negative repercussions on the environment. For instance, if warming caused by all pollutants emitted by aircrafts can be up to three times that exerted by CO₂ alone (Prather & Sausen, 1999)²⁹ air traffic and its continued growth should be examined carefully. CO₂ emissions result mainly from the burning of fossil fuels and changes in land use.

If air traffic has the greatest impact on global warming per unit of energy used, the compensation of environmental services to travel to a particular destination should be the focus of PES schemes for the tourism sector.

It has been estimated that a two-week vacation for one person to a developing country might, on average, entail emissions of CO₂ equivalent to 3385 kg. It can therefore be concluded that the present levels of air travel are not sustainable (Gosling, S)³⁰. Taking into account the effects of nitrogen oxides and water vapor, air travel to a destination is responsible for almost 90% of the vacation's overall contribution to global warming. With regard to fossil fuel energy utilized in the destination for the same two-week package, 25% can be attributed to the destination's share (Gosling). Here, local transportation, cooking, cooling, clearing, import of food and produce, water use as well as other services required by tourists are included.

In order to increase the sustainable use of resources in tourism and readdress this stunning issue, PES schemes should charge users to compensate for the environmental services provided directly or indirectly in order to entice said users to use less resources and providers offer renewable energy sources to substitute fossil fuels.

In order to reduce the present impact of the increasing CO₂ concentrations in the atmosphere, some forestation programs have been suggested as a means to decelerate the accumulation of carbon in the atmosphere. This may well apply to a tourism PES scheme.

Some researchers have suggested the introduction of an environmental user fee in the price of each airline ticket that will directly go to pay for reforestation projects. Increasing the cost of travel may not only help to compensate for these externalities but also to make individuals consciously aware of the environmental footprint of their travels (Gosling).³¹

Costa Rican authorities are developing the brand "C-Neutral" whereby it will certify, among other industries, tourism activities capable of mitigating all CO₂ emissions produced. The tourists will purchase "clean tours" by paying a tax equivalent to all CO₂ emissions produced to travel by all different travel modes. The value of each CO₂ has been estimated at US\$ 10 per ton. The revenue collected will be managed by government agencies allocated for the conservation of the natural resources and reforestation projects. This will start operating as a voluntary mechanism to compensate environmental services provided. The domestic airline "Nature Air" will be the first

considering the PES compensation on the price of the airlines tickets within Costa Rica. With this effort, US\$ 40 million are expected from this initiative by 2012.

2. Reforestation

"A single rainforest tree, during a lifetime of 100 years, returns at least 10 million liters of water to the atmosphere alone, and relates to other important aspects of efficient land use, namely as a source and retainer of water, and offers scenic beauty for us to enjoy".

Reforestation can provide alternative income and jobs to the communities that depend on these resources, contribute to biodiversity and ecosystems services, divide sources that provide us with renewable energy and drinking water services, and offer scenic value and tourism recreation services as well.

3. PES and Scenic Value

In terms of scenic value, rents are required to maintain and upgrade the required beautification that has made the Caribbean so attractive as a tourism destination. Scenic value is one of the key resources for the success of its tourism product. Stanley Plog, one of tourism's most profound thinkers, argues that the relationship between beautification and economic development in tourism will continue to grow. Therefore, it is necessary not only to continue taking advantage of these benefits but also to create mechanisms to sustain these resources.

Consider perhaps the development and implementation of a funding mechanism in a tourism PES to compensate for the environmental services that nature offers when we travel (which can assist to develop integrated tourism plans, clean-up programs, upgrade facilities and infrastructure). These funding mechanisms may encourage new tourism activities and reforestation programs in rural and urban areas, including cities, address and solve problems of visual and noise pollution and teach locals about the value and costs associated to a clean environment and its importance to tourism.

Aesthetic value is a fundamental component of the tourism destination equation that can contribute to the sustainability of the sector. Unfortunately, at present, resources like landscape, with a noticeable influence on the quality of the visitor's experience, is not yet being acknowledged and further research is required for consideration in any eventual PES scheme related to the tourism and recreational sectors.

4. Scenic Value versus landscape in PES

A possible mistake when assessing the scenic value would be to use the traditional conservation approach, which is focused on a strictly territorial viewpoint that visualizes the same as a homogeneous set of natural ecosystems.

In contrast with this utopist concept of untouched nature is the landscape perspective, which captures the value and complex heterogeneity of the world, from a different perspective, including the relationship of the soil and forests, agriculture, urban zones, and recreation. Any approach to view scenic value must also consider the value and importance of human settlements and activities. Therefore, a broader definition of scenic value is crucial. Ugly and heterogeneous does not necessarily imply not valuable in terms of scenic value. Part of the geographic collage and the interaction of the ecosystem include all human activities.

Being multifunctional by definition, and offering several services, landscaping avoids the risk of evaluating environmental services from an isolated point of view in terms of the negative and positive impacts on local communities. A broader concept will allow us to include not only a determined zone within an ecosystem, but perhaps land for agricultural, rural, and even industrial, coast and urban zones, as a strategy to understand a more realistic aesthetic view and the scenic value, and therefore provide more meaning to the concept and its implication in terms of payment.

5. Disbursement, allocation of PES funds and shared benefits

It should be a prerequisite for all PES schemes to disburse and ensure the direct or indirect funds or compensation in those areas where tourism-related activities take place

A typical problem, such as in a Colombian PES scheme, is that only 20% of the funds channeled to the regional development authorities and the implementing agencies for watershed protection were actually used in investment and conservation activities in order to generate water-related environmental services. The fund should be a completely independent body and stay apart from economic and political pressure. Funds collected at the source must be used at the source for the purposes already established. In Colombia, there is a law that requires that 6% of the value of water produced at a watershed be returned into the watershed of origin. This law states that 90% of the money collected must be allocated to investment and 10% to administrative expenses. In practice, this law is not observed and approximately 50% is used for administrative expenses and previous studies.

For the scheme to be credible and effective, the PES' design must guarantee that any type of funds or resources collected be directly reinvested with concrete action plans for where the funds have been raised for the benefit of all sectors, including communities. There must be discussion and debate prior to its implementation by all stakeholders affected.

The important issue in any market creation event is to ensure that the fair share of the benefits be correctly channeled to protected and conservation areas. Unless this is achieved, nature-based tourism will not be good for businesses and will have serious effects on the resources' sustainability. Most tourists interviewed consider NGOs as the most trustworthy type of organization to collect and manage entrance fees. (Ari, Kramer 2002)

6. PES Institutional and legal framework

Some PES schemes operate without a specific legal framework. In particular cases, a legal framework might not be necessary for the establishment of a PES scheme. Agreements and strategic alliances between providers, beneficiaries and environmental authorities can be enough to implement the scheme. Confidence and trust between user and providers is essential and a trustworthy intermediary is considered more important than a legal framework. (FAO 2004). The idea of creating a legal framework contributes to formally defining the regulations and to facilitating dissemination. However, each case must be studied according to the existing legislation of each country.

7. PES and community participation

PES schemes also serve to solve disputes concerning the allocation of resources between stream and downstream users and to clarify access rights over water and land resources (FAO 2004). This can be of considerable benefit in terms of community development in rural areas.

Ensuring the acceptance of any PES scheme (and the funding and disbursement mechanisms by all stakeholders and the most affected individuals and communities) is essential for any scheme. Participation of stakeholders in all stages of the development and implementation of the said scheme is also highly recommended.

8. Economic Sustainability and Management Capacity

The success of the application of PES schemes as a direct or indirect form of compensation of nature capital from the tourism sector will depend on many managing and capacity factors that will influence the likelihood of its success. We go into more detail below.

a. For starters, PES schemes must be designed based on the national reality of each country, in such a way that there will be incentives for the permanent improvement of such scheme as well as for the benefit of all stakeholders and affected parties. Political willingness and understanding of environmental economics and tourism is essential. There must be a certain management

ability to capture funds from local and international users and donors and provide incentives and enforcement of penalties whenever required

b. Understanding the existing donors, funding mechanisms, and the business philosophy is essential, including alliances, partnership and cooperation schemes with local, national and international organizations.

c. It is necessary to create sufficient information to assist in the promotion and marketing of the programs abroad and in-house marketing for effective buy-in from all stakeholders.

d. Contemplate the use of ancillary tourism services in a variety of product development forms to capture additional income from tourists to protect the natural resources of a site and for ES, including considering concessions, leasing operations for commercial activities in the given destinations and sites.

e. Supporting product diversification and new forms of nature tourism activities, including ecotourism, agro-tourism and other forms of tourism, balances the impact of mass tourism activities and should become an integral part of any tourism PES scheme's strategy.

9. Improvement of assessment methods and criteria to value environmental resources and get a fair pricing of the services

More benchmarking is necessary to learn from experiences and apply to tourism sectors. For example, more research and studies are required to develop criteria and methods to assess the value of environmental resources and their contribution to tourism in a particular site or destination, including the valuation of scenic value based on beatification and landscape offered to tourists.

More conclusive research and action is required regarding the impact of the cruise industry on the Caribbean and the possibility to somehow apply PES schemes to the tourists or said industry. Studies reveal that cruise line passengers are willing to pay more for cleaner cruises. In a recent ocean survey, 6 out of 10 surveys indicated that tourists were willing to pay more to ensure that a cruise line did not pollute the ocean.

For example, it has been recorded that, on average, a cruise ship generates 30 thousand gallons of sewage, 225 thousand gallons of dirty water from other activities on the ship, and 7 thousand gallons of oily bilge water (sometimes the laws of certain countries prevent this) that are dumped anywhere or somewhere in the ocean every day. With regard to emissions, the daily smokestack and exhaust emission of one cruise liner is equivalent to 12 thousand cars, giving evidence that cruise ships, as well as airplanes, consume valuable environmental services that nature capital provides for their operation. (Oceana)³²

In some cases, fee adjustments might be required to adjust the "willingness to pay" to fair pricing and the "ability to pay" from local possibilities for the payment of environmental services. New compensation options should be explored and considered by the countries of the regions and for the region's PES implementation agenda.

10. PES Assessment and evaluation

To improve current PES schemes in terms of auditing systems to track progress and compliance through an independent watchdog body.

To ensure that any implemented certification scheme offers tangible benefits to environmental service providers and allows tourists to recognize the work being undertaken and that the funds are being generated in a transparent and tangible manner for the benefit of the cause itself and any affected communities.

A good verification process to ensure credibility of the service delivery might be required, especially by third parties or certification schemes. Tourists are WTP, but there is a clear condition; private inventors and other beneficiaries want to know that they will get what they paid for. Independent third party certification would assist the PES schemes by gaining public confidence and credibility. However, verification and certification increase transaction costs and the certification programs of the Caribbean, like Green Globe and Blue Flag Schemes, do not include direct criteria and indicators to measure the specific conditions necessary for evaluating the use of environmental services, which should be taken into consideration in the near future.

Often, the results from resource assessment studies are not implemented and many of the estimated tariffs are frequently approved for reasons other than the recommended ones, thus creating externalities that are not covered. Governments and entities must find creative solutions to finance these studies in different ways or else, they would overlook said areas or destinations, which would cause deterioration and obsolescence of the product. Nowadays, unprompted tourism development without proper planning can reflect in faster but often disorganized growth, and it is more likely to regress or decline even before the tourism destination reaches its peak consolidation stage.

Loss of attractiveness in tourism for a given destination is related to factors such as degradation of natural and ordinary cultural attractions, insufficient and/or disorganized public investment in infrastructure, and obsolete equipment and compromised services that contribute to the obsolescence of the tourism product. Obsolescence usually leaves the industry with little time to adapt to growing demands.

The use of an independent agency to monitor and evaluate the PES scheme through the development of indicators for certification (at different levels for national, regional and international certification programs) might be necessary. The certification programs must also be encouraged to adopt new evaluation criteria to incorporate the payment and compensation of environmental goods and services into their programs.

11. Environmental education and awareness

Finally, understanding that tourism is everybody's business is fundamental to exercise the responsibilities for the use and value of these environmental services. Human resource development is time-consuming and a slow process. To value tourism is to value our environmental resources. Sustainable tourism has to do with educating ourselves from a very early age regarding our responsibility and the understanding that if we continue depleting and disregarding the natural capital that provides us with the food and product life chains, any type of sustainable equation will be irrelevant, the tourism industry included.

The environment is the greatest economic and natural asset that Caribbean countries have to offer visitors. For example, the introduction of additional user fees can contribute towards this objective and benefit educational programs at all levels.

As established before, the interaction between tourism, environment and rendered services can be negative, especially when tourism results in uncontrolled growth and unpaid environmental services to the point that the use of these resources will adversely affect the continuous and sustainable growth of tourism itself. Positive interactions, including the development and implementation of PES schemes in the tourism sector, can compensate for the natural capital in many ways as well as increase the potential for quality tourism.

Tourism can be a double-edged activity. It adds in many ways to socio-economic achievements, but at the same time, if tourism development is uncontrolled and not properly managed, it causes major environmental damages. It is fundamental to understand the value of natural capital and for the tourism industry to compensate for the use of resources and services provided for the recreation and enjoyment of tourists and local communities as well.

PES mechanisms also serve as instruments to raise environmental awareness among stakeholders by assigning tangible economic value to the services and compensating for externalities, which usually have no price associated to them. Service providers realize that there is benefit if their land and resources are used under a conservationist system that allows them to produce while ensuring the conservation of the resources at the same time.

Service users have begun to realize the economic value of the environmental services they enjoy and will try to save them. In addition, providers will be more cautious when exploiting the resources and services provided. As the tourism sector continues to grow so does the potential to draw from different types of revenue from the tourism industry to compensate for its growth, use, exploitation and value of environmental goods and services for sustainability purposes in the Caribbean region.

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