Environmental Management Insertion in Tourism Sector Policies in the Caribbean

Final Report

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TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **IV**

INTRODUCTION **1**

CHAPTER 1 - REVIEW OF EMPIRICAL TRENDS IN CARIBBEAN TOURISM **3**

CHAPTER 2 - THE BARBADOS CASE STUDY **19**

2.1 : Introduction **19**

2.2 : Environmental Impacts of Tourism in Barbados **19**

2.3 : Environmental Management Policies in Barbados **26**

CHAPTER 3 - THE BAHAMAS CASE STUDY **34**

3.1 : The Bahamas Physical Environment **34**

3.2 : Benefits of The Bahamas Physical Environment in Tourism **36**

3.3 : Negative Physical Environmental Impacts **37**

3.4 : The Biological Environment **42**

3.5 : Benefits of the Bahamas Biological Environment in Tourism **43**

3.6 : Impacts on The Bahamas Biological Environment **44**

3.7 : The Socio-Economic Environment **45**

3.8 : Socio-Economic Environmental Impacts of Tourism: Resident Views **47**

3.9 : Negative Socio-Economic Impacts of Tourism **49**

3.10 : Environmental Policies & Tourism In The Bahamas **52**

3.11 : Bahamas Tourism Policies and The Environment **56**

CHAPTER 4 - THE ST. LUCIA CASE STUDY **68**

4.1 : Introduction **68**

4.2 : Environmental Impacts of Tourism in St. Lucia 68

CHAPTER 5 – THE TOBAGO CASE STUDY.....82

5.1 : Introduction 82

5.2 : The Economic Contribution of Tourism in Tobago 82

5.3 : The Environmental Impacts of Tourism in Tobago 83

5.4 : Review of Tourism Policy Framework 90

CHAPTER 6: SUMMARY AND RECOMMENDATIONS.....108

General Summary Observations And Recommendations 109

General Policy Recommendations 112

Case Study Specific Summary Observations And Policy Recommendations 113

REFERENCES 120

APPENDIX 1 – STATISTICAL AND RELATED TABLES 125

APPENDIX 2 – FOCUS GROUP REPORTS.....144

APPENDIX 3 – ANALYSIS OF SURVEY OF HOTELS AND TOURISTS.....158

APPENDIX 4 - HOTEL SURVEY BY COUNTRY.....163

Barbados 163

Bahamas..... 165

St. Lucia 167

Tobago..... 170

EXECUTIVE SUMMARY

Environmental Impacts of Tourism and Related National and Tourism Sector Policies Which Address Such Environmental Impacts

This study is concerned with the insertion of environmental management in tourist sector policies to ensure that threats are recognized and addressed Four main characteristics of Caribbean tourism provide the rationale for this study. First, tourism is the single most common industry in the region - particularly in the island economies. Second, tourism is the fastest growing industry in virtually every Caribbean country, including those in which the sector is not presently an important economic contributor. Third, tourism also is the most important and, sometimes, the only productive sector in some of these economies. Finally, the environment (ecological and socio-cultural) which is the economic 'goose' that explains the initial three characteristics above - is under significant threat in several Caribbean tourist destinations.

This Report begins with an Executive Summary and is then followed by five (5) Chapters. Chapter 1 provides a review of the empirical trends in Caribbean tourism encompassing both the economic and environmental. This is followed by four island case studies including summaries of focus group meetings with hoteliers in all four case study destinations together with surveys of tourists in Barbados, St. Lucia and Tobago. Chapter 2 is the first island case study of The Bahamas The following three (3) chapters (Chapters 3-5) provide similar island case studies of Barbados, St. Lucia and Tobago, respectively. An Executive summary is now provided of each of these five(5) Chapters.

Empirical Trends in Caribbean Tourism and Environmental Stress

During the past decade, the Caribbean experienced robust growth as the number of tourists, hotel rooms and expenditures doubled. As the most tourist-dependent region in the world, the Caribbean visitor industry accounts for a fifth of all exports and capital formation and roughly a sixth of GDP and employment. For the smaller islands of this study, with the exception of Tobago, tourism is significantly more important. For Bahamas, Barbados and St. Lucia, tourism represents roughly 30-50% of total employment, 50% of GDP and over 60 % of exports and new capital formation. According to an index of tourism penetration, Bahamas and Barbados are characterized as destination approaching mature Stage III designation defined by high-density visitation, mass-market promotion, large-scale plant and infrastructure and high susceptibility to ecosystem damage. St Lucia is classified as an intermediate Stage II designation defined by rapid visitor and hotel room growth and socio-economic change. Such dynamics are similar to recent trends in Tobago. Although the four study islands differ considerably in scale and level of development—from Bahamas (3.5 million visitors and 14,000 hotel rooms) to Tobago (some 200,000 visitors and 2,600 rooms) they

all require policy attention because their growing dependence on tourism has placed their fragile ecosystems at risk.

Evidence from the literature suggests that the scenic terrestrial and marine assets of the Caribbean are in long-term decline. This is the result primarily of three forces: (1) a colonial tradition of environmental neglect and damaging sugarculture, (2) contemporary institutional and enforcement weaknesses, and (3) intrusive large-scale mass tourism development in the postwar decades. Condominium clusters and road works on steep hillsides have damaged watersheds and forests causing erosion, silting over streams and wetlands, and polluting lagoons. The doubling of tourist arrivals over the past decade has been accompanied by a doubling of solid waste. Mangrove forests and salt ponds have been destroyed by the construction of resorts, marinas and infrastructure along shorelines, depleting endemic species and archeological artifacts. As a result, the wider Caribbean region ranks second in the world in threatened bird, reptile and amphibian species and third in endangered mammals and marine species.

Marine resources have been damaged from inland sources by eroded sediment loadings, sand mining and the discharge of municipal waste and untreated hotel sewage. Sea-based threats have included over fishing, channel dredging, boat anchoring, and pollution from yacht and cruise ship sewage because of inadequate port reception facilities. As a result, fish catch in the Caribbean is down 50% since 1984, and roughly 30% of the region's reefs are at significant risk. Continued deterioration in environmental quality and biological diversity is projected to accompany the growth of tourism over the next decade unless alternatives to the traditional mass-market strategy are designed and implemented. This is the direction of the present study.

The Case of The Bahamas

Tourism in The Bahamas is today its most significant economic activity. It employs approximately 50,000 people, which is approximately 50% of the Bahamian workforce, makes up 50% of the country's GDP and earns over US$1.8 billion in foreign exchange from tourists spending. Based on its ability to create jobs, earn foreign exchange and generate income, the government of The Bahamas expects tourism to remain the dominant industry of the country for the foreseeable future.

Given this significance of tourism now and in the foreseeable future, the need to protect the tourism product which itself, is the environment of The Bahamas, takes on greater importance in this mature tourism destination. It is, therefore, not surprising that environmental aspects overlooked in the past, are now receiving attention by both government and private sector in their overall recognition of the need to maintain a high quality tourism environment by implementing policies and practices that contribute to preserving it. In fact, in The Bahamas, government agencies and hoteliers alike are now more environmentally aware than in the past and they have, to some extent, been incorporating environmental issues into their respective policies and day-to-day business operations. These steps to incorporate such issues into hotel and tourism decision-making and legislation is also of particular significance as hotel and tourism development

is now beginning to extend across The Bahama islands from the developed destinations of Nassau/Paradise Island (Nassau/PI) in New Providence, and Freeport on Grand Bahama to its "undiscovered" or "emerging" tourism destination islands such as Andros and Exuma where the intention is to increase eco-tourism in these pristine areas.

This review, however, highlights that environmental damages, whether or not solely due to tourism, that have already taken place in The Bahamas and will continue to do so with the continued development and expansion of its hotel and tourism sector. If hotel and tourism practices do not change significantly and if developed policies are not properly implemented and monitored environmental impacts can be exacerbated. Of note in this review is the fact that while government environmental policies and legislation abound in The Bahamas, they are targeted at general concerns for the protection of the general physical and biological environment of the country. They, therefore, do not form part of environmental insertions in tourism sector policies. There is, thus, a clear need for specific environmental issues that could be addressed by the hotel and tourism sector to be targeted for inclusion in tourism sector policies as existing policies are too general or lacking in the handling of critical environmental issues.

In evaluating the environmental impacts of tourism in The Bahamas, a background examination of the general physical, biological, and socio-economic environment of the country indicates supports that these environments are impacted by tourism in The Bahamas. Survey results on the country's tourism environmental impact perceptions of residents and tourists in Nassau/PI conducted between November 1997 and March 1998 also provides additional support. In terms of summary, conclusions and policy recommendations a number of key observations can be noted in terms of both environmental impacts of tourism and related environmental policies. The first observation is that the empirical evidence on deterioration in the natural environment is spotty at best throughout the region. Second, even where data exists it is difficult to distinguish the impacts from tourism and from other sources within the society or from marine-based sources.

Box (i)
Stakeholder response to environmental priorities in the tourist sector in the Bahamas

It was pointed out that the licensing requirements for all hotels - under the Environmental Health Services Act - requires hotels to obtain an annual license approved by the Department of Environmental Health in relation to emissions, effluents and solid wastes and other health risk areas within hotels. However, there is no specific environmental policy for hotels. Solid Waste preoccupied the discussion as the main environmental problem facing the country. Hotels were willing to participate in solid waste separation programmes but considered this useless as all waste is still dumped at the same official site with no sorting for recycling purposes. The non-existence of recycling facilities for paper, cardboard boxes and other commonly generated solid wastes was viewed as a distinct drawback in to effective solid waste management by the hotel sector.

It also was pointed that there is a government requirement for large hotels to make use of their own sewage treatment and reverse osmosis (RO)plants with regular inspections to ensure that these plants continue to operate safely. However, it was acknowledged that it was not feasible for all hotels, particularly small ones, to even think of installing an RO plant given the cost and space needed for this. It was felt that government assistance by way of import duty concessions could be given to hotels in this area. Only one of the hotels represented at the focus group meeting was involved in obtaining some form of green certification (GREEN GLOBE). The other hoteliers were not disagreeable to involvement in a green certification programme but noted that this was a very costly exercise. One of these hoteliers related the large capital investment recently spent in retrofitting light bulbs to the energy efficient type. The hotels has now to recover from this before it can get into any other major programmes as required by green certification boards. European tour operators were reported to put the safety of their clients directly under the responsibility of hotels and so they are more demanding that hotels are environmentally responsible and safe. In fact, these operators are placing more and more pressure on hotels to abide by certain environmentally safe standards and in the future any hotel not willing to abide by these standards may find itself out of business.

There were six main conclusions from The Bahamas focus group meeting. First, there is no specific environmental legislation for the hotel & tourism sector in The Bahamas although there is a high level of government environmental laws for the country. Second, hotels would have to respond to the pressure from tour operators for environmentally sensitive accommodation if they are to remain competitive. Third, The Bahamas Government should play a supporting role by encouraging the hotel sector to participate in environmentally responsible practices and in achieving various green certification standards and should not try to enforce additional environmental legislation on this sector. Fourth, The Bahamas government should seek to ensure that existing environmental laws are enforced and the required penalties are carried out. Fifth, the Bahamas government should provide a comprehensive set of incentives specifically to the hotel and tourism sector to encourage its greening on a large scale. Sixth, a recycling plant is greatly needed in The Bahamas.

The Case of Barbados

The major biotic communities in Barbados are the Coral Reefs, Mangroves and Sea grass beds. These communities are monitored by the CZMU and UWI. A number of entities monitor other terrestrial biotic communities. Fringing reefs on the West Coast have also probably deteriorated as a direct consequence of pollution from the intense hotel and residential developments occurring along the coast. In 1994, the IDB estimated that between visitor and local residents, 150,000 tonnes of solid waste are generated annually. A major factor contributing to coral reef decay and deterioration of nearshore water quality is wastewater pollution particularly from hotels as a result of poorly maintained septic tanks and package treatment plants. In 1991 the Government with the support of the IDB started a Coastal Conservation Feasibility Study as well as a project in institutional strengthening. These two projects form the core of the Integrated Programme for Coastal Zone Management (1994) to protect country's coasts from erosion and decrease environmental degradation.(UNEP Regional Seas Reports and Studies No. 172) In the case of Barbados, many of the Coral reefs have been damaged or totally destroyed. The Mangroves have also been wiped out leaving one mangrove (Graeme Hall Swamp), which is now under heavy monitoring and management because of its exclusiveness.

Coral Reefs

There are mainly three types of reefs found in Barbados, these are fringing, patch and bank reefs. In Barbados the fringing reefs are found on the West Coast of Barbados extending 100-200 m from shore and separated from each other by sand areas. Patch reefs are common along the West and Southwest coasts, occurring in shallow water between the shore or fringing reefs and bank reefs. Bank reefs occur approximately parallel to coastline, at 500-1200 m from shore, along the west and southwest coasts. In terms of Fringe reefs, surveys that span 1982-1993 shows that on the west coast there is increased algal cover on the coral reef and that there has been a reduction on the species on these reefs, in particular *Diadema antillarum. Also* Hunte & Allard (1994) found that the abundance of the corals decreased between 1987 and 1992.

Causes of degradation in corals in Barbados:

Water Quality- corals are highly susceptible to changes in water quality such as eutrophication (raised nutrient levels), sediment loads, turbidity, temperature, salinity and toxic chemical load. In Barbados there are three sources of increased sediment run-off, these include fresh water runoff from 169 intermittent natural watercourses, storm water drains and drainage pipes. Secondly dredging and land reclamation and construction. According to Oxenford (1994), the construction of large number of coastal properties (i.e. hotels, guesthouse and marinas on the south and West Coast) and beach and sub-marine sea defenses many of which infringe on the recommended setbacks, results in severe sediment plumes. This has the impact also of interfering with the natural seasonal movement of nearshore and beach sediment.

Eutrophication

Ground water seepage along the coastline has been a major source of eutrophication in Barbados and this has had the effect of increasing the plankton growth, reducing water transparency and eventually the death or bleaching of corals. One of the main sources identified by Lewis(1987) is that the ground water in the coastal zone is particularly rich in nutrients , especially nitrates, as a result of a high density of coastal properties having

only suck wells for sewage disposal and in the case of some hotels, the sewage being discharge untreated into the sea.

Recreational Use

Intensified recreational use of coastal areas, associated with increased tourism, contributes to reef deterioration. Standing on reefs and littering on reefs are common problems in Barbados, in certain location such as the Bellairs south fringing reef in front of the Folkstone Park, which is heavily used by cruise ship passengers (Oxenford 1994).

Anchor Damage

Sports dive operators in Barbados have reported anchor damage, to be a serious problem at most of the popular dive sites on the west and south coast. Indeed, according to Edwards (1994) , of the 37 diving sites reviewed, 95% of them were damaged by dive boat operators taking out tourists to explore the reefs. Edwards also stated that though boat moorings were placed to try to eliminate this problem, these (moorings) are poorly designed and add to the destruction of the reefs.

Mangrove Wetlands

Expansion of tourism development along the coast has resulted in the rapid loss of coastal mangroves estimated now to be only one hectare. The red and white mangrove species, *Dhizophora mangle and Laguncualaria racemosa can* be found in the 32 ha Graeme Hall Swamp now renamed the Graeme Hall Bird Sanctuary. Graeme Hall Swamp covers an area of 32 ha in one of the most densely populated areas of the island. The swamp is also home to the widest diversity of resident and migratory birds on the island. There are proposals, however, for this area to be converted into a national marine park (Oxenford et al., 1993).

Chancery Lane mangrove is 16ha but, unfortunately, it appears that development will soon encroach and reduce the area of this sensitive site. The bottom mangrove *Conocarprs erectus* is the only species found in this area. It was felt in the earlier years that swamps were useless areas and their removal for the tourism development was rapid, however, their removal has led to reduced coastal protection , beach erosion and degradation of coral reefs.

Social and Cultural Impacts

Tourism-related tax receipts allow for financial improvements in health and education services to the island. Barbados has always benefited from good quality education and reasonable health services. Both services are free in Barbados. Infrastructural investment benefits are both hosted for the local population and tourists (water and sewage, roads and public transport). As a result, Barbadians benefit from the water systems, roadways and public transportation system. However, these three systems are under stress because of the large demands being placed on them at present.

There are opportunities to acquire tourism-related skills for hotel services and catering, construction and maintenance. These opportunities have seen the creation of the Hospitality Institute under the Barbados Community College along with Building and Construction courses at the Barbados Polytechnic. UWI has also now created a Bachelors Degree within Tourism and Hospitality Management to provide the further training for the industry to the management level.

Despite all of these positive impacts, there are equally the same amounts of negative impacts. The commercialization of traditional welcome and hospitality customs has made the industry more impersonal. This practice takes the locals out of the picture and in Barbados; there was high concern of the amount of all-inclusive hotels created which isolated the tourist to an American type of hospitality.

Damage to family structures and subsistence food production has also resulted. Some years ago many of the west coast homes of locals were sold to foreign investors for large sums of money, in order to erect villas and hotels. Some agricultural land has also been sold for the creation of golf courses. One popular example of this is the sale of Barbados Farms Plantation to Sandy Lane Hotel for the expansion of their golf course. Land speculation in tourism development also enriches some and impoverishes others. This is particularly evident on the West Coast with high land value prices and increased business in general. Displacement of local people to make way for nature reserves is also a concern. This is particularly the case with Harrison's Cave as some of the residents actually live on top of the cave. There have been calls by the relevant authorities to have these persons moved. However, this is a very sensitive issue especially with reflection of the local community of the area.

There is major debate on whether Barbados has lost its cultural authenticity. The globalization of health risks are always a major concern for the Ministry of Health. Barbados has invested around 170 million dollars in a Strategic Programme which the objective of which is to train all civil servants on the HIV/AIDS. Incentives of emigration and urbanization, are not major impacts within Barbados. In general, Barbados benefits from most of the abovementioned positive impacts. However, political scientists argue that Barbados is being neo- colonized with all of the American television and foreign investment apparent. Media and NGO criticisms of tourism-related corruption and abuses of power have never been a major case in Barbados. Environmental Impact studies and Social Impact Studies now are essential requirements for most coastal and terrestrial

projects. These requirements are criticized because of their longevity but can alleviate the careless spending of government funds.

Environmental Management Policies in Barbados

The Coastal Zone Management Act has been established and has introduced a variety of standards and procedures, which are relevant to the management of coastal environment. Examples include setbacks, water quality guidelines and standards and Environmental Impact Assessments. Setbacks provisions for the south and west coasts of Barbados (highly developed tourist area) these are to ensure safety of structures close to shore and also to support landscape conservation measures and a low comfortable access to shore by the public. Also buildings that are on cliff edges are protected. Whenever the approval for construction is given to hotel etc, there are also standards for inspection and maintenance. The Physical Development Plan provides for environmental impact assessment of certain classes of development proposals including projects that are likely to be built on the shoreline or otherwise affect coastal resources.

The Barbados Fisheries Act has specific laws and regulations as regards sport fishing. Licences must be obtained and there are gear restrictions etc which are in place to promote the preservation of stock and corals e.g. no dynamite and poisons in fishing is forbidden and there are laws and fines in place to address the destruction of reefs by anchors. Also the various classes of boat operators have been identified and to ensure the safety of tourist and local sea bathers, the are zones identified for each of these activities. For example offshore limit of 200 meters for powerboats parallel to beaches and buoy markers systems to demarcate swimming areas have also been set out in some areas.

The marine Pollution Control Act, provides government with the mechanisms for regulating sources of pollution and to compel the treatment or elimination of offending discharges. Controlling the discharge of untreated sewage from the hotels into the sea has been a major challenge for Barbados. This can have severe negative health impacts for sea bathers and also the aesthetic value of the area is also diminished.

The main aims of the Marine Areas Preservation and Enhancement Act are to: preserve and protect of marine life in submarine areas of Barbados and the establishment of underwater parks and art centres e.g. The Folkstone Marine Park. Areas of the parks may be designated as restricted area for the preservation and enhancement of their natural beauty, the protection of flora and fauna, the promotion of enjoyment of public and scientific study and research.

The National Conservation Commission Act has as its general responsibility conservation of the natural beauty, topographic features, historic buildings, sites and monuments of Barbados including conserving and developing parks, gardens and cave, also advising on the removal of corals from the ocean bed.

May, 2001 Green Paper on Sustainable Tourism

The Barbados Government also has produced a recent (May, 2001) Green Paper on Sustainable Tourism. In terms of the environment this Green Paper outlines its specific objective as that of promoting: “promote sustainable tourism development through the

protection, conservation and development of the natural environment within its carrying capacity and through education and awareness of, respect for , our unique natural heritage.'

Box (ii)
Stakeholder response to environmental priorities in the tourist sector in Barbados

According to the hotel manager's survey, two-thirds of the hotels are located on the beach, half are large (100+rooms employing over 200 workers), and most (78%) are locally owned. Because of the very high cost of energy, all monitor usage and nearly 90% have implemented energy saving measures. Over half rely on some form of solar power. All expressed interest in a tax abatement policy for the purchase of energy-saving equipment, and the majority agreed to adopt efficient technology within a year of its enactment. Although most hotels monitor water usage and have introduced some efficiency measures, there is limited enthusiasm for a policy favoring water-saving technologies (low-flush toilets, shower-flow savers, etc.) because of the availability of low-cost public potable supplies. On the other hand, solid waste is a serious concern. Most hoteliers have implemented reduction measures, but believe government needs to better support safe disposal of hazardous waste and recycling. A large majority favor and would comply with appropriate incentive legislation. Most hotels use soak away/septic tanks for wastewater, and although managers expressed interest in policy favoring eco-friendly products, few felt it would enhance profitability. Less than 60% showed interest in green certification programs although half had received awards for environmental efforts.

Comments from the focus group representatives paralleled the survey results. Serious problems identified were solid waste, sewage and energy while water conservation and use of eco-friendly products received much lower priority. Several complained there was no supportive government infrastructure for enforcing litter ordinances and for recycling and separating and disposing of solid waste. There were also complaints about the government's slow-paced and disruptive efforts to extend sewer lines across the island. Their suggestions favored incentive policies for purchasing environmental technologies, reducing duties on imported equipment, and earmarking tourist taxes for purchase/upkeep of modernized public installations. They expressed consensus that industry agents were driving environmental standards with 7 hotels already Green Globe certified.

The Case of St. Lucia

Over the last three decades, the tourism industry in St. Lucia has shown continued expansion as a means of diversifying the island's economy away from the agricultural sector. During its initial stages of growth, sectoral development was largely unplanned. However, increasing negative social and environmental impacts necessitated controlled tourism planning over the last decade. This was evident by 1993 when a separate ministry was created for tourism.

The St. Lucia Medium Term Development Strategy 2000-2002 juxtaposed with the Tourism Strategy and Millennium Action Plan are the working documents of the Ministry of Tourism and Civil Aviation, the Ministry that formally determines tourism policy in St. Lucia. Environmental management for the sector is located within these documents under a number of tourism initiatives to be undertaken by the Ministry. Current

programmes include environmental policy for the tourism sector and standardisation of environmental practices. This notwithstanding, to date the government of St. Lucia has no definitive environmental policy for the sector.

Box (iii)
Stakeholder response to environmental priorities in the tourist sector in St. Lucia

Four of five hotels are located on the beach, and over 40% are large in acreage (60+), rooms (200+), and employment (200+). The majority (71%) are foreign owned-57% Caribbean and 29% international. Most have implemented energy saving measures including solar, favor incentive policies, and would comply within a year of formulation. All monitor water usage while a minority (20%) already have low-flush toilets, shower restrictions, and recycling in place. Most favor incentive policies because they believe such will positively affect profitability. Only half monitor solid waste and few have implemented reduction measures. A fraction (20%) have implemented organic composting and bulk toiletry dispensers, but two-thirds are willing to comply if appropriate policy incentives are initiated. Managers expressed less interest in eco-friendly product policy since over 40% reported already using safe cleaners and detergents. Although 71% showed interest in certification programs, only 17% have received environmental awards.

Focus group representatives identified water supply and power usage as key areas where significant cost savings could be achieved. Water conservation suggestions included aerated faucets and peak/off-peak rates. Energy savings focused on reducing air conditioning expense through better insulation, split units, shut-off electronic door keys and peak/off-peak rates. Participants complained about the lack of government policy coordination and enforcement for solid waste disposal and the absence of incentives for proper separation and recycling. Another criticism concerned the high hook-up cost and inefficiency of the central sewage treatment plant because hotels were not required to connect. Respondents agreed that environmental standards were driven by industry agents in the larger foreign hotels while improvements were less assured in smaller properties and restaurants because of sporadic government inspection and enforcement.

The Case of Tobago

The economy of Tobago is heavily reliant on tourism activities as opposed to Trinidad, the other island in the two-island State of Trinidad and Tobago where the dominant economic activity is oil and natural gas production. Tobago is, in fact, is a relatively late comer into the international tourism market with substantial growth being experienced by the tourism sector over the last decade, particularly along the southwest coast, the hub of tourism activities. Tobago is only about 300 square kilometers (116 sq. miles) in area, and approximately 60km (28 miles) from top to bottom. Tourism has been the main source of dynamism in the economy of Tobago over the last few years and has contributed significantly to the economy in terms of income and employment generation, foreign exchange earnings and government's tax revenues. This has not been an unmixed blessing, however, and there is evidence of serious threats posed to the environment as a result of tourism activities. This Case Study examines the environmental impacts of tourism and evaluates the existing policy framework for addressing these impacts. The findings of the Study indicate that the main negative environmental impacts of tourism have been with respect to the deterioration of water quality; degradation of sensitive ecosystems; loss of avifana; sand mining; increased pollution from solid waste; loss of wetlands and loss of biodiversity. The water at the beaches in southwest Tobago and at

the fringing Buccoo Coral Reef have come under increased stress from the increased loading of the environment with inadequately treated, and, in some instances, untreated wastewater from hotels, and guest houses. There is also a growing problem of pollution from yachts particularly at Pirates Bay, Pigeon Point, Plymouth and Store Bay. There has been a serious degradation of the coral reefs at Buccoo and Speyside from tourism activities including eutrophication of coastal waters from wastewater discharges from hotels and guest houses; reef walking, removal of corals by snorkelers; damage by boat anchors and groundings; damage by scuba divers and from spear fishing. The island's avifana also has been adversely affected by several tourism- related activities. Construction activities in the hotel industry have resulted in the destruction of habitats including wetlands. Noise pollution from jet skiing has also been a contributory factor. There has also been a reported bird kill from the use of pesticide in landscaping activities. The dearth of sand pits in Tobago in conjunction with the high cost of transportation, and the uncertainty of the inter- island ferry services between Trinidad and Tobago have contributed the practice of sand mining for use in construction. This practice has led to the degradation of beaches and wetlands, as was the case at the Kilgwyn Wetlands during the extension of the airport at Crown Point.

The growth in the tourist population over the years and the concomitant increase in the generation of solid waste in the face of existing infrastructural deficiencies for the proper disposal of such waste have resulted in increased pollution from solid waste.
Tourism related construction activities have resulted in the destruction of valuable wetlands as occurred at the Kilgwyn Wetlands during the extension of the airport at Crown Point.
The destruction of natural habitats including the loss of wetlands and noise pollution have adversely impacted on the wild life population. The reduction in the sighting of some exotic birds has also been attributed to the significant increase in tourist visitation in some habitats such as for example along the Gilpin Trail and at Little Tobago.
The expansion in cruise ship tourism and tourism in general have placed increased stress on existing infrastructure for environmental management in particular solid waste, thus increasing the threats to the environment.

Review of Tourism Policy Framework

By far the most comprehensive treatment of environmental issues within the tourism policy framework for Tobago is provided in the May, 2001 National Tourism Policy of the Ministry of Enterprise Development, Foreign Affairs, and Tourism. The policy contains a vision that acknowledges the need to develop a sustainable industry and to conserve, protect and improve the environment. Additionally, the policy identifies integrated national planning as the single most important mechanism for ensuring sustainable tourism. On the other hand, there is a general lack of substantive treatment of environmental issues in the tourism policy articulated in the Tobago Development Plan and its companion document, the Tobago Strategic Plan.

National Environmental Policy

The Trinidad and Tobago National Environmental Policy is an essential part of the overall policy framework for promoting sustainable tourism. In terms of environmental management, sectoral policies, including tourism policy, are subsidiary to and intended to be supportive of the objectives of the over-arching national environmental policy framework, which in several areas constraints the implementation of tourism policy.

Box (iv)
Stakeholder response to environmental priorities in the tourist sector in Tobago

As expected from an emerging destination, there was limited awareness of national tourism policy and confusion over its direction. Their primary concerns were issues that directly affect visitors, especially the declining quality of coastal waters because of soil runoff, sewage effluent into the sea due to the lack of a centralized system, and the discharge of boating waste. They were also more bothered about solid waste removal, rising crime and groyne-altered beaches than water supply and energy costs. Appropriate for a new destination, their suggested improvements focused on environmental education for all tourist agents (taxis, boat crews, etc.) and better marine quality monitoring.

St. Lucia and Tobago: Tourist Survey Summary

Results indicate that nearly half of the respondents contribute to environmental activity in their home countries and that this tends to rise with income and educational levels. Although environmental awareness tends to be low for the sample—less than a quarter of respondents—50% in the $50,000-$64,000 income category and nearly 30% with secondary education have heard of certification. Roughly 30% of those earning above $64,000 indicated a willingness to pay an additional $100 per night for green accommodations. Most would pay an additional $5-$15.

Two-thirds of postgraduate visitors contributed to environmental activity, and this was the largest category requesting information from travel agents and tour guides about environmental issues. The most committed tourists to using certification for future accommodation choice, however, belonged to the extremes—the postgraduates and those with no formal education. For all groups, climate/beach and a pristine environment were the most important assets in destination choice. The main reasons for visitation included shopping for souvenirs, boat trips and water sports and secondarily community events and cultural/heritage assets.

Introduction[1]

Four main issues stand out in an economic review of tourism in the Caribbean:

- ?? Tourism is the single most common industry in the region - particularly in the island economies.
- ?? Moreover, tourism is the fastest growing industry in virtually every Caribbean country, including those in which the sector is not presently an important economic contributor.
- ?? Tourism also is the most important and sometimes the only productive sector in some of these economies
- ?? The environment (ecological and socio-cultural) which is the economic 'goose' which explains the initial three characteristics above, is under significant threat in several Caribbean tourist destinations.

This study is therefore concerned with the insertion of environmental management in tourist sector policies to ensure that the threats are recognized and addressed.

The research approach to the study involved the following. First a review of relevant, existing literature. Second, interviews with relevant policy making institutions in four islands selected as representative of the larger Caribbean tourism reality: Barbados, The Bahamas, St. Lucia and Tobago. Third, focus group meetings with a sample of hoteliers, in the case study countries who were selected to reflect the industry by size and ownership, as well as with some policy makers. The objective of these focus group meetings was to discern their understanding of, and views on, existing environmental management policies for their industry as well as their internal policies on environmental impacts of their operations. Fourth, administering of a Questionnaire to hoteliers participating in the focus group meetings. Fifth, a survey of tourists to discern the demand for more environmentally sensitive tourism in St. Lucia and Tobago.

This Report begins with an Executive Summary followed by six (6) Chapters. Chapter 1 will provide a review of the empirical trends in Caribbean tourism encompassing both the economic and environmental. Chapter 2 is the first island case study of

[1] This Study was produced by a team of investigators led by Dennis Pantin, Coordinator, SEDU, and including Jerome McElroy, Jennifer Edwards, Michelle Persad, Anthony Bartholomew and Marlene Attzs. Research assistance was provided by Natalie Jaimungal, especially in analysis of the two surveys undertaken. The tourist surveys were administered by Rhonda Sooklalsingh and Simone Young (Tobago) and Deirdre Charles(St. Lucia) who also was involved in facilitating the focus group in that island. Michelle Best performed a similar function for the Barbados focus group.

Barbados. The following three (3) chapters (Chapters 3-5) provide similar island case studies of The Bahamas, St. Lucia and Tobago, respectively. Finally, Chapter 6 provides a summary and recommendations.

Chapter 1 - Review of Empirical Trends in Caribbean Tourism

This chapter begins with a review of the trends in tourist arrivals in the Caribbean over the past decade. This is followed by a review of the macro-economic contribution which follows from the trends in tourist arrivals. The third section provides a summary review of the literature on sustainable development and tourism in SIDS while the fourth and final section is a summary of the available evidence on the main environmental impacts of tourism in the Caribbean[2].

Section 1.1: Tourist Arrivals

Tourist (stay-over) arrivals in the Caribbean increased by approximately 125% during the period 1990 to 1999 - jumping from some 7.5 million in 1990 to 17 million stay-over tourists in 1999. Over the same period, the total number of cruiseship Passengers increased by 68% over the same period - from some 6.5 million cruise passengers in 1990 to 10.9 million cruise passengers in 1999. As a result, as Table 1.1 and Figure 1.1 show, the aggregate number of stay over and cruiseship visitors to the Caribbean therefore grew from 14,018,000 in 1990 to 27,860,000 in 1999 or by 13,842,000 (See Table 1.2 and 1.3, for details of stayover, and cruiseship arrivals by Caribbean country, respectively, over the period). The number of hotel rooms grew, pari passu, with stayover arrivals by 103% from 102,896 rooms in 1990 to 209,140 rooms in 1999 (See Appendix Table 1.4 for details by country).

Section 1.2: Macro-economic Impacts of Tourism

The macro-economic impacts of tourism are ultimately the result of the level of tourist expenditure although there is a significant 'lumpy' macro-economic impact at the point of capital investment. We therefore begin with visitor expenditure which increased steadily over the 1990- 1998 period, from an estimated US$6.8 million to US$ 14.9

million. **(**See Table 1.5 provides some further details of estimated tourist expenditure by Caribbean destination)

Visitor Expenditure As % GDP

More important than the absolute tourist expenditure is the share it represents of GDP. Table 1.6 provides a partial, available data set of this GDP contribution. In 1990 visitor expenditure was equivalent to 96% of GDP in the British Virgin Islands, 89% of GDP in Antigua and Barbuda, 52% GDP in the British Virgin Islands and Turks and Caicos Islands, 44% GDP in St. Lucia, 43% GDP in ST. Kitts and Nevis and 34% GDP in St. Vincent and the Grenadines. By 1999, Turks and Caicos visitor expenditure was 159% GDP. In Anguilla the figure declined from the 76% in 1990 to 66% in 1999. In 1999 visitor expenditure in St. Lucia contributed 56% GDP, and 52% in Antigua and Barbuda.

New Satellite Accounts for Tourism

A new methodology for measuring the size of tourism in national and regional economies emphasizes the significance of tourism in the Caribbean. The so-called Travel and Tourism Satellite Accounts (TSA) were recently developed by the World Travel and Tourism Council based in London in conjunction with a group of experts under the auspices of the World Tourism Organization (WTTC, 2001). This approach aggregates resident and visitor spending on lodging, travel, meals, etc. with investment spending by developers for facilities and public outlays for related transport infrastructure, promotion, sanitation and the like. Through input-output modeling, direct tourism industry impacts are calculated for comparative purposes with non-tourist sectors, and then direct and indirect impacts are aggregated to determine tourism's overall economy-wide impact. These latter estimates are reviewed below both for the Caribbean region and for the case-study countries.

[2] The tables cited in this chapter and throughout the rest of this report can be found in Appendix 1- Statistical and other related tables

TSA estimates for 2001 indicate the economic impact of tourism in the Caribbean region is greater than in any other region in the world. For example, tourism accounts for roughly 17 percent of total Caribbean GDP in contrast to 12 percent for North America, Europe and Oceania. Second, tourism accounts for over 21 percent of all Caribbean capital formation while comparable figures for Oceania (13%) and North America/Europe (10%) are significantly lower. Third, Caribbean tourism accounts for nearly 20 percent of total regional exports in contrast to 15 percent for Oceania and 7-8 percent for North America/Europe. Finally, in 2001 tourism is estimated to absorb 2.5 million jobs in the region or roughly 16 percent of the total, compared to 12 percent for Oceania, Europe and North America. In addition, the WTTC forecasts that the Caribbean will continue to lead the world in tourism economic impact over the next decade.

In the Bahamas and the smaller islands of the Lesser Antilles, however, tourism's importance is significantly greater than these regional ratios indicate because the aggregate calculations are dominated by the influence of the larger more diversified economies of the Greater Antilles where the visitor industry plays a smaller role. In the Bahamas for example, the TSA estimates for 2001 that tourism represents 50 percent of GDP and close to 60 percent of capital formation. It accounts for 75 percent of total exports and roughly 77,000 jobs or 54 percent of the total. In the case of Barbados, tourism accounts for 47 percent of GDP and over 85 percent of total investment in 2001. It represents 56 percent of exports and over 40,000 jobs or 33 percent of total employment. In St. Lucia, tourism absorbs 56 percent of GDP, 60 percent of total investment, 65 percent of total exports, and 26,000 jobs or 44 percent of the total. In the least tourist-developed Trinidad-Tobago, tourism accounts for 12 percent of GDP, 13 percent of capital formation and exports, and 41,000 jobs or 8 percent of total employment. In Tobago, which contains roughly half of the hotel rooms in the twin-island state, we estimate the respective ratios are between 15-20 percent. In all four islands, the WTTC forecasts roughly a doubling of tourism's economic contribution in absolute terms by 2011 and a rise in all the four impact ratios.

Tourism Penetration Index

In order to more comprehensively measure tourism development, Albuquerque and McElroy (1992), in a modification of Butler's life cycle approach to the case of small Caribbean islands, locate individual Caribbean islands within a three-stage model. ***Stage I*** is defined as emerging, low-density, long-staying style and is characterised by very limited infrastructure and hotel capacity. ***Stage II*** represents intermediate or transitional destination style and is characterised by very rapid visitor growth and burgeoning hotel and infrastructure construction. ***Stage III*** is defined as high visitor volume and is characterised by high-density mass-marketing and well-developed infrastructure and hotel plant. In order to more specifically measure the pressure of tourist development on insular environments, the Tourism Penetration Index (TPI), an unweighted three-variable index, is presented below (see McElroy and de Albuquerque, 1998). It has four advantages.

First it allows quantitative comparison of different destinations across the tourist life cycle from Stage I emergence through Stage II growth to Stage III maturity.

Second, it is comprehensive in that it conflates together all major impact dimensions: economic in terms of per capita visitor spending, socio-demographic in terms of daily visitor density per 1,000 resident population, and environmental in terms of hotel rooms per square kilometer. Third, it can be easily operationalised from standard published data. Fourth, it highlights the key strategic challenges destinations face at each stage of tourist development, and thus provides a useful policy context for the present study. On the other hand, the TPI is only an indirect and gross indicator of overall impact and does not measure seasonal or geographic (urban, coastal) visitor concentrations, information that may be highly relevant for island destinations.

To gauge the impact of tourism in the Caribbean in general and the study islands in particular, an international sample of 47 small islands was selected representing the Caribbean (21), Pacific (15), Indian (5), Mediterranean (3), and Atlantic (3) oceans. Most were less than one million in population and 20,000 km2 in area. Table 1.7 calculates the three standardized indices and resulting TPI scores, ranking the most penetrated (St. Maarten) to the least penetrated (Solomons). The destinations cluster

roughly into three groups: the most penetrated in Stage III, the intermediate in Stage II, and the least penetrated in Stage I. Small Caribbean islands dominate Stages II and III as the TSA analysis suggested earlier.

The most penetrated group is populated by highly developed Caribbean, Mediterranean and Northern Pacific destinations with average per capita visitor spending over $8,000 and densities around 200 per 1,000 population. Tourists thus represent the equivalent of a 20 percent increase in the daily island population year-round. These destinations are the most affluent, mature and promoted, as well as the most crowded with the largest scale facilities and the most ecosystem damage. They also exhibit the least seasonality—an indicator of their maturity and aggressive marketing—the shortest average length of visitor stay, and declining visitor satisfaction. Such characteristics collectively describe the Bahamas high-density tourist concentration in the Freeport-Nassau complex. However, the Bahamas' overall intermediate score is largely due to the archipelago's extensive land mass.

Intermediate destinations, the most dynamic and heterogeneous group, are normally typified by very rapid visitor growth and hotel/infrastructure construction. Many are experiencing planning pressures from resource-use conflicts as labor and capital migrate from traditional pursuits (farming and fishing) to higher income opportunities in tourism. These 21 islands fall roughly into three subgroups. The top cluster contains a handful of highly developed Lesser Antilles destinations projected to advance to most penetrated status in the next decade. These include Bahamas and Barbados, another mature destination which boasts a long tourism history and a relatively balanced agro-industrial economy. The middle intermediate subgroup includes several relatively developed Pacific and Indian Ocean islands plus another handful of Eastern Caribbean destinations including St. Lucia, which has experienced rapid transformation and population growth over the past two decades.

The least penetrated group comprises 15 emerging primarily South Pacific destinations early in the resort cycle. They are characterized by pristine natural assets, long average

visitor stays (10+ days), small-scale facilities and infrastructure (some lack jet ports), and low promotional spending and occupancy rates. Most are still heavily dependent on agriculture and still undergoing emigration. Such a profile fits Trinidad-Tobago at the emerging tourism stage with per capita visitor spending less than $200 and visitor and room densities less than one per 1,000 population and one per km2 respectively. Though least developed, such islands enjoy the greatest planning room to maneuver and the best potential for establishing sustainable tourism styles that conserve their natural amenities. However, much of tourism is concentrated in Tobago with a population of only some 60,000 people.

Country Case Studies

The four case-study islands included in this Report represent distinctly different tourism profiles and scales. According to 1999 data (WTO, 2001), the Bahamas boasts the largest plant with over 14000 hotel rooms and 3.5 million tourists spending $1.5 billion annually. Barbados is a distant second with less than 6,000 rooms and less than one million visitors spending $675 million annually. St. Lucia's industry is about half the size of Barbados' with over 3,000 rooms catering to 600,000 visitors spending $311 million. In these three cases, day-tripping cruise passengers make up over half of all visitors, another indicator of their level of integration into the world tourism economy. Trinidad-Tobago's tourism is smallest with 4,200 rooms and 400,000 visitors (85% stayovers) spending $200 million. Since our concern is solely with Tobago, the scale is small enough with some 2,000 rooms. According to the TPI, these different levels of development and scale suggest distinctly different macro policy challenges.

Section 3: Summary literature review on Sustainable Development and Tourism in SIDS

Brief literature review

Two forces have dominated the postwar history of small tropical islands across the globe: the restructuring of colonial agricultural economies and the worldwide spread of international tourism. As a result, today tourism accounts for a quarter of activity in the

island Caribbean, a third of employment along the Mediterranean basin, and approaches half of GDP in the more advanced Pacific destinations like Guam and Northern Marianas (J. McElroy and K. de Albuquerque, 2002). The situation is similar in the tourist-led Indian Ocean islands of Maldives, Mauritius and Seychelles.

However, rapid mass-tourism growth has severely altered insular ecosystems. In the Caribbean, tourism expansion has directly or indirectly caused deforestation and erosion of upland forests for condominium developments and road works, as well as beach loss, lagoon pollution and reef damage from sand mining, dredging and cruise ship anchoring (McElroy and de Albuquerque, 1998). In the Mediterranean, large-scale coastal hotel/marina and infrastructure construction has filled in salt ponds, disfigured shorelines, and polluted near shore waters with sewage (D. Pearce, 1989). In highly developed islands like the Balearics and Malta, tourism has been associated with the rapid decline in traditional pursuits (farming, fishing) and renewable resource uses, and the rapid rise in realty inflation (Beller, d'Ayala, and Hein, 1990). In popular Pacific resort areas delicate mangroves have been harvested for construction material and reefs scarred by trampling and collecting by tourists (Lobban and Schefter. 1997). Because of its intense development, Guam has been compared to suburban Los Angeles, while even the Galapagos has allegedly been overrun by excessive tourism (Lindbery and Hawkins, 1996). Because the insular natural patrimony is the base of island tourism's long term future, and because mass-tourism practice has so universally damaged this patrimony, a host of writers have called for a more sustainable (lower density), greener tourism style (Briguglio and others, 1996; Conlin and Baum, 1995; and Oppermann and Chon, 1997).

In the United Nations Environment Program's most recent outlook for the future of the Caribbean environment, a thirty-year forecast suggests some alarming trends and provides further justification for stronger policy (UNEP, 2002). These trends include the following. Increased globalization and trade will put further pressure on terrestrial and marine resources. Without significant policy reform market forces will weaken long-run management practice for short-term commercial gain, and continued deforestation and erosion are projected. Marine resource degradation will continue with increased human

settlement of coastal areas, the proliferation of tourist resorts, the discharge of wastes and lack of strong fisheries regulation and enforcement. Many endangered species will disappear. In particular, "the quality and quantity of water, and the disposal of solid waste, are particularly worrying in the small island countries and territories of the Caribbean." (UNEP, 2002). According to this outlook, these trends can be mitigated or reversed through: (1) improved management and monitoring of critical environments, (2) a lower level of economic growth (or more greener growth), (3) improved ecosystem knowledge, (4) and a conservation ethic born of an appreciation for environmental values—to be used for quality tourism as well as enhanced biodiversity for pharmaceutical uses.

Caribbean Tourism and the Environment

Because of the proximity of the dominant North American market, tourism historically developed in the Caribbean from north to south in three waves. In the late 19th and early 20th centuries, a small stream of affluent visitors established tourism in the Greater Antilles—Cuba, Jamaica and also Bermuda. The take-off into mass tourism took place in the 1950s and 1960s with the advent of jet travel, the U.S. embargo of Cuba, the construction of aid-financed transport infrastructure, and foreign hotel investment lured by tax incentives. As a result, the Bahamas, Puerto Rico and the Virgin Islands in the north, and Aruba and Barbados in the south became popular international resort destinations. In the 1970s and 1980s, a third wave of even more rapid mass travel growth engulfed the rest of the Lesser Antilles spreading south from the Leewards to the Windwards.

As a result, the landscapes and coastline of the region were transformed, the natural terrestrial-marine buffering ecosystems disrupted, and long-run environmental stability was sacrificed for short-term mass tourism development. Condominium clusters and road works on steep hillside damaged forests and watersheds causing erosion, silting over streams and wetlands, and polluting lagoons (McElroy and de Albuquerque, 1998). Mangrove forests and salt ponds were destroyed by the construction of large-scale

resorts, marinas and infrastructure along shorelines, depleting endemic species, archeological artifacts and reef systems already weakened by sand mining, yacht anchoring and sewage dumping (Wilkinson, 1989). The wholesale migration of land, labor and capital from traditional pursuits to tourism has significantly reduced renewable resource uses and threatened sustainability (McElroy, Potter and Towle, 1990).

Environmental Conditions in the Caribbean

The Caribbean inclusive of Latin America contains 40 percent of the biodiversity on the planet "and is considered to have the highest diversity in the world" (UNEP, 2000:9). Today, however, the total region ranks second in the world in threatened bird, reptile and amphibian species, and third in endangered mammals and marine species (WCMC/IUCN, 1998). Environmental degradation has a long history in the region and is not limited to the impacts of tourism. For example, upland deforestation and habitat destruction after decades of sugar and banana culture plus the construction of large-scale condominium clusters on steep hillsides have damaged watersheds, caused erosion and silted over permanent streams. Since 1980 arable and cropland in the Caribbean has risen 20 percent, the annual loss of forest cover has average 1.7 percent, and there has been a 12 percent decline in the freshwater fish catch (UNEP, 2000: 116-117). Urban growth has been expanding 50 percent faster than population growth since 1980 and led to the discharge of improperly treated waste. Only 39 percent of the 140 small Caribbean industries surveyed in 1995 used some type of wastewater treatment (UNEP, 1999a). In 1991 only 10 percent of the Caribbean population were served by a central sewerage system, and nearly 60 percent of treatment plants in the Eastern Caribbean were operating inefficiently (Vlugman, 1992).

Marine resources have also been altered by inland activity, coastal construction and over-fishing. For example, over 80 percent of improperly treated municipal waste is discharged directly into the sea (UNEP, 2000). It is estimated that over 10 million tons of eroded sediment is deposited every year in coastal waters of the wider Caribbean because of deforestation and poor agricultural land practices (UNEP, 2000: 44). As a result,

Caribbean reefs, which represent 12 percent of the world total, are in decline. Today, 29 percent of these reef areas are at significant risk from runoff and sedimentation, nutrients coming from hotel and vessel sewage and construction projects and sand mining (Bryant and others, 1998). In addition, a large number of pleasure yachts and cruise ships directly inject waste particularly into Eastern Caribbean waters because of inadequate port reception facilities, i.e. in the vicinity of those island destinations most aggressively promoting and dependent upon mass tourism.

Since 1984 the marine fish catch in the region is down 50 percent in gross tonnage (UNEP, 2000: 122). In countries like Barbados, Jamaica and Haiti, protective reef systems have become degraded by eutrophication caused by faecal material from both land and sea-based waste (PNUMA, 1999). In combination, all these man-made environmental changes have been exacerbated by frequent, diverse, and increasingly destructive natural disasters. The Caribbean's colonial history of environmental neglect and present institutional weaknesses "suggest that the current trends of declining biological diversity will continue unabated over the next decade" (UNEO, 2000: 35) unless there is a major policy reversal.

Tourism Induced Environmental Changes

At least four broad conclusions can be drawn from this overview of the literature. First, tourism does have a significant effect on the environment. Second, although the literature is long on assertion, much of the evidence is indirect and short on rigorous empirical support. Third, the magnitude of the impact will differ depending on the situation, and thus a case by case analysis is necessary (Dixon and others, 2001). Fourth, the nature of tourism's environmental impacts seem to be fourfold: (1) direct eco-system change as a result of initial construction, (2) the demand for scarce and/or expensive water and energy impacts, (3) the generation of wastes from land (hotel) and sea-based (boats) sources, and the "footprints" of tourists as they "walk" through the insular eco-cultural space.

According to UNEP (1999:11), the most intrusive impacts of tourism development involve the construction phase and the operational problems of solid waste disposal and treatment. To this must be added, particularly for small islands, tourism's demand for scarce water and power supplies. Recent research suggests these impacts are substantial. For example, an estimate has been made of the demand for water and energy as well as solid waste generated by the tourist industry in the region. The number of hotel rooms in the Caribbean in 1999 was used as the base for generating an estimated demand for the Caribbean tourism industry and the related generation of solid waste. An average annual occupancy rate of 65% was assumed for a 320 day tourist year. To this was then applied an assumed 1.5 persons per room in order to derive estimated demand for water as well as solid waste generated per tourist. In the case of energy only the occupancy rate and a 320 day year were utilized. The estimate of water and energy consumption per tourist, per day, were derived from a Trinidad and Tobago study on resident demand for water [3] and a St. Lucia tourism study[4], respectively. The latter study was also used as the source of energy consumption per tourist, per day.

Tables 1.8-10 provide country by country estimates of demand for water and energy, and solid waste generated, by the tourism industry for the 1990-1999 period. In summary the estimated water demand of tourism grew from 1,926 to 3,915 million gallons between 1990 and 1999. In fact, UNEP has pointed out that as a result of tourism, the Caribbean has one of the highest per capita water withdrawal rates in the world although its per capita water resource base is significantly lower than insular regions in the Pacific and Indian oceans (UNEP, 1999a). Total energy consumption by the tourism sector in the region is also estimated to have increased from 232 million KWh to 471 million KWh. Total solid waste generated is estimated to have doubled over the period from 32,104 tonnes to 65,252 tonnes. Such estimates suggest the doubling of tourist activity during the decade of the 1990's also doubled the demand for water and power and the supply of solid waste.

[3] Wasa Tariff Study (London Economics) July 1998
[4] An Assessment if the Environmental Impact of Tourism In St. Lucia (UK CEED) June 1999 p64

Case Study Examples

A better sense of the environmental impacts of tourism can be gained from a literature review of case studies from around the region. Several are presented briefly below to demonstrate the variety of impacts including construction; sand mining, solid waste, and visitor activity.

In the case of Antigua and Barbuda growth in tourist arrivals doubled twice between the late 1970s and 1980s. To accommodate these massive annual visitor flows, Coram (1993: 168) estimates that during the 1980's more mangrove swamps, salt ponds, and off-shore reefs were damaged or killed than in all of Antigua's previous history. The result has been massive fish kills in the late 1980's at McKinnon's Salt Pond and declines in reef life, fish and seagrass beds in adjacent marine waters. In the sister island of Barbuda, during the 1980's and early 1990's, barges of sand mined from Palmetto Point left almost daily. As a result, beaches were severely eroded and the freshwater aquifer damaged (McElroy and de Albuquerque, 1997). In addition, in the early 1990's, the general solid waste dump, Flashes, located at the western end of the island heavily colonized with hotel rooms, had become so littered with domestic garbage and cruise ship waste that the area was plagued with flies. The plague caused wholesale hotel cancellations (Pattullo, 1996:109).

Infrastructure and hotel construction have negatively affected beach areas. In Tobago, the extension of the airport and the deep-water harbor at Scarborough in the 1980's was accomplished with sand mining. One of the affected beaches was severely altered. "Goldsborough beach…has already shown the effect of mining: the sand is black, the beach has narrowed and it is littered with dead and rotting plants and trees. 'No one, tourist or local, goes there anymore,' reported a local newspaper" (Pattullo, 1996:109). On the heavily built west coast of Barbados, hotel construction has involved the clearing of natural beach vegetation (which holds sand in place) to improve sea views and access for hotel guests. This has caused beach erosion and the construction of groynes and jetties to staunch erosion; but these inappropriate structures further disrupt natural wave

action and accelerate beach erosion. As a result, some west coast beaches are reported to be receding at 1.5 meters per decade (Hamilton, 1992).

All across the region, reefs and reef life are being damaged by tourism and overfishing. Examples include snorkelers trampling reefs in Tobago, divers dragging anchors over coral in the U.S. Virgin Islands, sailors dumping waste in the Grenadines, souvenir vendors ripping out shells, coral and sea horses in the Bahamas, and selling rare black coral jewelry in Grenada (Pattullo, 1996: 109-110).

In the Bahamas, there are numerous examples of tourism-caused environmental changes. These include, particularly in the New Providence-Freeport region, beach devegetation because of hotel construction, groyne construction and resultant beach erosion, and reef damage from coral trampling and dive anchor dragging. One of the most egregious examples of marine destruction is the Bimini Bay development in the Bahamas. This involves the wholesale destruction by an American investor of a delicate mangrove fisheries nursery for cheap construction fill. The dredging has severely damaged nutrient recycling in the adjacent lagoon and curtailed fish and shark production in what had formerly been a government-declared Marine Protected Area (MPA) supplying large areas of the Great Bahamas Bank with fish. Fisherman who used to fish and gather conch in North Bimini Bay now must voyage much further for their catch (Duncombe, 2001).

Other tourism induced impacts are summarized below for other selected islands excluding the four island case studies that are detailed in Chapters 2-5.

ANTIGUA AND BARBUDA

Antigua's main problem during the last two (2) decades are related to the intensive tourist development which has led to major biophysical alterations to the coastline and destruction to coastal and marine habitats. Several activities namely sewage disposal, solid waste, erosion and sand mining appear to be serious threats to the sustainability of the tourist industry in Antigua. (UNEP Regional Seas Reports and Studies No. 172) Impact of coastal and marine habitats, including beaches, during the construction phase of tourism infrastructure is a major environmental issue. Other environmental concerns relate to the operation and management of tourism facilities. Problems derived from

inadequate management of sewage and kitchen waste at the Dickson/Runaway resort area have already been documented (Jackson,1985). At full capacity the 556 hotel rooms in the area generate close to 100,000 gallons of waste water daily. A publicly held sewage plant treats less than 40% of this total and is plagued with frequent breakdowns (Jackson and others,1987).The utilization of natural areas as attractions in Antigua and Barbuda is largely unplanned and unmanaged. The shallow reef at Bird Island is subjected to intensive, unmanaged use by some of the estimated 17,000 tourists that visit the offshore island yearly.(Antigua and Barbuda Environmental Profile, 1991)

BRITISH VIRGIN ISLANDS

Owing to the accelerated development of tourism in the 1980's coastal resources were rapidly becoming depleted. There was widespread beach erosion due to beach sand mining, loss of mangroves, coral reefs and seagrass beds and pollution with solid and liquid wastes. (UNEP Regional Seas Reports and Studies No. 172)

GRENADA

Most of Grenada's hotel and resort rooms are clustered in the southwestern peninsula, with many located directly on the Grande Anse beach. These facilities have made a disproportionate contribution to the two major environmental problems of the region- scarcity of fresh water and polluted shorelines. They have also made a disproportionate contribution to the country's solid waste problem, but this is not generally recognized as being critical to the potable water and marine pollution problems.(Grenada Environmental Profile, 1991). Half of all the tourist facilities in Grenada are in apartments, guestrooms and cottages. It is doubtful the environmental impact of tourists lodging in such facilities is distinguishable from other Grenadian residents. Indeed these tourists may have an indirect, positive impact on the environment to the extent that their presence and comments raise questions about environmental quality and amenities. In other words the, the process of hosting tourists may have a "consciousness raising" effect on public awareness for environmental issues. An alternative way of expressing the same process is that tourism creates significant markets and increases economic values for environmental amenities.

JAMAICA

An emerging issue in Jamaica is that several big tourist complexes are going to be built in Kingston, Montego Bay, Negril, Ocho Rios and Port Antonio. The Natural Resources Conservation Authority has also taken steps to integrate conservation projects in new resort development. A project has been developed to assist hotels in establishing Environmental Management Systems (EMS) under the ISO 14000 Standards.(UNEP Regional Seas Reports and Studies No. 172). In Negril the environmental damage is so severe that entire classes of resources have become unusable. The disposal of waste and

untreated wastewater and sewage into the sea has severely curtailed diving, leading to a substantial reduction in visitors (Sweeting and others, 1998: Dixon and others, 2001).

The Search for Answers

The accumulation of tourism impact evidence across the region has prompted the search for reasons behind this tourism policy failure. Four stand out. First is the colonial history of environmental neglect characteristic of plantation sugarculture (Watts, 1993), a legacy that continues today in the underfunded enforcement of protective environmental legislation (Lorah, 1995). The second is the aggressive promotion of low-multiplier and low-value added mass visitation, in part another colonial legacy and in part a response to the labor-intensive needs of an island economy with declining agricultural and weak manufacturing sectors. The third is the nature of tourism itself. The scale discrepancy between heavily capitalized, high-volume international travel interests and the delicately small insular ecosystem produces a propensity for overrun, and its pervasive on-site consumption character can easily produce socio-cultural disruption.

The fourth is simply that it is inherently difficult to achieve sustainable development because it requires simultaneously satisfying the imperatives of the four major stakeholders: profits for the developers and other commercial interests, participation and improved life quality for residents, satisfied visitors who wish to return, and environmental stability for the enjoyment of future generations. Recent history suggests that mass tourism and short-term horizons are not a sustainable policy combination. However, alternative strategies increasingly being implemented across the region are more promising. These include long-term planning and citizen decision-making processes to protect the coastal zone in the USVI, developing ecotourism in Dominica, controlling visitation and maintaining an upscale image in Bermuda (McElroy, 2001), and emphasizing greener utility and waste technologies.

There is some urgency in re-orienting tourism policy because the aggregate data in Table 1.1 suggests a flattening out of visitor growth since the early 1990's. The environmental impact evidence reviewed above, in combination with declining average length of visitor stay for many islands in the region (including Bahamas, Barbados, and St. Lucia in this

study), portray trends which may indicate the Caribbean's worldwide comparative advantage in tourism is slipping. In fact, during the 1990's, the region lost ground to most rival developing areas including Africa, East and South Asia, and the Pacific (WTO, 1999).

Chapter 2 - The Barbados Case Study

2.1 : Introduction

This Barbados case study is divided into two Sections. The first reviews the evidence of the environmental impacts of tourism while the second section turns to an evaluation of the policy framework for addressing such environmental impacts.

2.2 : Environmental Impacts of Tourism in Barbados

In 1987 Barbados hosted its first National Consultation on the Environment which included submission documents from, inter alia, the Ministry of Health, Coastal Conservation Project Unit, the Soil Conservation, the Barbados Chamber of Commerce and Industry, the Industrial Development Corporation, the South and West Coasts and Greater Bridgetown Sewerage Project.

A paper at this Conference by Conliffe identified a number of major concerns in the air, water and on land. The first was waste disposal and agricultural practices in Barbados. Barbados has beneath its thin topsoil, a porous coral limestone formation averaging some 70m (200ft) thick, lying on top of impervious sedimentary formations. Thus when it rains, rain water percolates through the coral limestone, being purified by the natural filtering ability of the coral limestone.

The common method of sewage disposal in Barbados was "suck well" a soakaway pit dug into the same porous coral limestone which usually ends in a "suck", or fissure in the coral limestone. This system disposed the waste quite efficiently for the owner but it is easy to visualize that several of these "sucks" could lead directly to the stream or sheet water, resulting in sewage pollution of our drinking water. This problem was recognized as far back as 1963/64, where five zones were created. Zone 1 areas (areas where no building can be constituted because of the high water table existent) constitute 16% of the land area of Barbados.

In 1994, the IDB estimated that between visitor and local residents, 150,000 tonnes of solid waste are generated annually. A major factor contributing to coral reef decay and deterioration of nearshore water quality is wastewater pollution particularly from hotels

as a result of poorly maintained septic tanks and package treatment plants. Fringing reefs on the West Coast have probably deteriorated as a direct consequence of pollution from the intense hotel and residential developments occurring along the coast. In 1991 the Government with the support of the IDB started a Coastal Conservation Feasibility Study as well as a project in institutional strengthening. These two projects form the core of the Integrated Programme for Coastal Zone Management (1994) to protect country's coasts from erosion and decrease environmental degradation.(UNEP Regional Seas Reports and Studies No. 172).

Natural Resources of Barbados

The major biotic communities in Barbados are the Coral Reefs, Mangroves and Sea grass beds. These communities are monitored by the CZMU and UWI. A number of entities monitor other terrestrial biotic communities. The TCP office is mainly responsible for the allocation of land for development purposes. With the creation of the MPE, it is now expected that environmental concerns will be highly considered before any private or public development projects are approved.

Damage to terrestrial and marine flora and fauna results from the uninformed decisions by the necessary parties. In the case of Barbados, many of the Coral reefs have been damaged or totally destroyed. The Mangroves have also been wiped out leaving one mangrove (Graeme Hall Swamp), which is now under heavy monitoring and management because of its exclusiveness.

Coral Reefs

There are mainly three types of reefs found in Barbados, these are fringing, patch and bank reefs. In Barbados the fringing reefs are found on the West Coast of Barbados extending 100-200 m from shore and separated from each other by sand areas. Patch reefs are common along the West and Southwest coasts, occurring in shallow water between the shore or fringing reefs and bank reefs. Bank reefs occur approximately parallel to coastline, at 500-1200 m from shore, along the west and southwest coasts.

The importance of coral reefs to the Caribbean island are well known, to recap briefly, they include adult shelter and feeding habitats for commercially important species, for medical research, such as use of coral skeleton for bone implants and for the development of pharmaceutical drugs, for coastal protection, aesthetics and recreation, and education and research.

In terms of Fringe reefs, surveys that span the time 1982-1993 show that on the west coast there is increased algal cover on the coral reef and that there has been a reduction on the species on these reefs, in particular *Diadema antillarum.* *Also* Hunte & Allard (1994) found that the abundance of the corals decreased between 1987 and 1992.

Causes of degradation in corals in Barbados:

Water Quality- corals are highly susceptible to changes in water quality such as eutrophication (raised nutrient levels), sediment loads, turbidity, temperature, salinity and toxic chemical load. In Barbados there are three sources of increased sediment run-off, these include fresh water runoff from 169 intermittent natural watercourses, storm water drains and drainage pipes. Secondly dredging and land reclamation and construction. According to Oxenford (1994), the construction of large number of coastal properties (i.e. hotels, guesthouse and marinas on the south and West Coast) and beach and sub-marine sea defenses many of which infringe on the recommended setbacks result in severe sediment plumes. This has the impact also of interfering with the natural seasonal movement of nearshore and beach sediment.

Eutrophication

Ground water seepage along the coastline has been a major source of eutrophication in Barbados, this has the effect of increasing the plankton growth, reducing water transparency and eventually the death or bleaching of corals. One of the main sources identified by Lewis(1987) is that the ground water in the coastal zone is particularly rich in nutrients , especially nitrates, as a result of a high density of coastal properties having only suck wells for sewage disposal and in the case of some hotels, the sewage being discharge untreated into the sea.

Recreational Use

Intensified recreational use of coastal areas, associated with increased tourism, contributes to reef deterioration. Standing on reefs and littering on reefs are common problems in Barbados, in certain location such as the Bellairs south fringing reef in front of the Folkstone Park, which is heavily used by cruise ship passengers (Oxenford 1994).

Anchor Damage

Sports dive operators in Barbados have reported anchor damage, to be a serious problem at most of the popular dive sites on the west and south coast. Indeed, according to Edwards (1994) , of the 37 diving sites she reviewed, 95% of them were damaged by dive boat operators taking out tourist to explore the reefs. She also noted that though boat moorings were placed to try to eliminate this problem, these (moorings) are poorly designed and add to the destruction of the reefs.

Mangrove Wetlands

Expansion of tourism development along the coast has resulted in the rapid loss of coastal mangroves estimated now to be only one hectare. The red and white mangrove species, *Dhizophora mangle and Laguncualaria racemosa can* be found in the 32 ha Graeme Hall Swamp now renamed the Graeme Hall Bird Sanctuary. Chancery Lane mangrove is 16ha but, unfortunately, it appears that development will soon encroach and reduce the area of this sensitive site. The bottom mangrove *Conocarprs erectus* is the only species found in this area. It was felt in the earlier years that swamps were areas that were useless and

therefore their removal for the tourism industry was rapid. However, their removal has led to reduced coastal protection , beach erosion and degradation of coral reefs.

Graeme Hall Swamp covers an area of 32 ha in one of the most densely populated areas of the island. The swamp is home to the widest diversity of resident and migratory birds on the island. The fact that this swamp is the only one of count on the island does not deter its degradation and the trees of this area are continuously being cut down, to facilitate activities such as hunting. There are proposals, however, for this area to be converted into a national marine park (Oxenford et al., 1993) .

Social and Cultural Impacts

Barbados has experienced tourism from as early as the 18th Century. Barbados has therefore experienced increased international understanding and tolerance of different customs for a very long time. They have also been in some instances the breaking down of language barriers. It is now a requirement that all primary schoolchildren learn basic conversational Spanish before entering Secondary School.

Tourism-related tax receipts allow for financial improvements in health and education services to the island. Barbados has always benefited from good quality education and reasonable health services. Both services are free in Barbados. Infrastructural investment benefits are both hosted for the local population and tourists (water and sewage, roads and public transport). As a result, Barbadians benefit from the water systems, roadways and public transportation system. However, these three systems are under scrutiny because of the large demands being placed on them at present.

There are opportunities to acquire tourism-related skills for hotel services and catering, construction and maintenance. These opportunities have seen the creation of the Hospitality Institute under the Barbados Community College along with Building and Construction courses at the Barbados Polytechnic. UWI has also now created a Bachelors Degree within Tourism and Hospitality Management to provide the further training for the industry to the management level.

We have seen the establishment of various tour companies, which will put together package deals for the average tourist. These efforts increase employment and also allow

fair business across the base of the tourism sector. There is also the encouragement of local arts and crafts. Major festivals and events throughout the year all embrace art and craft exhibitions and business.

An appreciation of the cultural heritage value leads to the concern for protection and maintenance and cause for national pride. Within the last four years Barbados has celebrates Heroes Day and Emancipation Day, which are both Public Holidays. The Government has also created a Heroes Square. The Anglican Diocese of Barbados from this year has celebrated Heritage week showcasing music, customs and talent across the Diocese. The adaptation or revival of local building and architectural traditions is also evident. The Barbados National Trust (BNT) is responsible for these efforts.

Despite all of these positive impacts, there are equally the same amounts of negative impacts. The commercialization of traditional welcome and hospitality customs has made the industry more impersonal. This practice takes the locals out of the picture and in Barbados; there was high concern of the amount of all-inclusive hotels created which isolated the tourist.

Damage to family structures and subsistence food production has also resulted. Some years ago many of the west coast homes of locals were sold to foreign investors for large sums of money, in order to erect villas and hotels. Some agricultural land has also been sold for the creation of golf courses. One popular example of this is the sale of Barbados Farms Plantation to Sandy Lane Hotel for the expansion of their golf course. Land speculation in tourism development also enriches some and impoverishes others. This is particularly evident on the West Coast with high land value prices and increased business in general. Displacement of local people to make way for nature reserves is also a concern. This is particularly the case with Harrison's Cave as some of the residents actually live on top of the cave. There have been calls by the relevant authorities to have these persons moved. However, this is a very sensitive issue.

The increase in prostitution and crime is also a major effect. However, crime rates statistically have shown that there has been reduced crime activity across sectors on

average. There have been no high incidences of open antagonism and crime specifically directed at tourists.

There is growing resentment between groups. Years ago in Barbados there were identifiable differences between the large hotels and the small hotels. These matters have been dealt with on numerous occasions with small hoteliers getting support from Government in the form mostly of concessions.

There is major debate on whether Barbados has lost its cultural authenticity. Many Barbadians argue and say they are no real marks in society which stand out as Barbadian anymore. However, with the setting up of the Community Independence Secretariat and the continued work of the National Cultural Foundation, "Barbadiana" is being maintained through cultural events and the promotion of "Bajan Living".

The overcrowding and damage to archaeological and historical sites and monuments is continuously assessed by the BNT.

The globalization of health risks are always a major concern for the Ministry of Health. Barbados has invested around 170 million dollars in a Strategic Programme which gears to train all civil servants on the HIV/AIDS. Incentives of emigration and urbanization, are not major impacts within Barbados.

In general, Barbados benefits from most of the abovementioned positive impacts. However, political scientists argue that Barbados is being neo- colonized with all of the American television and foreign investment apparent. Media and NGO criticisms of tourism-related corruption and abuses of power have never been a major case in Barbados.

One major consideration today of tourism across the Caribbean today is the impact that tourism activities place on the local community. It therefore indicates to the tourism authorities that community involvement from the beginning is essential to the process. Thus Environmental Impact studies and Social Impact Studies now are essential requirements for most coastal and terrestrial projects. These requirements are criticized because of their longevity but can alleviate the careless spending of government funds.

Summary

The environmental impacts of Barbados are extremely broad and in most instances create a chain-effect of impacts. The data available on the ecological impacts do not point directly to tourism as it s major culprit; however, there are high probabilities that with more users on the resources the deterioration of the resource is highly likely.

2.3 : Environmental Management Policies in Barbados

One factor that shows this is its recent move (in September 2001) to amalgamate the Town and Country Planning office, the Public Project Unit and the Environment Division thus forming the Ministry of Physical Development And Environment (MPE).
With regard to the natural environment, its specific objective is to 'promote sustainable tourism development through the protection, conservation and development of the natural environment within its carrying capacity and through education and awareness of, respect for , our unique natural heritage.'

Strategies /Action guidelines

?? Compiling an inventory of the natural resources of Barbados
?? Determining the carrying capacity, and encouraging the development of a mechanism for the economic valuation of the natural resource base, sites and supporting infrastructure which form Barbados' tourism product.
?? Collaborate with the relevant agencies in the formulation of appropriate legislation, regulatory framework and incentives to support an optimal level of development whilst conserving the natural environment.
?? Support and encourage the development and management of special conservation areas.
?? Facilitate the conduct of an assessment of the impact of the tourism industry on the natural environment.
?? Encourage the protection of the limited natural resource base and promote the philosophy of carrying capacity in tourism development process, including marketing.

The country, which practiced Mass Tourism is promoting its nature and at present, attempting designating different areas as Nature Reserves. At present there is only one nature reserve in Barbados; namely, the Folkstone Marine Park. There is also a special area designated under the Soil Conservation (Scotland District) Act 1993. This Act

deems this area as special because of its high vulnerability to erosion and land slippage; however, officially the area is not designated as a nature reserve. There are many environmental management laws and policies, which impact directly or indirectly on Tourism. Though the influence is not at all times obvious, it stands to reason that laws which seek to control the environment, control the nature of the Tourism product that a country is able to offer.

As far as the local laws of Barbados are concerned spatial planning regulations to ensure equitable distribution of land are the responsibilities of TCP office, as mentioned before. The TCP liaison with other Ministries and departments ensure that all major considerations are taken into consideration before the final decision is made. The Barbados Physical Development Plan is a major product from this particular office.

The Coastal Zone Management Act has been established and three of its main aims are :

1) applying standards and procedures;
2) seeking compatibility between socio-economic and environmental interests;
3) conservation of heritage, culture and ecology.

The Coastal Management Act has introduced a variety of standards and procedures, which are relevant to the management of coastal environment. Examples include setbacks, water quality guidelines and standards and Environmental Impact Assessments. Setback provisions for the south and west coasts of Barbados (highly developed tourist areas) seek to ensure safety of structures close to shore and also to support landscape conservation measures and a low comfortable access to shore by the public. Also buildings that are on cliff edges are protected. Whenever the approval for construction is given to hotel etc, there are also standards for inspection and maintenance. The Physical Development Plan provides for environmental impact assessment of certain classes of development proposals including projects that are likely to be built on the shoreline or otherwise affect coastal resources.

Fisheries

The Barbados Fisheries Act has specific laws and regulations as regards sport fishing. Licences must be obtained and there are gear restrictions etc. which are in place to promote the preservation of stock and corals (e.g. no dynamite and poisons in fishing) and there are laws and fines in place to address the destruction of reefs by anchors. Also the various classes of boat operators have been identified and to ensure the safety of tourist and local sea bathers, there are zones identified for each of these activities. For example offshore limit of 200 meters for powerboats parallel to beaches and buoy markers systems to demarcate swimming areas have also been set out in some areas.

Water and Beach Quality

The marine Pollution Control Act, provides government with the mechanisms for regulating sources of pollution and to compel the treatment or elimination of offending discharges. Controlling the discharge of untreated sewage from the hotels into the sea has been a major challenge for Barbados. This can have severe negative health impacts for sea bathers and also the aesthetic value of the area is also diminished.

Marine Areas Preservation and Enhancement Act

The main aims are to: preserve and protect of marine life in submarine areas of Barbados and the establishment of underwater parks and art centres e.g. The Folkstone Marine Park. Areas of the parks may be designated as restricted area for the preservation and enhancement of their natural beauty, the protection of flora and fauna, the promotion of enjoyment of public and scientific study and research.

National Conservation Commission Act

The general responsibility is to conserve the natural beauty, topographic features, historic buildings, sites and monuments of Barbados. This responsibility may be met by various acts, which include conserving and developing parks, gardens and caves, also advising on the removal of corals from the ocean bed.

Barbados Water authority Act

This authority seeks to manage, allocate and monitor the water resources and to keep under constant review the quality, reliability and availability of water supply and sewage service. The amount of sewage has increased because of tourism, this industry has also affected the quantity of water available in Barbados. In fact the situation has become quite extreme resulting in the introduction of desalination plants to provide an adequate supply.

May, 2001 Green Paper on Sustainable Tourism

The Barbados Government also has produced a recent (May, 2001) Green Paper on Sustainable Tourism. In terms of the environment this Green Paper outlines its specific objective as that of promoting: "promote sustainable tourism development through the protection, conservation and development of the natural environment within its carrying capacity and through education and awareness of, respect for , our unique natural heritage.' The following Strategies /Action guidelines are then identified to achieve the objectives of the Green paper:

- ?? Compiling an inventory of the natural resources of Barbados
- ?? Determining the carrying capacity, and encouraging the development of a mechanism for the economic valuation of the natural resource base, sites and supporting infrastructure which form Barbados' tourism product.
- ?? Collaborate with the relevant agencies in the formulation of appropriate legislation, regulatory framework and incentives to support an optimal level of development whilst conserving the natural environment.
- ?? Support and encourage the development and management of special conservation areas.
- ?? Facilitate the conduct of an assessment of the impact of the tourism industry on the natural environment.

?? Encourage the protection of the limited natural resource base and promote the philosophy of carrying capacity in tourism development process, including marketing.

International Conventions

To date Barbados also is signatory to seven (7) major International Conventions and Protocols relating to the Coastal and Marine Environment. They are as follows:

?? Cartagena Convention on Protection of the Marine Environment of the Wider Caribbean. Barbados is a party to the Action Plan for the Caribbean Environment, which has provisions such as prevention of pollution from ships and sea bed activities; habitat and ecosystem protection; and impact identification and mitigation. Barbados receives a substantial number of cruise ships every year, and it is important therefore, that the waters are not polluted by oil spills and waste that may be associated with these ships.

?? Conservation on Biological Diversity and Protocol on specially Protected Areas and Wildlife (SPAW). The National Biodiversity Action Plan and The Environmental Management Act of Barbados have been established with the general aims of preparing strategies for sustainable use of biological resources; providing training and public education and impact assessments. The resources of the country are the main attractions for the tourist to the island and with the event of eco-tourism and the 'green tourist' it has become important that these resources be preserved and monitored to maintain the share of the competitive tourist market.

?? United Nations Framework Convention on Climate Change. Barbados has prepared inventories of green house gases and potential climate impact and measure that may be required to mitigate climate related impacts. The majority of the hotels in Barbados are located on the coast, therefore changes in temperature which may result in sea level rise and flooding of these coastal areas has a negative impact on the tourism industry. Changes in temperature may also have an impact on coral reefs that form attractions for tourist which is the mainstay of the economy.

?? United Nations Convention on the Law of the Sea (UNCLOS). The Government of Barbados has established the boundaries of its Exclusive Economic Zone. The government has committed to the provision for the Caribbean Sea as a Special Area for Purposes of Dumping at sea.

?? Convention on the International Trade in Endangered Species (CITIES). The Environmental Management Act has laws in place which seeks to provide for control of trade in coastal and marine species including corals, some fish and plant and the development of a system of regulation and permits for listed species.

?? MARPOL 73/78 - The Barbados Harbours Regulations require ships to notify the Port of any hazardous goods in freight. There is an incinerator provided at the port, and provision for Trucking and ballast water to the Bridgetown sewerage plant.

Report On The Focus Group Meeting At Almond Beach Club, St. James, Barbados December 14, 2001, 10am.
Facilitated By: Dennis Pantin And Michelle Best

Present were representatives of ten (10) hotels and guest houses together with one representative of the Ministry of Tourism and one of the Barbados Hotel Tourism Association.

ISSUE: Familiarity with Environmental Policies of the Barbados Government, particularly those related to Tourism.
The hoteliers present seemed to have a varied familiarity with the environmental policies of the Barbados government. This seemed to be a function of the individual's location within the management structure of the hotel. Apparently, the Ministry of Tourism has involved the hotel industry in the process of consultation with regards to a new Tourism Incentives Bill to replace the existing Hotel Act which is currently being revised following such consultation. One hotelier present was extremely familiar with this draft bill while others were not. However, this draft bill itself does not focus specifically or apparently significantly on environmental issues but includes tax incentives for introduction of environmental technologies.

It was pointed out that Barbados also has recently enacted a Coastal Zone Management Act as well as a Marine Pollution Act. Both of these focus particularly on the marine environment and one hotelier wondered as to why the land-based sources of pollution were not being addressed. It was then pointed out that there are a number of existing laws that address land based pollution.

ISSUE: Solid Waste
Relatedly, there was a general consensus that solid waste was a serious and growing problem in Barbados. The problem was not, however, particularly of the tourism sector but of the society as a whole. In fact, the hotel industry was facing the frustration of adopting solid waste separation techniques but without supporting system at the national level. One hotelier reported, for example, that a recent review of its certification programme raised concerns about its solid waste separation and the hotel had to explain the difficulty of source separation without a supporting national infrastructure.

Litter was identified as a natural problem caused inter alia by the absence of enforcement. It was reported for example that there is only one recent example of someone being charged with littering – sentenced to 280 hours of community service. In the ensuing general discussion it was felt that the Barbados government had no immediate plan to implement a national solid waste separation programme. It also was reported that the Barbados government was investigating incineration as an alternative to separation. However, it was pointed out that incineration generated several problems, in its turn, including energy costs and as well as greenhouse gas effects of the same together with the toxicity of the ash. An alternative gasification system to incineration was mentioned which did not have the ash problem since it was contained. However, this was identified as very expensive with mention made of a recent offer by a German company to undertake a $10mn feasibility study for such a system.

There also was debate among participants in the role of the private sector in recycling.(e.g. Environmental Tech.). Private sector initiatives at waste recycling were reported to be struggling to survive in the absence of government support. Relatedly, it was pointed out that, currently, the Environmental Levy goes into the Consolidated Fund but that, at least some of this could be allocated to waste management efforts. A participant reported that in the Turks and Caicos, for e.g., 1% of the hotel tax is dedicated to a Conservation Fund. Mention was also made of the recent Green Fund established in Trinidad and Tobago. It was suggested that there could be private sector recycling alongside government regulation and financing.

There was also a debate among participants in the focus group on the view expressed by one participant that the tourism industry need not wait on government policy and in fact that there could be an industry-driven environmental management policies. It was pointed out that this already has begun in terms of hotels seeking Green Globe Certification, with seven(7) hotels in Barbados already being certified. It also was noted that there also was a pilot programme for a Quality Tourism in the Caribbean (QTC) Standard coordinated by CAREC in Trinidad and Tobago and flowing from its earlier Healthy Hotels programme. In a side discussion on certification some concerns were raised about Green Globe including the view that it was

expensive to maintain Green Globe Certification since this required an annual review. However, it was pointed out that annual re-certification avoids slippage on environmental management. On this score one of the main challenges of the QTC was that it is a voluntary standard.

ISSUE: Evidence of Environmental Problems
It was reported that coral reefs along the West Coast were dead although the contributing factors were not only tourism but including a historic pattern of chemical use in the island and more recently, shift in inter cropping of sugar cane lands and use of combine harvesting leading to increasing soil run off.

ISSUE: Drivers of Environmental Standards
There was general consensus among the focus group participants that tour operating was driving industry standards.

Question on negative feedback loop from the Environmental problems in Industry
Relatedly,, it was pointed out that many tourists were increasingly environmental conscious and asking questions. One diver, for example, was reported to have seeing a leak in a sewer outflow line and was extremely upset as a result.

ISSUE: Chemical Use in Hotels
The question was asked of whether hoteliers were increasingly using environmentally friendly products as cleaning agents and in laundry operations. The answer seemed to indicate an increasing interest in use of eco-friendly chemicals. In general, those present s reported using either no chemicals or vinegar in cleaning. However, there were mixed views as to whether use of the more eco-friendly products was more expensive than alternatives. One hotelier reported importing chemicals from Europe where costs were not higher. Moreover, it was pointed out that the relative lower frequency of use required of eco-friendly chemicals as opposed to alternative implied that costs were not necessarily higher. The problem here seems to be the absence of an adequate information set among hoteliers in terms of the effective costs of alternative chemical agents.
However, a general problem was reported with Aloe Vera being sold to tourists in the beaches since it was proving impossible to remove such stains from towels, etc. One hotel reported a "Say No to Aloe Campaign" while another hotel has been advising guests on a list of alternative sun tan lotions.

ISSUE: Water Conservation
Water costs were identified as relatively inexpensive and although Barbados was water short this does not appear to have filtered through to society. The introduction of a desalination plant in 2000 also appears to have lead to a reduction in concerns about water shortages.

ISSUE: Sewage Waste
All agreed that there is a problem of sewage waste disposed in the island best illustrated by the decision to sewer the island beginning in the South Coast and with plans to move later to the West Coast. However, progress was painfully slow. The south coast project began in 1994 and then stopped in 1997 for 2 ½ years as a result inter alia, of the dismissal of the original contractor. The related law was also posing a problem since it has banned hotels from constructing private sewage plants since the law required that it be connected to the public system. One hotelier reported applying in 1997 to expand its existing treatment plant pari passu with its increase in rooms. This was refused but the central sewer system was still not operational. As a result, the hotel was facing difficulties with its existing system. In the ensuing general discussion it also was pointed out that the central sewer system would only undertake primary treatment since it was decided that secondary and tertiary treatment would have been too expensive. It was also pointed out that expanding the central sewer system to the west coast would pose a major challenge given its destruction a road traffic in the laying a pipeline and the absence of alternative road networks in the West Coast.

ISSUE: Energy Conservation
It was generally agreed that hotels were engaging in such energy conservation given high-energy costs. (e.g. 32 cents/ kilowatt -four times that of the Trinidad and Tobago charges).
It was indicated that management of Electrical equipment was central to such energy conservation since costs could increase astronomically from mal-functioning equipment. Also, that sensors were important especially in high energy area of air conditioning.

General
The view also was expressed that import duties and requirements were onerous and constrained purchase of some types of equipment which could reduce energy or water use.

Hotel Survey By Country

Barbados

General Information

66% of the hotels surveyed in Barbados were located on the beach with 50% of the hotels within the relatively large of between 101 and 200 rooms. Most of the hotels (78%) are locally owned. There are no international or Caribbean hotel chains. 11% are local hotel chains while the majority were single/independent (89%) hotel properties. No hotels were on over 20 acres of land with 6% of the hotel population on areas of between 10 and 20 acres of land. No hotel employs over 600 employees. In fact, 55% employ between 201 and 600 employees. The cost cutting method most employed is a shorter workweek (33%).

Energy

While 100% of at the hotels monitor energy use, 89% implement energy saving measures and 56% use solar as an alternative source of energy. The major reason given for this is high investment costs. Strong agreement was expressed (100%) for government policy in support of solar/alternative energy source, energy efficient lighting and energy efficient equipment, machinery and appliances. It was revealed that policy on energy saving for both new/expanding and existing hotels are non-existent. A favorable response was gotten with respect to reaction to energy-saving methodologies. 43% of the hotels would implement solar/alternative energy within the 1-12 months of introduction of policy. Similarly, 75% agreed to implement efficient lighting within that period, 57% for energy efficient equipment and 100% for energy efficient technology. While 44.5 are satisfied with its contribution only 11% were dissatisfied.

Water

Government supply of water is the main sources of potable water for all the hotels. Of this 89% monitor water usage and 88% implemented water saving measures. For the 22% that do not, 56% believed that it was not necessary and 33% cited investment costs. No hotel policy was in place with respect to low-flush toilets, sprinkler systems and rain-water storage ,as with government policy/incentive which were non-existent for both now/expanding and existing hotels. Unlike energy savings methods hotels are less likely to react as favorable. A mere 25-50% resolved to implement water-saving methodologies such s a low-flush toilets, faucet sensors, shower-flow restrictions within 1-12 months of government making it policy. The general belief is that this is not profitable as only 26% indicated it contributed to their hotel's bottom-line..

Solid Waste

67% of hotels monitor the quantity of solid waste produced by their hotels. Of this 79% monitor the type of solid waste and have implemented reduction measures. Generally, hotels are not satisfied that enough is being done about it as 50%-71% believe that nothing is being done about the collection and safe disposal of hazardous waste and the recycling of hazardous waste, glass bottles cardboard and paper. 89% of the hotels agreed that policy/incentives are required for recycling, composting of organic waste ad bulk dispensers. However, between 63% and 83% are willing to implement measures to deal with this within 1-12 months of its policy formation. Unfortunately, policy for existing and new/expanding hotels in this area are non-existent. Its contribution to profitability is reflective of this as a mere 11% expressed satisfaction.

Effluent and Emissions

67% of the wastewater by hotels are disposed of via soakaway/septic tanks, 22% via the hotel's own treatment plant and 11% via other treatment plants. Hotels generally felt that policy and/or incentives are required for environmentally friendly products, pump sprays, machinery/equipment, CFC refrigerants and other environment friendly products. 89% of the hotel population indicated that policy on the matter is practically non-existent. However, 67%-89% of the hotels are willing to implement any such policy within 1-12 months of introduction of relevant policies.

Other

Thus far, 50% of the hotels have received awards for environmental efforts. but only 57% are interested in a green certification programme.

Chapter 3 - The Bahamas Case Study

3.1 : The Bahamas Physical Environment

General

The Commonwealth of The Bahamas is an island archipelago of approximately 700 islands and cays totalling approximately 5,382 sq. miles in land area. Geographically, this archipelago covers some 100,000 sq. miles of the Atlantic Ocean; beginning 50 miles south of Florida, USA and stretching 500 miles to the northern tip of Hispaniola. Some of the islands in The Bahamas are quite large and inhabited; such as Andros (2,300 sq. miles) and Great Inagua (596 sq. miles), while others are little more than low uninhabited coral reefs. These low-lying islands and cays generally do not exceed 30 ft. above sea level. However, dune ridges, such as those found on New Providence have elevations exceeding 100 ft. The islands of The Bahamas are often described as having a near-perfect climate. This is due to its tropical maritime climate and winter incursions of modified polar air that causes the country not to experience extreme temperatures making it highly attractive to neighbouring North Americans as an ideal all year round destination.

Geology

The surface geology of The Bahamas consists of basically reefal limestone and its weathering products. Therefore, coral limestone, lagoonal materials and beach sands, all of which consist dominantly of calcium carbonate, make up the lithic materials of this country. In addition, past extensive downward fluctuations of sea level have created numerous geological karst features, most noticeable of which are "Blue Holes" which are remnants of cave systems that conducted freshwater to the ocean during times of low sea level. There are no occurrences of minerals in economic quantities although quarrying of limestone does occur and is used as fill and as aggregate. Soils are also generally very thin because they developed in place from the underlying calcareous materials. Weathering of the coraline deposits leaves virtually no residual materials, hence the

upland soils contain only minor clay materials. Lowland soils reflect slow accumulation of clay materials along with abundant organic material.

This highly-porous limestone reef structures combined with karst features, therefore, make up the geological environment of The Bahamas. Its 100,000 sq. miles of crystal waters, generally provides The Bahamas with a relatively extensive marine area. In fact, The Bahamas is bordered by the world's 3rd largest barrier reef and has, what is often termed, the world's most striking arrays of Blue Holes. The Bahamas is also bordered on the west by the great "ocean river" known as the Gulf Stream. Some of the deepest water in the world is also located in the Tongue of the Ocean (TOTO), east of the Bahama island of Andros. More than a mile deep, these waters are utilized for oceanographic research by scientists of The Atlantic Undersea Testing and Evaluation Centre (AUTEC), a multi-million-dollar joint US-UK research base.

Hydrogeology

The limestone structures and karst features of The Bahamas support a freshwater lens, which is used for groundwater supply. In its undisturbed state, this lens floats on the underlying salt water. Exploitation of this lens requires careful withdrawal to avoid depressing the water table thereby inducing an upward movement of the freshwater/salt water interface. Extensive groundwater withdrawal systems consisting of trenches and vertical wells have been developed in The Bahamas by The Bahamas Water and Sewerage Corporation (WSC) to exploit this thin freshwater lens in order to serve the growing needs of the country. In addition to the trenches and wells that constitute the public supply source, however, there are, for example, over 10,000 private wells throughout the capital island of New Providence. These private wells are partly due to the fact that WSC does not service all islands in The Bahamas nor all areas within any given island. In New Providence, for example, WSC is currently only able to service 10% of possible connections for both potable water and sewerage collection/disposal, which makes the use of private wells and soakaway/cesspits the general trend in Nassau. Overall freshwater withdrawal levels, however, results in the general intrusion of salt water in the freshwater lens on several islands. In New Providence, the chloride

concentration from the water supply trenches is currently so high that water of lower chloride concentration must be imported from Andros Island and blended to provide acceptable quality for public distribution. Higher than desirable values for chlorides are still generally found in the water due to the salinity content. Consequently, the water produced by WSC has a distinct and disagreeable taste. Bottled potable water supplied by private water companies is widely used throughout the country.

3.2 : Benefits of The Bahamas Physical Environment in Tourism

The natural geographical and geological resource bases of The Bahamas dictate the main economic activities of the country, which includes tourism and fisheries. For tourism, the geographical proximity to the high-income and large population of North America is also one of the main natural geographical advantages, which The Bahamas has. In 1994, for example, The Bahamas was ranked the 8th most popular world vacation destination for Americans (BIA). In fact, the most popular other reason (beside sun/sea/sand) given by tourist surveyed for choosing to vacation in The Bahamas was related to "proximity".
Popular tourism activities are also centred around the natural physical environment of The Bahamas such as beach walking, swimming, sailing/boating, scuba/deep sea diving, coral reef trips, kayaking and snorkeling. A Bahamas Ministry of Tourism (MOT) tourism activity survey, cited "Beach Walking" as the most popular activity in Nassau/Paradise Island (Dupuch, 2001). Also ranking among the Top 10 most popular activities are "ocean swimming" and "snorkelling". Additionally listed for the Out Islands are "boat trips/tours."

The Bahamas is additionally one of the most popular dive destinations in the world. The Rodale's Scuba Diving magazine notes that in 2000, 102,849 divers came to The Bahamas - equal to about a third of the Bahamian population. Of these divers, 83% came specifically to dive. It is estimated that the economic impact of dive vacationers is $266 million, which is about 15% of all tourism revenue generated over the year. With fewer than 40 dive companies in The Bahamas, the industry appears to be poised for growth.

Value of Coral Reefs

Given the significance of diving, the coral reef aspect of The Bahamas geological make up is, therefore, of particular significance. Reefs are sometimes referred to as the rainforests of the sea. In fact, they are even more biologically diverse and productive than rainforests. The sheer number and diversity of plants and animals they support is staggering as it is estimated that more than one million species may be associated with the reefs, all of them interconnected in one way or another (Feeny 2001 in Dupuch 2001).Feeny (2001), considers coral reefs to be the lifeblood of The Bahamas and believes that they benefit every Bahamian in some way as they provide protection to the islands by buffering them against tidal surges produced by hurricanes and lesser storms. They also help to slow global warming. In addition, The Bahamas coral reefs provide a place to relax and are a source of both nourishment and income for its people. Others believe that The Bahamas coral reefs are the reasons these islands exist as these islands are being continually built and renewed by the reefs. Without the coral reefs, the beaches could eventually disappear, for it is the reef organism that helps create the beaches. Without the protection of the coral reefs, the pristine, clear waters would become clouded by coastal erosion. Without them many areas would be unsafe for boating, swimming and other water sports. Therefore, for the survival of tourism it is paramount that The Bahamas maintain these reefs so that they survive.

3.3 : Negative Physical Environmental Impacts

The geography and geological composition of The Bahamas act both as a blessing and blight in tourism development, as this landmass is extremely vulnerable to pollution from land-based and marine sources. In addition, its hydrogeology dictates the availability of fresh water in limited supply throughout the country. This limited supply is exacerbated by ground water pollution and by the additional demands by the hotel and tourism sector. Several negative physical environmental issues, therefore, face The Bahamas in general and its tourism sector in particular.

Destruction of Coral Reefs

In addition to the world's 3rd longest barrier reef, The Bahamas has an estimated 900 sq. miles of coral reefs (that is 11.25 times the size of New Providence). Wilkinson (in Feeny, 2001) in reviewing the "Status of the Reefs of the World: 2000" stated that The Bahamas reefs are one of the healthiest within the region and are in "fairly good condition". Insight into the reef existence, however, shows alarming rates of destruction at the hands of man. These coral reefs have endured countless natural stressors over million of years such as hurricanes and out break of marine disease, but the reefs have the ability to slowly recover in periods of these rare events. Man-made stressors, however, have a high impact because they are unremitting. According to the Global Coral Reef Monitoring Network, The Bahamas, like the rest of the Caribbean Atlantic region, may loose up to 33% of its remaining reefs succumbing to the natural and man-made pressures that endanger them. In The Bahamas, contributing factors to the country's reef destruction include the following practices, which have pushed these coral reefs beyond their ability to recover naturally:

Coastal Developments

Coastal developments such as hotels, restaurants and water front homes are quite common in The Bahamas. These developments are often within reach of the high tide water line and have caused changes in the natural shoreline. In some cases the development has caused coastal changes as adjustments were made to facilitate shoreline extensions or additional beach spaces by the developers. This phenomenon can, for example, be observed on the Cable Beach strip on New Providence where significant water front hotel developments have occurred . Residents were quite familiar with such problems and expressed concerns that such hotel developments have led to the "destruction of the environment". In fact, resident drew specific attention to the beach environment around a certain large hotel on the Cable Beach strip, which resident felt has been affected because of that hotel's development. Residents also felt that hotels were "developed with no regard for the natural environment". "Destruction of our beaches", "ruining of lands and beaches by hotels", and "loss of beaches and undue pressure on

natural resources such as reefs, fishing grounds & real estate", were all noted by residents as being directly due to hotel and tourism coastal developments.

Pollution of Coastal Waters

Family Island harbours are home to tens of thousands of pleasure boaters who dump much of their sewage into the sea. There are no regulations nor dumping stations to provide an alternative for these vessels, most of which have holding tanks to meet regulations in the US. Sewerage discharge by hotels on some Family Islands is also a contributing factor to the pollution of the country's coastal waters and, by extension, its coral reefs deterioration.

Cruise Ship Dumping at Sea

Bahamian waters are additionally visited by large numbers of cruise ships and a lack of serious fine for dumping at sea ($400.00) has resulted in extensive beach degradation because of garbage, bilge and in other cases even bunker fuel from these and other ships. In October 1999, for example, an estimated 7,000 gallons of diesel fuel spilled from a tanker into Elizabeth Harbour at George Town, Exuma, an area within The Bahamas Land and Sea Park Reserve. Studies revealed that residents of Nassau/PI are disturbed by pollution of the waters by cruise ships and boaters (Edwards November 1998). Residents noted, for example, that cruise ships contributed to "polluting our waters" and pointed out that "our beaches will no longer be attractive …if pollution continues the Bahamian marine life will also be destroyed". Bahamians believe that "cruise ships indiscriminately dump effluent" and so cause pollution. One resident explained their concern on this issue:

"It concerns me that cruise ships leave their garbage/waste here for our government to deal with and are not allowed to return back to the US with it, which, in turn, attributes to the pollution of our islands and dumping while at sea. I have also seen this first hand - the boating tourist, both on sail boat and yachts, not only fishing in restricted waters, but also leaving large quantities of trash/waste on smaller islands. When will we address this problem? Do we need to charge them for waste removal?"

"Traffic congestion" and "overcrowding" caused by the conversion of cruise passengers on the town of Nassau was also viewed by residents as a negative environmental impact due to the expansion of cruise tourism in the country. This was supported by another tourist who noted that “the beaches and water are great, but the city traffic is congested."

Littering & Solid Waste Generation

Residents also noted the “litter and a huge solid waste problem”, which is aggravated by hotels and tourism. In fact, residents commented on the “amount of garbage created and disposed in The Bahamas” because of tourism. One resident asks “how are we, a small country, able to deal with this”?

Pollution & Electricity Emissions

Lapointe (in Dupuch 2001) links general air pollution to reef destruction. He believes that controlling such pollution must take top priority in reef conservation efforts. It must be noted, however, that while general emissions in The Bahamas are low by global standards, a national inventory of greenhouse gas emissions for the period 1990 -1994 by BEST indicated that the generation of electricity and transportation are the two most significant sources of emissions in the country. This can in turn be linked to hotel and tourism development as earlier studies indicate the high demand for electricity by the hotel and tourism sector of The Bahamas. The need for this sector to conserve electricity and or make use of alternative renewable energy sources should, therefore, be an area of focus in The Bahamas.

Jet Skis Damage to Marine Life

Jet skis, by their very nature, scare fish and damages other forms of marine life. While there are no data available on such damages by jet skis in The Bahamas, it is believed that the widespread use of jet skis as a tourism water sport activity is a contributing factor to the country's marine life and reefs deterioration. Residents, in fact, support this view and believe that “environmental impact” has occurred due to the “Noise and damage of jet skis” which have affected the marine life in the surrounding beach waters. In addition, jet

skis have posed a threat to the safety of tourists who use them and who visit the beachfront. These small watercrafts are driven very close to the shoreline and in a dangerous manner. In 1991, hundreds of residents on Nassau/PI petitioned - unsuccessfully - for a ban on the small watercraft after the death of a 22-year-old cruise ship visitor. Eight years later in 1999 the concern was again raised about jet-ski operations in The Bahamas, particularly off hotel beachfront properties. Hoteliers expressed concern, not only for the safety of their guests, but also for the legal consequences should anything go wrong on their premises and asked for tighter controls on these operations by government.

Over Fishing and Illegal Fishing

Visitors contribute to the over fishing of certain stocks and there is an attitude among many non-resident anglers that poaching is acceptable (OAS 1994). There is an obvious lack of enforcement of existing regulations in this area.

Pollution of Fresh Water

Another negative physical environmental impact is related to the hydrogeology in terms of fresh water availability in The Bahamas. The hotel and tourism sector adds to the demand for freshwater which is already of limited supply in the country. Residents themselves have noted that "hotels increase demand on water". Previous studies have noted, for example that the following are cause for concern in this area in The Bahamas and are, therefore, viewed as being negative by way of impact on the physical environment:

Inefficient Use of Limited Fresh Water Resource

Although fresh water is a scarce resource in The Bahamas, there are remarkably few methods in place to encourage its efficient use or the use of other water supply such as rainwater by the hotel and tourism sector. The 2001 SEDU/Ford Foundation survey[5] in this area revealed, for example, that The Bahamas hotels were lacking in sound green

[5] See Pantin, Dennis A.(edited): The Greening of Tourism in the Caribbean and its Adaptation to Climate Change, mimeo 2001.

practices in the area of water conservation and management. These results were in keeping with a similar study undertaken in The Bahamas by the writer in 1997.

Pollution of Ground Water due to Effluent & Other Infiltration

Previous studies have also noted that the products, such as detergents and cleaners, used by the hotel sector in The Bahamas are not always environment friendly and can assist in contaminating ground waters particularly in smaller hotels with on property wells (SEDU/Ford Foundation 2001, Edwards, Ph.D. Thesis 1998). Injection of liquid waste products into the salt-water zone by means of wells has been an accepted practice in The Bahamas since the 1970s. On a formal, approved basis, these wells are commonly constructed to depths of 200 to 600 ft, but waste liquids from septic tanks and other water runoff are also commonly disposed into shallower wells not subject to the approval process. It is common knowledge that unapproved disposal of liquid wastes and other non-environment friendly discharges take place by such means as surface infiltration, ditches, pits or wells of any depth. There is little information regarding monitoring of the impact of this practice, in general and by the hotel and tourism sector in particular.

3.4 : The Biological Environment

Plants

There are 1,371 species of plants found throughout The Bahamas Archipelago (Correll & Correll 1992 in Stanley1997). Only 9% of the total species, however, are actually endemic to The Bahamas.

Animals

The Bahamas, being a chain of islands with limited large open space, is unable to support animals of great size. Very few species of mammals, therefore, inhabit The Bahamas and species that do occur are not found on all of the islands. The Bahamas raccoon, for example, inhabits only New Providence and Grand Bahama islands. There are 12 species of reptiles and amphibians found in The Bahamas, which includes species of freshwater turtles found only on Cat and Inagua islands and species of Rock Iguanas and Greckos.

There is, however, an abundance of bird species found in The Bahamas. About 230 species of birds either migrate to or live in the Bahamas islands. Not every bird species, however, is found on every island.

Ponds & Lakes

Ponds and lakes support a substantially different ecosystem, one that depends upon the ocean surrounding each island. Most of these ponds and lakes contain brackish water - being neither saline nor fresh. Local and migrating birds use them extensively as nesting or resting places. On many islands the extent of these ecosystems is not great, and therefore they represent a unique resource.

Mangrove Swamps

In The Bahamas there are about 233,200 hectares of mangrove forests. They occur in abundance on Andros, Grand Bahamas and Inagua islands. These mangrove forests grow in shallow tidal water on the sheltered sides of the islands where they are protected from wave action.

3.5 : Benefits of the Bahamas Biological Environment in Tourism

This environment has benefited ecotourism in The Bahamas and because of this there has been increased awareness of the need to protect endangered species of The Bahamas biological life. Birdwatching, for example, is another growing aspect of ecotourism in The Bahamas that is being encouraged by government. In fact, MOT organises bird watching courses to offer accredited bird watching tour guide training programs.
Trips to botanical gardens and other sites of natural vegetation and plant life by visitors also form part of tourism in The Bahamas. One of the most popular of such trips is the tour of the Hydroflora Gardens on Grand Bahama island, which features tropical fruit trees, shrubs and flowers, hydroponic terrestrial using native gravel and sand and other natural flora and fauna of The Bahamas. For tourism purposes, ponds and lakes are popular for canoeing trips to view mangrove and other natural phenomena. One of the

most popular canoeing sites in The Bahamas is located at Lake Nancy where tours for visitors are available.

3.6 : Impacts on The Bahamas Biological Environment

While no data are available on the specific effects of tourism on this environment in The Bahamas, given the extent of tourism development in this country one can attribute some percentage of biological destruction to tourism and hotel developments in these islands. The expansion of eco-tourism in The Bahamas is cause for concern as it also depends on the use of this biological environment for its success.

Endangered Species

Researchers on both plants and animals have stated that the large number of small islands of The Bahamas creates natural pressures on both plants and animals because of the limitation of habitat. Ecological communities cannot be very large in this setting and there is not an abundance of alternate habitat for displaced plants or animals. When the pressure of human development such as tourism, is added to this pressure, the potential for negative impacts on these ecosystems is heightened. Twenty-one (21) species of endangered plants were identified in the BEST 1995 Report on Biodiversity for The Bahamas while several species of birds are endangered or have limited range in The Bahamas. These birds include The Bahamas parrot endangered due to habitat destruction from human developments and uncontrolled predation. The Bahama parrot burrows in the ground to make its nest, thus making it accessible to predators.

Critical Ecosystems: Ponds & Lakes, Mangrove Swamps

These critical ecosystems of The Bahamas are very susceptible to pollution from solid and toxic wastes. Ponds & Lakes in The Bahamas are particularly subjected to considerable pressure from development. Developers frequently fill them to gain more land. Formal and illicit dumping and littering takes place on a regular basis. The evidence is not readily available on the level of negative impacts that tourism may be having on these lakes, however, one can conclude that tourism is a contributing factor to

the use and consequent negative impact that may occur. Sand removal from mangrove beds for developmental use is also another area negatively impacting on the biological environment of The Bahamas. In fact, in July 1999 Nassau's three sand dredging companies were directed to relocate operations as government tried to find a solution to beach erosion problems caused by such operations. Sand mining is, however, generally done on a large scale in Nassau. It is legal to mine sand from the ocean (this is done on a regular basis), but it is illegal to mine sand from the beachfront. Illegal sand mining continues due to lack of effective monitoring.

3.7 : The Socio-Economic Environment

Population

The Bahamas achieved political independence from Britain in1973 and has a current population of 304,913 inhabitants (2000 National Census). The population of The Bahamas is, however, concentrated mainly on the island of New Providence (67% of total population, 2,655.4 persons per sq. mile, 2000), which consist of the capital city of Nassau and the resort Paradise Island that is connected to mainland Nassau by a toll bridge. The population of the smaller islands has declined over the past years as its young migrate to New Providence in search of employment and other opportunities.

Income & Taxes

The Bahamas is considered a stable, upper-middle income developing nation. Its GDP is currently estimated at US$3.06 billion or approximately US$11.6 thousand per head. The average household size in The Bahamas in 2001 is 3.5 with each household earning an average annual income of Bahamian dollars B$34,769.00. Households in New Providence, however, record a higher annual average income at B$35,600.

There is no personal tax in The Bahamas. Individual incomes are, therefore, not subjected to any direct governmental taxes. In fact, there are no corporate taxes and no taxes on profits, dividends, capital gains, gifts, estates, inheritances or wealth. However, it is misleading to say that The Bahamas has no taxes as, the most important taxes are invisible, hidden away in the price of almost everything purchased, from fruits and vegetables and zippers to luxuries such as yachts. Prices in The Bahamas include

customs duties that average out at 35% but range between zero and 300% on the CIF value of the item, plus stamp taxes ranging from 2-7 % for everyday imported items. Stamp taxes can go as high as 20% and even 50% on some otherwise duty-free luxury items. Government also collects taxes on property (including sales and mortgages), gaming, hotel occupancy and motor vehicles. It also earns revenue from departure taxes, casino application fees, insurance premiums, fines, forfeits, business administration fees and licenses. In addition, money comes into the public coffers by the way of public enterprises such as Post Office, and the Port and Aviation Departments. Government revenue from all sources is now about $1 billion a year, of which import duties and their related stamp taxes account for just over 58%. According to the latest statistics available from The Central Bank of The Bahamas, import duties and stamp taxes netted the government $577.8 million in fiscal year 2000-01, out of total revenues of $990.5 million. However, globalization and the liberalization of international trade are now putting pressure on The Bahamas to change its tax system.

Unemployment & Inflation

The unemployment rate in The Bahamas stands at 7.8% making this among the lowest in the region (Dec. 2000). Inflation rates available for New Providence and Grand Bahama are at 1.7 and 2.71% respectively (2000). Since 1995, there has been a yearly increase in inflation varying between 0.8% and 1.9 %

Significance of Tourism in the Economy

This nation's economy is based mainly on tourism. Tourism generates approximately 50% of total GDP and produces 70% of the government tax revenue. It also directly or indirectly employs about 50% of the total employed workforce. The second major sector is banking which accounts for 8% of GDP. Other sectors such as the agricultural and industrial sectors are comparatively small.

Historical Development of Tourism

With little arable land and no mineral deposits except salt, tourism, an export industry, was first encouraged by the government in 1950 in an effort to generate revenue and to create employment (BMOT u/d: 1). In the four years prior to 1950, tourism arrivals to The Bahamas numbered about 32,000. During the early 1950s the islands of The Bahamas were little more than a few small colonial settlements attracting about 100,000 tourists a year. Today, there are now more than 3.6 million foreign arrivals per year of which stopover visitors, numbering 1,438,887 and cruise passengers 2,209,404 (1999). Estimation by The Bahamas Ministry of Tourism (MOT) of visitor spending in 2000 was at $1.8 billion. As noted earlier, Nassau/PI is the tourism hub of The Bahamas receiving on average 60% of all visitors to the country. The Bahamas tourism industry has seen a healthy rise in room rates since 1993 when the average was $79.00 a night. In 2000 the average room rate stood at $150.00 per night. Occupancy rates averaged 67.2% in 2000 (The Bahamas Central Bank). The Bahamas is a leading tourism destination in the Caribbean region and continue to show an "above average growth" rate in comparison to other top Caribbean destinations. Based on its growing capacity to create jobs, earn foreign exchange and generate income, the Government of The Bahamas expects tourism to remain the dominant industry of The Bahamas for the foreseeable future (BIA u/d: 1).

3.8 : Socio-Economic Environmental Impacts of Tourism: Resident Views

A 1997/1998 study (Edwards, 1998) on views of residents on Nassau/PI revealed the wide impact of this industry on all aspects of life in The Bahamas. Residents perceived positive impacts of tourism on the socio-economic environments of The Bahamas under the following headings:

Job Creation

The main single positive impact of tourism pointed out by all residents were the jobs it brought or the employment it created in the country. The words "Jobs" and "Employment" were, in fact, the two most frequently used words to describe the most

significant positive impact of tourism in The Bahamas. In addition, while it was agreed that tourism was indeed the "main source of income," residents felt that the "self-esteem" of the Bahamian population has been raised because of the "full employment" due to hotel and tourism development.

High Standard of Living & Improved Quality of Life

Closely linked to the view of employment and job creation, was the view that hotel and tourism development has, in turn, brought "prosperity" and "wealth" which has led to a "higher standard of living" and to a "better quality of life" for the people of The Bahamas.

National Economic Gain & Foreign Currency

A general consensus among residents was the "economic" and "financial" gains hotels and tourism have brought to the nation. There was, in fact, a widespread recognition that tourism was the driving force behind their economy and that it allowed an increase in "foreign exchange from US/Europe" to be available in the country.

Recognition of Country & Culture

Residents noted several other types of socio-economic tourism impacts, the first of which is related to cultural and other social benefits to the people of the Bahama Islands. Bahamians felt that tourism has facilitated the "recognition of Bahamian culture and attributes of its people". It was felt that tourism has given "world recognition of our country's existence", created an "awareness of our tourism product in people's minds", "sharpened the country's international profile" and has caused The Bahamas to be "marketed internationally". The "cultural and art talent of Bahamians" were felt to have been given exposure and, as explained, "it made a tiny country in the western world become known to the world".

Infrastructure Improvement & Other Benefits

Residents additionally hold the view that tourism provided the "impetus for infrastructure development particularly communication facilities" and that, because of tourism, the "infrastructure is kept in good condition". Residents noted the "technology transfer", "updated technology", "improved facilities" and the "encouraging improvement of infrastructure in some areas" as being advantages due to hotel and tourism development. The development of "the airports" on Nassau was seen as significant infrastructure improvements along with "road pavements" and "electrical developments" which were done "to accommodate the tourism industry". Other significant views were that tourism was responsible for "the expansion of the services industry" and the creation of "related business activities" which helped in the "diversification of the economy". The "rise in the construction industry", for example, was generally seen both as being an advantage brought on by tourism and as being a related activity of tourism. One resident stressed that this "phenomenal growth in construction" influenced the increase in "residential developments" throughout the capital of Nassau/PI.

3.9 : Negative Socio-Economic Impacts of Tourism

Residents of Nassau/PI also had much to say on the negative things occurring in the country and in the lives of the people that are definitely as a result of hotel and tourism development:

Adoption of American Culture

One of the most frequent negative influences noted, however, was related to the "introduction of other cultures" or more specifically the "adoption of American culture". Although residents noted that an advantage of tourism included the "first hand" exposure received from being able to mix with foreigners from all different nationalities, they felt quite strongly that this has caused a "dilution of (their) culture" and a "loss of identity especially in Nassau". Residents believe that this "introduction of other cultures" and contact with tourists, who are mainly "Americans", has caused people of The Bahamas to

become “too Americanized”. Residents generally felt that there is a “heavy tendency to imitate foreign lifestyles” and “copycatting everything”. Residents felt that “better treatment of tourist in (is given) than the local population, by the local population". The perception is that the foreigner may be smarter and richer etc.” and so they are treated better.

Crime, Materialism & High Prices

Residents additionally linked crime and immoral behaviour in Nassau/PI to tourism development “People became used to high income & now would want to acquire it even if they have to steal”. Another view was that “the affluence (brought on by tourism) drives crime”. It was additionally felt that The Bahamas has received its share of “tourists that are criminals, rip-off artists and drug inclined” and this has not done anything good for the country. Resident believes also that cruise ships bring in and take out drugs and ammunition in The Bahamas. Related areas that were mentioned by residents of Nassau/PI were materialism, high prices & land values. Residents noted, for example, “Materialism, wanting to live at the standard of the tourist” and “greed”. “Some Bahamians have become greedy in that they feel they can charge too much for services”.

Foreign Take-Over

There is antagonistic feeling against what is seen as “foreign take-over” believed to be brought on by hotel and tourism development. The exposure of the country particularly due to tourism has, for example, encouraged not only the increase in foreign investment in hotels, but too the increased purchase of some of the smaller islands and cays by cruise companies and other private interests. One view was that “our islands are being sold to foreigners. Soon all our islands will be sold and we would not have any island to claim as ours”. There was also a feeling that foreign investors had more weight in the country than local investors. One view, for example, was that this has affected “young Bahamian investors negatively”.

Loss of Beaches

Another significant view of residents is related to the "limited access to public areas– beach", which was also linked to the take over by foreigners. One view was that "there are no more beaches for the nationals" of Nassau/PI. This is particularly significant as most of the hotels in the tourism strip areas of Cable Beach and Paradise Island are built along beachfronts.

Neglect of Other Economic and Community Areas

Finally, there is a view by residents of Nassau/PI that tourism development and its success has led to the underdevelopment of other areas of the economy and to the "development of only major parts of the island of New Providence and the Family Islands". Residents noted "the neglect of other aspects of our economy", "a lack of development of our other resources" and "failure to develop other industries for economic growth" as negatives due to the success of tourism. The "agricultural" sector, for example, was seen to be a "non-developed area" while the "fisheries" area lacked development. Resident felt that generally there was an "overemphasis on service and no attempt at developing other facets of our capabilities". Others noted that the "slow diversification of the economy" was due to the prosperity of tourism.

Residents also noted that "everything is concentrated on Nassau/PI or Freeport. Other islands are underdeveloped with population depletion". The opinion was that there was "lack of Family Island development". There has also been a movement of the population from the Family Islands to the main tourism destination and capital-island of New Providence to work in the tourism industry. Residents felt the zeal to work in the hotel and tourism field has caused "poor attitudes toward work especially farming, carpentry, plumbing (servile work)".

Residents feel too, that even within New Providence more development has occurred in the tourist areas with a "neglect of other areas in the community by government that needs development". Areas on New Providence such as "Bain Town, Kemp Road, and

Grants Town" were seen to have suffered, as they are not in tourism areas while other parts of the island in tourism areas have benefited more. Residents felt that because of this there is "uneven distribution of wealth", a "big difference between the have and the have-nots", and a "wide gap between the rich and poor".

3.10 : Environmental Policies & Tourism In The Bahamas

Introduction

Due to the coraline composition of The Bahamas and its extreme vulnerability to pollution, it is not surprising that considerable space in the statute books of this country is occupied with environmental-related enactment, some of which are designed to protect the environment of coastal and marine areas. This legislation, therefore, addresses matters of national concern for the environment in The Bahamas and not necessarily environmental concerns for tourism. Prior to 1992, for instance, the larger part of environmental policies in The Bahamas, reflected by way of legislation, was fragmented and charged different government bodies with their administration. After 1992, The Bahamas public and private sectors, like the rest of the world, began adopting some of the priority items of UNCED Agenda 21. Environmental matters formed a more significant function under relevant government ministries such as The Bahamas Ministry of Tourism and under private sector organizations such as the Bahamas Hotel Association. In fact, since 1992, an official body, The Bahamas Environment, Science and Technology Commission was established to be government's authorized point of contact with all governmental agencies responsible for managing the nation's environment and conserving its natural resources and with international organizations on matters relating to environmental matters.

The importance of tourism to the national economy is evidenced by enactments for the promotion of the industry and development of related facilities and services. However, tourism legislation primarily address the organization and structure of the tourism industry with specific enactments for the licensing, regulating, improving and extending

hotels and resorts with little focus on encouraging specific environmental management practices to assist in the wider issues faced by the country.

The Bahamas Environmental Legislation

At least 26 Bahamian laws can be found that impact on the protection and conservation of the natural environment, both physical and biological. Five of the existing 26 laws were enacted since 1992 with an additional 5 proposed for the short term. These support the general policy of government to protect the resource base of the country for existing and future needs and, therefore, range from the protection of plants, animals, birds and fish to the protection of the physical environment itself. With these enactment The Bahamas appears to be the leading country for environmental legislation in the region (Pollard 1992).

Bahamas Institutions Responsible for Environmental Conservation & Protection

At least 13 government ministries, department or agencies and 3 non-governmental organizations are responsible for the conservation, protection, regulation or management of various aspects of the Bahamian environment. The 13 government bodies are as follows:

1. Bahamas Agricultural & Industrial Corporation
2. Bahamas Electricity Corporation
3. Bahamas Environment, Science & Technology Commission
4. Bahamas Water & Sewerage Corporation
5. Department of Agriculture
6. Department of Environmental Health Services
7. Department of Lands & Surveys
8. Department of Fisheries
9. Department of Physical Planning
10. Ministry of Labour & Maritime Affairs
11. Ministry of Tourism
12. Ministry of Works & Transport
13. Port Department

Other non-governmental organizations include:

1. The Bahamas National Trust
2. Bahamas Reef Environment Educational Foundation
3. Bahamas National Pride Association

The Bahamas Environment, Science and Technology Commission

The establishment of the Bahamas Environment, Science and Technology Commission (BEST) in 1994 by the government of The Bahamas was a significant step in the co-ordination and advancement of its environmental efforts. This Commission is the government's co-coordinating mechanism to facilitate improved communication and integrated planning for Sustainable Development. This Commission, therefore, serves as The Bahamas national focal point and official point of contact both with all governmental agencies responsible for managing the nation's environment and conserving its natural resources and with international organizations on matters relating to environmental, science and technological matters. Responsibilities of BEST also include the following:

- Co-coordinating matters relating to International Conventions, Treaties, Protocols and Agreements relating to the environment to which The Bahamas is or will become a signatory.
- Preparing papers on various environmental and related issues to assist in national policy formation. BEST, for example, developed an Environment Impact Assessment Guideline for use by investment projects in the country. This guideline should form part of the proposed Environmental Planning and Protection Act.
- Reviewing Environmental Impact Assessments and advising government on the environmental impact(s) of proposed developments
- Explaining and publicizing the policies and activities of The Bahamas government in the area of environment, science and technology.

The BEST Commission functions by appointing a number of subcommittees to deal with specific environmental related matters and/or international agreements. Current appointed subcommittees include Biodiversity; Science & Technology; National Climate Change and National Wetlands

Environmental Treaties & Conventions

Through the international treaties and conventions to which The Bahamas is a signatory, the country acknowledges its international responsibility to maintain its species and ecosystems. The Bahamas is signatory to the following:

Those Signed Before 1992

1. Convention on International Trade in Endangered Species of Wild Fauna and Flora
2. Convention for the Facilitation of Maritime Traffic
3. Protocol to the International Convention on Civil Liability for Oil Pollution
4. Convention for the Unification of Certain Rules and Law Relating to Assistance and Salvage at Sea and Protocol
5. International Convention for the Unification of Certain Ruled with Respect to Collision Between Vessels and Protocol for Signature

Those Signed Since 1992

1. Vienna Convention for the Protection of the Ozone Layer
2. Montreal Protocol on Substances that Deplete the Ozone Layer and its 2 Amendments
3. Convention on Biological Diversity
4. The Ramsar Convention on Wetlands
5. United Nations Framework Convention on Climate Change
6. United Nations Convention on the Law of the Sea
7. Kyoto Protocol to the United Nations Framework Convention on Climate Change
8. The United Nations Convention to Combat Desertification
9. Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 182 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
10. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

The Bahamas National Trust

While numerous government agencies hold responsibility for aspects of environmental protection in The Bahamas, The Bahamas National Trust (BNT), however, plays a very significant role particularly in the protection and preservation of the physical and biological environment of The Bahamas, which is used by the tourism sector. This Trust was established by The Bahamas National Trust Act of 1959 after the creation of the first Land and Sea Park in Exuma by government in 1958. As described by the BNT Act, the Trust was established for:

> *"promoting the permanent preservation for the benefit and enjoyment of The Bahamas of land and tenements and submarine areas of beauty or natural historical interest and as regards land and submarine areas for the preservation of their natural aspect, features and animal plant and marine life"*

BNT is, therefore, instrumental in the protection of the marine environment including its reef and cave systems, which, as noted by government "is an integral part of the Bahamian way of life and is part of our heritage that must be safeguarded (2000 Minister of Commerce, Agriculture & Industry). The Bahamas government, therefore, continues to give larger areas of The Bahamas reefs and cave systems to BNT for protection.

Today BNT protect and governs more than 320,000 acres of land in 12 national parks and protected areas. These include:

?? The Retreat, New Providence - Which houses BNT Headquarters and where an array of local plants, trees and bird life are preserved
?? Abaco National Park, Abaco - Established on May 9th 1994, this park comprises 500 acres of Southern Abaco which is the major habitat for the endangered Abaco
?? Pelican Cay Land and Sea Park, Abaco - Hosts coral reefs, abundant plant and marine life and undersea caves
?? Inagua National Park, Inagua - The site of the world's largest colony of Wild West Indian Flamingos (an estimated 60,000).
?? Lucayan National Park, Grand Bahama - Home of one of the longest charted underwater cave systems in the world. More than six miles of caves and tunnels have been charted. Some of the caves have yielded important archaeological finds relating to habitation by the Lucayan-Taino-Arawaks of pre-Columbian times
?? Peterson Cay National Park, Grand Bahama - A 1 1/2 acre geological wonder that is the only cay of Grand Bahama's leeward shore
?? Exuma Cays Land and Sea Park, Exuma - Comprises 176 sq. miles of outstanding anchorages and a stunning marine environment. It was the Caribbean's first marine fishery reserve.

3.11 : Bahamas Tourism Policies and The Environment

While enactment related to the general protection of The Bahamas environment abound no enactment relating specifically to the environmental development of tourism and its related services is in place. Of note policy-wise, however, is the Sustainable Tourism Policy for The Out Islands of The Bahamas developed in 1994 to encourage environmental conformity of hotel and tourism developments in the Family Islands. This policy, however, was developed not only as a recognition of the importance of the environment to tourism, but more so in an effort to position The Bahamas as a leader in

environmental responsibility in the Caribbean. In effect, this policy focused on encouraging eco tourism to the Family Islands by attracting tourists from the vast and increasing numbers in the eco tourism market of North America. Funding, however, is required to implement the programmes recommended by this policy.

The following are significant enactment related to tourism development and are considered evidence of the importance of tourism for the national economy Promotion of Tourism Act; The Hotels Act; The Hotels Encouragement Act and The Hotel Corporation Act

The Promotion of Tourism Act is intended to develop and augment facilities for tourism and to promote measures to attract tourists to The Bahamas while the hotels' legislation provides for licensing, regulating, improving and extending hotels and resorts. A review of the hotels' legislation, reveals that a to a very limited extent environmental issues are covered in their licensing requirements.

The Bahamas Hotel Sector and Environmental Regulations

The Bahamas hotel sector, with 263 hotels, stands at the very core of The Bahamas Tourism Industry. It grosses annual tax revenues of over US$2 billion and collect for government a guest tax of 4% of their daily room rate making them a very significant means of tax revenue for The Bahamas government. In fact, the importance of the hotel sector in The Bahamas holds historical significance as the history of tourism development in The Bahamas is almost synonymous with the development of hotels in that country. The Hotels Act of 1954 was, for example, which encouraged hotel development in The Bahamas and was passed within four years of the official start of the decision to encourage tourism development in The Bahamas. This Act clarified that it was:

> *"An Act to encourage the construction of Hotels in The Bahamas by providing for the refund of Customs duties and Emergency Taxes and Certain Other Concessions, and for the Exemption of such Hotels from Certain Taxation, and to Relieve Existing Hotels from Certain Taxation."*

This legislation was supported by The Hotel Encouragement Act of 1965, which specified additional fiscal and other investment incentives to hotel investors. In addition since 1992 the 1965 Hotel Encouragement Act has been amended to reduce the number

of rooms required for new hotels to access the investment incentives from 10 rooms for All Bahamas to 5 rooms in the Family Islands. This was done to encourage local investment in hotel development in the Family Islands as opposed to the already advanced locations of Nassau/PI and Freeport, Grand Bahama. These Acts continue to be a significant factor in the encouragement of both foreign and local hotel investments today. Major foreign investments, for example, are currently represented in The Bahamas hotel sector. Hotel properties, for example, have been purchased by Italian, Danish and Swiss investors and by a consortium of American, British and South African investors. Other major foreign investors include the French chain Club Mediterranean, which operates three vacation villages in The Bahamas including the crown of their entire chain, the Columbus Isles Village on San Salvador Island. Other major owners and operators of resorts in The Bahamas include Princess Hotels, Forte/Meridian Hotels, SuperClubs and Sandals. Major franchise operations represented in The Bahamas include Marriott, Radisson, Clarion Hotels, Holiday Inn, Hilton, Comfort Suites and Best Western Hotels. In 1970, however, The Hotel Act was amended to provide rules on hotel operations in The Bahamas. This amendment is the only and most important Legislation that deals with safety and environmental regulations specifically in the hotel sector. Not only did the 1970 Hotel Act make provisions for the payment of Hotel Licences Fees and a Hotel Guest Tax by all hotels to government, but under its "Hotels Regulations" section, some safety and environmental guides were provided for compliance by all hotels.

Generally these safety and environment regulations are quite basic and simple in nature. The first two areas deal with the maintenance of interiors and exteriors of Hotels. The Regulation outlines simply that these areas should be "kept clean and in good condition and repair". In particular interiors should be kept free of insects, termites, rodents and other vermin. All interior and exterior stairs are required to be equipped with soundly constructed and adequate handrails and illumination. In the case of a hotel's interior, in addition to stairs, corridors and lobbies must also be "adequately illuminated" while the same holds for roads, footpaths and alleyways on a hotel's exterior. The regulation also

requires that all roads and footpaths et cetera in a hotel's exterior are free from obstruction and adequately drained.

Like the requirements for hotels' interiors and exteriors, upholstery, draperies, blinds and linen are to be "kept clean and in good condition". The minimum sizes of sleeping rooms were in turn provided with the specification that they are adequately lighted and ventilated directly from the exterior of the building. Similarly simple requirements were outlined for china, glassware, tableware and other crockery provided for use by guests. These are required to be "clean and free from any cracks or chips". Again, simple rules apply to garbage and sewage disposal. In fact, the regulation for garbage requires only that garbage pending disposal be kept in "a sealed plastic bag or in a number of such bags" or otherwise stored in such manner as to prevent the spread of offensive odours or the attraction of insects. Likewise, the only clause dealing with sewerage outlined that "where there is a sewage disposal plant in any hotel such plant shall be maintained in good working order".

The Hotel Regulation, however, was most preoccupied with the prevention of fire and with fire procedures. It noted that it was the duty of every hotel operator to take all reasonable precautions to prevent fire in the hotel and to maintain all fire equipment therein in good working order. In addition, fire procedures to be taken by guests and employees are to be published within the hotel with employees being instructed in action to be taken under such procedures. Like all other regulations, hotels must have fire alarm systems maintained "in good working order" and tested at least once a month. A Logbook is required in which every outbreak of fire within that hotel is entered and when the systems are tested.

Hotel Licensing

Hotel Licensing falls under the Hotel Licensing Unit of BMOT. This Unit is also responsible for the collection of Hotel Guest Taxes and Licences Fees from hotels. The main requirements for obtaining a Hotel License from this Unit are that the following be obtained to show compliance with The Regulation of The 1970 Hotel Act:

1. A satisfactory report from the Hotel Licensing Inspector on the quality and conditions of furniture, fittings, fixtures, carpeting, draperies, upholstery, housekeeping, grounds, bathrooms, restaurant, beach, swimming pool and all public areas of the hotel;
2. Favourable reports from the Building Control Division of the Ministry of Works;
3. A favourable report from the Royal Bahamas Police Fire Department on the availability and condition of Fire Fighting and Safety Equipment; and
4. A Sanitation Certificate from the Ministry of Health.

While requirements 1 - 3 above dealt more with safety requirements, the main requirement of hotels as they relate to the environment is linked to the Sanitation Certificate that must obtained by hotels from the Ministry of Health. The Unit specifies that compliance with environmental health standards is of prime importance in the licensing of hotels and, therefore, hotels must ensure that they maintain the standards in accordance with Health Regulations. These Health Regulations are guided by The Environmental Health Services Act. Of all the previously identified Bahamian Legislation relating to the environment and natural resources, this Act is noted as being the only one to which hotels must specifically comply in order to operate in The Bahamas.

The Environmental Health Services Act

One of the earliest Acts related to the environment in The Bahamas was that of the Health Services Act of 1935. Under this Act the main requirement for "Lodging Houses" was that they be kept at all times in a "thoroughly clean and wholesome condition". Although this Act has been amended over the years, cleanliness is still the central point. Today, however, the guiding environmental regulation is The Environment Health Act of 1987, which as it outlined is:

> *"An Act to promote the conservation and maintenance of the Environment in the interest of Health, for proper sanitation in matters of food and drinks and generally, for the provision and control of services, activities and other matters connected therewith or incidental thereto".*

The Department of Environment Health Services was formed under this Act and has among its responsibilities– "the management and disposal of solid, liquid and gaseous

wastes, food and drinks management, nuisance, rodents, insect pests and general sanitation". A Sanitation Certificate issued by this Department, therefore, confirms that the property for which it is given adheres to the expected sanitation level. In summary, the Sanitation Certificate verifies that the hotel:

> Does not deposit, adds to, emits or discharges into the environment any contaminant or pollutant;
> Does not create or allow to exist on or emanate from its premises conditions that are unsanitary or constitute a nuisance or are conducive to the breeding or harbouring of rodents, insect pests, termites or other vermin;
> Does not dump or otherwise deposit or leave and litter in any public place or open space, and finally
> It keeps the open spaces to the front of its premises that abuts onto a public road in a clean condition.

An interview with a Sanitation Inspector revealed that, in effect, a hotel with a Sanitation Certificate means that it generally does not pose a threat to public health. In practice, therefore, to ensure that this does not happen, food handlers such as cooks, bartenders and waitresses must have a valid Health Certificate, which must be renewed every 6 months. Proper garbage areas are also required and inspectors verify that toilets are hooked up properly to sewerage disposals systems. In addition, Sanitation Inspectors examine both ventilation systems, for example, in the absence of windows, air conditions must be provided and properly ventilated and the hotel structure, which must be sound with walls, floors and ceilings in a good state of repair and free from dirt and crime. A reiteration is that cleanliness is key in obtaining a Sanitation Certificate.

The Bahamas Hotel Sector & Environmental Policy

While there is very limited environmental mandate for the hotel sector by government, The Bahamas hotel sector has responded to the global call for businesses to carefully consider the effects of their actions on all aspects and to operate in a manner that complies with environmental protection and conservation. The Bahamas Hotel Association (BHA), which represents all the hotels on Nassau/PI and the majority of hotels throughout the country, encourages its member to acknowledge their responsibility towards the protection and conservation of The Bahamas environment. In 1996, the BHA demonstrated its commitment to environmental matters by adding an

Environmental Committee to the existing Committees that undertake the work of the association. This Environmental Committee has additionally developed an environmental policy by which it members are to be guided. This policy encourages recognition of the need of hotels in The Bahamas to be environmentally responsible and an agreement to take relevant conservation and other actions in the following areas, which are viewed as critical environmental areas in The Bahamas:Water Use; Electrical Consumption; Solid Waste Reduction, Reuse & Recycling and Environment Friendly Purchasing.

The BHA Environmental Committee also assists in increasing the environmental awareness of its members and organizes relevant environmental workshops and activities in which members, non-members and the general public are invited to participate. BHA has noted, however, that investment costs for environmental efforts have limited the ability of several of its members to make use of certain environmentally efficient machinery and equipment. Notwithstanding this, however, The Bahamas hotel sector is on the right part to environmental management even if this is not a highly regulated area by government and whether or not specific government incentives are available in this area. Several members, for example, have received some form of recognition for their environmental efforts by The Bahamas government, CHA/CAST and GREEN GLOBE.

The Bahamas Focus Group Report[6]

Criteria for Choice of Invitees

The hotel sector participants were selected as part of a screening process to have hoteliers with adequate experience with the issue being discussed. These participants were, therefore, of a fairly homogeneous background in terms of environmental practices being done at the hotel. At the same time, however, these hotel officials represented the various types of hotel ownership that exist in The Bahamas.

BAHAMAS GOVERNMENT OFFICIALS

Officials form the following government organizations were invited for additional input into discussions by the hotel representatives:

The Bahamas Ministry of Tourism (MOT)

The Bahamas Ministry of Tourism is the focal government agency dealing with the country's hotel and tourism industry. MOT through its Business Development Division is in the process of drafting a Cabinet Paper related to Duty Free Exemption for Green Technology in The Bahamas. The aim is for government to facilitate lower or no duties on specially listed imports that would assist in the hotel and tourism industry as well as the resident population being more water and energy efficient and encourage waste minimization.

The Bahamas Department of Environmental Health (DEHS)

DEHS is a key government agency charged with the responsibility for environmental management in the country and plays a pivotal role in policy development as it relates to solid wastes, emissions and effluent management in The Bahamas. Hotels must have an official approval from this Department before it is given a license to operate. This license is renewed on an annual basis and as such they must get this Department's approval on an annual basis. DEHS is also responsible for the management of the landfill sites.

[6] This focus group was conducted on Wednesday, Jan.9,2002 on the Bahamas Tourism Training Centre. Facilitators were Dr. Jennifer Edwards assisted by Ms. Marlene Davidson and Mr. Brendon Braithwaite,

1. EXISTING ENVIRONMENTAL POLICIES OF THE BAHAMAS GOVERNMENT

Re: The Hotel & Tourism Sector

The hotel officials were well acquainted with the general environmental policies of The Bahamas government that were related to the hotel sector. The conclusion is that it is very difficult for any hotelier not to have some level of awareness of the government's environmental policies for the hotel sector as they form part of the licensing requirements for all hotels under the Environmental Health Services Act. The policy requires hotels to obtain approval from the Department of Environmental Health on an annual basis as it relates to emissions, effluents and solid wastes and other health risk areas within hotels in order to have its annual hotel license renewed.

The agreement by hoteliers, however, was that:

1. Although environmental policies are reflected within the hotel licensing procedure, there is no specific environmental policy for hotels
2. All hotels must operate within the requirements of government for the general environment
3. Government should seek to diligently enforce the existing environmental laws by allocate more resources to ensure that all existing environmental laws are followed by, not only the hotel and tourism sector, but by all sectors and residents of the country. Stiffer penalties for not abiding by these laws should also be implemented.

The following was a view put forward that was supported but not to the fullest extent:

4. There are a large number of environmental laws in The Bahamas and there is really no need to have another specifically for the hotel and tourism sector.

2. SOLID WASTES

Solid Wastes preoccupied the discussions as the main environmental problem facing the country. All participants agreed that the hotel and tourism sector generates a staggering amount of solid wastes and the country is not in a position to handle this. The hotel representatives provided various experiences with their own situation.

Views expressed included the following:

1. Hotels are willing to participate in solid waste separation programmes but this is useless in The Bahamas as all waste is still dumped at the same official site where no sorting is carried our for recycling purposes etc. The non-existence of recycling facilities for paper, cardboard boxes and other commonly generated solid wastes was viewed as a distinct drawback in to effective solid waste management by the hotel sector.
2. Government should show its commitment in this area by undertaking some form of recycling or by seriously encouraging and supporting any private investor willing to get into any aspect of the business of recycling
3. Government should consider charging a fee to the commercial sector for use of the dump site and this may encourage hotels, for example, to be involved more involved in solid waste reduction methods
4. While this is so (3 above), large hotels already have to pay private sector garbage collectors to remove its solid waste and due to this efforts are in place to reduce the number of trip paid for by more effective solid waste reduction practices

The DEHS representative noted that:
Solid waste generation and management is a national problem particularly on New Providence. Businesses and residents of the country not only generate large quantities of solid waste but choose to dump them in unofficial areas and even to litter the streets. Unfortunately, although there are penalties for littering it is very difficult to catch the culprits in action. In addition, given the resources required by government, it is highly unlikely that government can get into the recycling business. Government cannot charge for dumping at the official site as this would lead to an increase in the existing illicit dumping that already occurs in the country.

MOT representatives felt that:
There need to be more public awareness programmes as it relates to solid waste generation and littering and suggested that government agencies such as MOT and DEHS could have joint campaigns in this regard.

3. GREEN CERTIFICATION

Only one of the hotels represented (Sandals Royal Bahamian) was involved in obtaining some form of green certification (GREEN GLOBE). The other hoteliers agreed that they would not mind being involved in a green certification programme but noted that this was a very costly exercise which makes it very difficult for them to do so. One of these hoteliers explained, for example, of the large capital investment recently spent in retrofitting light bulbs to the energy efficient type. The hotels has now to recover from this before it can get into any other major programmes as required by green certification boards.

The Hotel Encouragement Act
MOT officials felt that hoteliers could obtain the import duty benefits under the new Hotel Encouragement Act for projects required for green certification. Hoteliers could not agree with this as restrictions applied in terms of the investment capital required for the project. In fact, although a hotel could use the benefits under this Act for purchase of green technologies, there were so many pre-requisites making it useful to only a restricted number of hotels.

Hoteliers expressed the following views:

1. Hotels should take the lead in environmental responsibility in The Bahamas and should be encouraged by the government to do so.
2. Government should provide specific incentives to encourage the use of green technologies by hotels as not all can access benefits under the existing Hotel Encouragement Act. (Only one of the hoteliers was aware of the Green Technology Paper being developed for Cabinet by MOT as he was involved in its development and provided input on behalf on Bahamas hotels. MOT officials took the opportunity to inquire as to the type of incentives hoteliers would like to see government provide and for what specific items).
3. Hotels can not only increase their cost savings by being environmentally responsible, but can also cash in on the ready market for environmentally friendly accommodation especially by Europeans. This can only help in expanding the hotel and tourism industry of the country.

Quality Tourism in The Caribbean Standards (QTC)
One of the hoteliers provided insight into the need for hoteliers to be environmentally

responsible particularly if they are to facilitate the expanding European market. He explained that European tour operators have put the safety of their clients directly under the responsibility of hotels and so they are more demanding that hotels are environmentally responsible and safe. In fact, these operators are placing more and more pressure on hotels to abide by certain environmentally safe standards and in the future any hotel not willing to abide by these standards may find itself out of business.

This hotelier expanded that he was, in fact, a member of the Quality Tourism in the Caribbean Standard (QTC) Committee which was working on developing safe standards for the Caribbean's hotel and tourism sector to meet in part some of the requirements of tour operators. This project was IDB funded and was being coordinated by CAREC in Trinidad & Tobago. It stemmed from the Healthy Hotels Project of CAREC and The Bahamas is one of the countries in the region in which the QTC project was being pilot tested.

He additionally explained that the aim is to get regional hotels to buy into this programme, which would recognition that the hotel has met the required standards and is certified accordingly. In effect QTC hopes to be a Caribbean wide regulation which hotels would see the need to buy into. Hotels with QTC standards would then be featured in the brochures of environmentally conscious tour operators such as BA and TUI and as such stand a better chance of their clients opting to stay at that hotel. This hotelier believes that environmental legislation is not the way to go but rather voluntary programmes such as this, which encourages hoteliers to regulate themselves. He supports, however, that government should provide encouragement by way of incentives and the right environment for this.

4. ENVIRONMENTAL LEGISLATION

There was no full consensus on the role of environmental legislation for the Hotels Sector. While the QTC committee member believed that the government of The Bahamas should not have any specific environmental legislation for hotels, another felt that the hotel sector needed specific legislative guidance to ensure that they follow environmental procedures and to be heavily fined if they do not.

Discussions flowed from this with the following views:

1. If the government were to lay down environmental legislation for the hotel sector in The Bahamas, they must at the same provide a suitable environment to facilitate the adoption of these legislatures. Government, for instance, would need to make sure that suitable recycling facilities were available in the country, provide relevant incentives and resources and provide the monitoring and enforcement resources as required. All of which they are unable to do at this point even with the existing environmental legislation.
2. The hotel sector in The Bahamas is highly regulated and already abides under a large variety of government rules and regulations. Enforced additional environmental requirements would not help the situation.

5. WATER & SEWERAGE

The DEHS representative encouraged every hotel in The Bahamas to make use of their own sewerage treatment and reverse osmosis (RO) plant as government was not in a position to facilitate all of the country in these areas. He explained that it was in fact a government requirement for large hotels to make use of their own plants with regular inspections undertaken by DEHS to ensure that these plants continue to operate safely.

While one of the hotel officials explained of the success of using their own RO and sewerage treatment plants, the agreement was that it was not feasible for all hotels, particularly small ones, to even think of installing an RO plant given the cost and space needed for this. It was felt that government assistance by way of import duty concessions could be given to hotels in this area. It was agreed, however, hotels should and could reuse water in some way. It was felt that staff training was necessary to achieve the water conservation goals.

6. GENERAL ENVIRONMENTAL MOVEMENT IN THE BAHAMAS

Hotel participants felt that the private sector was the driving force behind the environmental movement in The Bahamas and that government was not leading the way. It was viewed, for

example, that the hotel sector is very proactive in terms of implementing environmental practices while the government was lagging behind in its support to this sector in this area.

The DEHS official in fact supported the view of hoteliers and noted that his department was more inclined to react to things that are hot so the hotel sector should make, for example, the issue of recycling a hot issue putting enough pressure on government and it will respond. Community clean up was express by the DEHS representative as being a hot issue and his department has been preoccupied with it in recent times.

7. CONCLUSIONS

1. There is no specific environmental legislation for the hotel & tourism sector in The Bahamas, however, there is a high level of government environmental laws for the country
2. Hotels would have to respond to the pressure from tour operators for environmentally sensitive accommodation if they are to remain competitive
3. Government in The Bahamas should play a supporting role by encouraging the hotel sector to participate in environmentally responsible practices and in achieving various green certification standards and should not try to enforce additional environmental legislation on this sector
4. The Bahamas government should seek to ensure that existing environmental laws are enforced and the required penalties are carried out
5. The Bahamas government should provide a comprehensive set of incentives specifically to the hotel and tourism sector to encourage its greening on a large scale
6. A recycling plant is greatly needed in The Bahamas

Hotel Survey by Country

Bahamas

Energy

85% of the hotels surveyed in The Bahamas stated that they monitor the use of energy and 70% have thus far adopted energy saving measures with solar energy used by 25%. Hotels recognize the importance of energy saving in not only the operation of the hotel but the country as a whole as 80-95% agree that policy is required for alternative energy source and energy efficient lighting, equipment, machinery and appliance. However, investment cost is cited by 50% of hotels as the major reason for not implementing any energy saving measures. Relatedly, there is the general feeling that enough is not being done by the government for new/expanding and existing hotels in this area. Although 10%-45% of hotels have institutionalized energy saving methodologies, with lighting being the most common, up to 70% of hotels are willing to incorporate energy saving measures within the space of 2 years, given the government's policy implementation/incentive on the matter. Thus far 80% of the hotels are satisfied with the contribution of the introduction of energy-saving measures to their profitability.

Water

The government supply is the source of water for 55% of the hotels. However, bottled water also is used by 70% of hotels. A large number of hotels in the Bahamas monitor water usage (80%) and 70% have implemented water-saving measures. For those that do not 5% did not see it being necessary and 20% cited investment costs as the reason for not doing so. The majority of hotels stated that government policy is required for water-saving methodologies such as the use of low flush toilets and sprinkler timers. As with energy-saving, hotels were generally dissatisfied with government's policy/incentives for new/expanding and existing hotels on the matter. Notwithstanding the 5%-25% of hotels that already have implemented some water-saving devices (low flush toilets being the most popular – 25%), 50%-75% are willing to follow given government's policy implementation/incentives on the matter**.** Interestingly, 65% of the hotels admitted that regardless of incentives they would never implement water-saving technology. Already, 45% of the hotels are reaping significant benefits from utilizing water-saving measures.

Solid Waste

Less than half the number of hotels or 40%, monitor the quantity of solid waste generated by their respective hotels and even less (25%) monitor the type. Not surprisingly, a mere 40% have included measures for the reduction of solid waste in operations. There is a general feeling by hotels that not enough is being done or facilities available for the collection and safe disposal of

hazardous waste and recycling for both new/expanding and existing hotels. Hoteliers believe that government needs to implement policy and/or provide incentives for this, particularly for recycling and bulk dispensers as over 55% are willing to bring this on stream within 1-12 months of government's response. However, 5% indicated that they never would adopt these measures. 40% are satisfied with the contribution these measures are making to the hotel's profitability.

Effluent and Emissions

Soakaway/septic and the public sewer system are the two major methods of wastewater disposal for 30% of hotels in the Bahamas. 20% have their own treatment plant and10% utilize that of another hotel. As before hotels are calling for greater involvement or contribution from government by way of policy/incentives. As an example, 95% of hotels see the need for policy/incentive for environmentally friendly products and machinery/equipment. Interestingly, 75% of hotels are satisfied with it contribution to profitability.

Other

When questioned about formal recognition for environmental efforts a mere 10% indicated that they were the recipients of any such award. However, 75% did share an interest in becoming involved in a green certification programme.

Chapter 4 - The St. Lucia Case Study

4.1 : Introduction

By 1990 St. Lucia had become a major Caribbean tourist destination with more than 250,000 visitor arrivals. Figure 4.1 shows an upward trend in both total arrivals and cruise ship arrivals for the years 1990 to 2000. As the island sought to modernize its tourist infrastructure, construction in the accommodation sector significantly increased room capacity from 2,370 in 1990 to 4,428 in 2000 (figure 4.2).

Over the period in review occupancy rates tended to fluctuate somewhat, slipping in 1991 to 65.9 percent but generally remaining above 65 percent. Table 4.1 presents selected tourism statistics for the period 1990 to 2000. According to table 4.1, visitor expenditure increased over the period from EC $415.4 million in 1990 to EC $752 million in 2000.

4.2 : Environmental Impacts of Tourism in St. Lucia

It has been recognised and acknowledged that the tourist industry in St. Lucia has a significant impact on the environment. However, there is limited empirical evidence to support this conclusion.

Physical planning laws regulate development and construction of tourism facilities. However, hotel construction on the beachfront and the clearing of land for tourist facilities have resulted in slope instability, erosion and sedimentation of the near-shore marine environment and in some instances the destruction of mangroves (ATRIA, 1996). In some instances the location of hotel sites has resulted in wildlife disturbance and habitat loss. The construction of the Jalousie hotel is an example of development in an ecologically sensitive area. This site was nominated as a United Nations World Heritage Site.

According to William (1985) while the impacts of sand mining - perceived as a major problem on the island in the late 1960s and early 1970s when the industry was in its initial stages of growth - are largely physical there is increasing evidence of biological and ecological effects. A number of studies undertaken in the 1970s and 1980s identify sand mining as the major cause of coastal erosion and beach degradation (William 1985). According to ATRIA (1996), the over-exploitation of sand for construction has resulted in coastal erosion and beach degradation. It is estimated, for e.g. that the Reduit beach, one of the more popular beaches, retreated 20 metres as a result of sand mining. The destruction of seagrass and coral reefs in the Gros Islet area resulting from extensive work on the Rodney Bay Development Project is well documented by Towle (1985).

Water and energy are two major components in the operation of tourist facilities. Hotels as well as cruise ships and pleasure boats consume large amounts of water. British Airways (1998) reports daily water consumption and use per capita in hotels to range between 80-150 gals (364-682 litres) as opposed to 50 gals (227 litres) per person in the residential sector. This is consistent with the figures estimated by USAID (1997) in table 4.2 below which gives an average of 662 litres estimated daily per capita water consumption at selected hotels.

According to this report, based on the St Lucia Tourist Board's projected growth rate in the number of tourist arrivals for the years 2009 to 2018 of 4.4 % per year, it is estimated that water demand will grow pari passu. This report also documents conservation devices or practices at hotels in St. Lucia (table 4.3). Further, it is suggested that potential reduction in water consumption can occur with aggressive water conservation and management practice at hotels resulting in savings for the sector of US$580,000.00 per annum (USAID).

High rates of energy consumption at tourist facilities are also a trait of the industry. Electricity consumption for the hotel sector was recorded at 27,468,694 kWh, an estimated 17 percent of total amount sold. This together with the concentration of pollutants from taxis, shuttles and tour buses in and around the main tourist areas

adversely affects air quality (BA 1998). This BA report also notes that hotels are increasingly turning to solar water heaters in an attempt to reduce electricity consumption. The removal of import duty and consumption tax on solar water heater imports and the granting of licences to local manufacturers are some of the incentive provided by government.

With the emphasis on "greening", both water and energy conservation practices have increased at some properties. Generally, however, the larger hotels are those best able to benefit from economies of scale since the cost of green technologies are still quite prohibitive. Appendix 3.1 provides an overview of environmental practices in use at the Wyndham Morgan Bay Resort St. Lucia.

Disposal of sewerage and solid waste caused by increases in visitor arrivals is a serious environmental issue in St. Lucia. This sector generates more solid waste per capita than any other sector. Table 4.4 gives estimates of solid waste generated by stayover tourist and excursionist in the main tourist areas for the years 1992-2005.

Licensed contractors carry out the collection of solid waste from hotels which is then disposed of at landfills. As part of the Solid Waste Management Project, reception facilities have been set up at the five major ports to handle solid waste from cruise ships and pleasure boats.

While the collection and disposal of solid waste seems to be more organised, sewerage disposal facilities are inadequate. In the north of the island where there is a large concentration of hotels, three of the large hotels as well as all restaurants are hooked up to the newly built Rodney Bay Sewerage system. Two properties located in the extreme north of the island both have combined sewerage plants and septic tanks operating, other properties employ either of these two types of systems for sewerage disposal. However, at many of the hotels, wastewater treatment plants are not functional and as a result poorly treated wastewater is discharged into coastal waters.

Marine pollution is also increasing as a result of the expansion in the number of yachts and pleasure crafts visiting the island. Mooring facilities are located in the Rodney Bay

Marina, Vigie, Marigot Bay and Soufriere. According to ATRIA (1996), water quality in the Rodney Bay area was worse than that of the Castries harbour. The Rodney Bay Marina is now connected to the Rodney Bay Sewerage System. However, there are still no pump out facilities at the Marina. According to Mr. Didier, Manager Rodney Bay Marina, all yachts at the Marina use toilet facilities. Yachts on anchor however, discharge directly into the water. As a direct consequence of the above, resource use is seriously threatened and mangrove habitat continues to be endangered from activities in and around Marinas.

Tourist activities are also creating stress on the environment. Scuba diving activities as well as the unregulated anchoring of yachts are beginning to impact significantly upon fragile coral reefs. According to Smith and Renard (1994), scuba diving in St. Lucia has increase three-fold. The growth of tourism in the Soufriere area has required the Soufriere Marine Management Area (SMMA) to address conflict resolution by stakeholders with the introduction of specific zoning agreements, including marine reserves, fishing priority areas, recreational areas and the identification of yachting sites. Four Marine Reserve Areas have been created and entry requires the purchase of a permit. All fees collected are allocated to the coral reef protection programme.

UNEP Studies

The 1998 UNEP Report which was mentioned in Chapter 1 also provides some further details on the environmental impacts of tourism in St. Lucia. It notes, to begin with, that the solid waste generated by the cruise ships is a major problem in St. Lucia if we take into account that St. Lucia received 218,777 cruise ship passengers in 1996, which is more than the total population of the island. According to the National Environmental Action Plan (1994), one of the most serious environmental problems in St. Lucia is solid waste management.(UNEP Regional Seas Reports and Studies No. 172). Further, this UNEP report notes that it is estimated that Reduit beach on the North West coast retreated 20 metres due to sand mining activities. This is the main beach facility of several major hotels such as the Royal St. Lucian, the Rex and Papillon. Choc beach has

also been severely affected by sand mining and has lost over 50% of its width. The construction of tourist developments at coastal sites can also lead to water pollution and sedimentation which is one of the most pervasive threats to St. Lucia's nearshore marine environment. The clearing of land for hotel construction has led to slope instability, erosion and sedimentation. At Larellotte Bay, the artificial replenishment of the Windjammer Beach with imported sand from Barbuda, poses a threat to the marine habitat due to deposition of sand from constant beach erosion.

A study by Vlugman (1992) showed that hotels in St. Lucia consume large amounts of detergents which results in considerable foaming at wastewater treatment plants. If cleaning and ground maintenance products which enter the wastewater stream are not adequately treated they can cause water pollution. The construction of the Pointe Seraphine cruise ship and duty free shopping facility has disrupted natural cycles. The development involved dredge and fill operations and has resulted in changes in shoreline and harbour geometry.

A rapidly expanding tourism industry is also putting pressure on fish stocks in St. Lucia. Fish landing statistics and scientific research conducted in the Department of Fisheries indicate that several reef and benthic species are being overfished. Such overfishing of species does not allow these populations to recover. Cruise ships generate a considerably higher amount of waste than all other sectors (i.e. residential, industrial, commercial, stayover tourist). It has been estimated that in total cruise ships generate quantities of solid waste which are equal to, or in excess of, domestic volumes, particularly given the increasing number of cruise ship arrivals. (GOSL,1996)The amount of waste for tourists and day excursionists was estimated to be twice that of permanent urban residents (including waste generated by operating the hotels) and to increase over time. The total amount will increase with the expansion of the hotel accommodation.(UK Ceed Report: An Assessment of the Environmental Impacts of Tourism in St. Lucia,1998)

The St. Lucia Heritage Programme was started in1998 and has worked with a number of cultural and ecotourism sites and attractions to help them upgrade their facilities to

comply with health and safety regulations to enhance their attractiveness to tourists. While this new market demand provides additional opportunities to extract rents from the Caribbean's diverse natural environment and rich culture, it often operates in areas that are much more sensitive to disturbance than the 'sun-sand-sea' resources. This programme has worked with programme participants to ensure that activities are sustainable. On a more positive note, hotels are increasingly turning to solar water heaters instead of electrical heaters. Up to 1993, homeowners and hotels installed a total of 1304 solar heaters while in 1994 alone an additional 3166 units were installed. The increasing utilization of renewable energy and energy conservation measures reduce demand for and hence the environmental impact associated with extraction and processing of the raw materials which form petroleum products. Several hotels in St. Lucia have implemented energy conservation measures to monitor consumption, staff training, automatic shut off systems in guestrooms and replacement programmes to fit energy efficient lighting. The extent of visual intrusion depends on the location and architectural design of the tourism establishment. For instance, Anse Chastenet is low rise and the villas are designed to harmonise with the nature of the island so as not to be obtrusive.

Tourism Policy and Planning Framework

The St. Lucia Medium Term Development Strategy 2000-2002 outlines the leading role that the tourism sector is to adopt and contains the formal policy statement that governs the tourism industry. Deliberate policy intervention is targeted at the following strategic areas.

?? Promotion and diversification of the national product. To this end the "Tourism Strategy and Millennium Action Plan" is currently being implemented and STABEX 96/97 Budgetary Support in the sum of EC$3,000,000.00 for Phase 1: "The Repositioning of the Tourism Industry" has been secured. Further product diversification is expected to come from "The Saint Lucia Nature Heritage Tourism Project", a community-based initiative whose mission is to establish nature/heritage

tourism as a viable and sustainable component. This "green" market position is an attempt to ameliorate the negative impacts from the industry.

?? Strengthening of linkages with the manufacturing, fisheries and agricultural sectors. Other agencies such as the St. Lucia Hotel and Tourism Association, the National Farmers' Association and the St. Lucia Marketing Board are expected to assist in the implementation of programmes. The primary goal is to reduce leakages from the sector thereby expanding the net foreign exchange earnings of the sector.

Other initiatives include tourism awareness, community based product development, health tourism, management information systems and stimulating hotel development. Those with a focus on environmental management in the sector include:

?? Community based product development including the support of Green and Eco-Tourism related projects undertaken by other agencies which assist in the marketing and promotion of St. Lucia, and facilitate community participation and decentralisation of the sector.

?? Making St. Lucia a Green Tourism Destination by:
achieving certification as a Green Globe destination;
conducting environmental audits of hotel properties to ensure that Green Globe standards are maintained;
guiding and encouraging investment in "Green" Marketing;
encouraging the adoption of environmentally friendly and conscious practices among stakeholders;
providing training to farmers to sensitise them the adverse effects of indiscriminate farming practices on initiatives such as "Green" and "Eco" tourism.
(St. Lucia Medium Term Development Strategy 2000-2001)

The Tourism Strategy and Millennium Action Plan also contains policy measures for the sustainable use and development of the fragile environment. This document will seek to:

> *address the threats and adverse effects, which an aggressive and expanding industry such as tourism may have on St. Lucia's fragile eco-system…In an effort to safeguard the environment and the natural resource base for future development, the government will embark on the use of scientific approaches to determine the economic value of natural resources, especially coastal, terrestrial and marine ecosystems.*
> (St. Lucia Medium Term Strategy 2000-2001).

Another tourism initiative with a significant environmental component is the Soufriere Tourism Development Plan which identifies general policies and actions for the

development of Soufriere that allows for the conservation and management of its natural and cultural resources.

At the regional level, the Caribbean Alliance for Sustainable Tourism (CAST), an agent of Green Globe 21, is providing assistance to the St. Lucia Hotel and Tourism Association on related issues. Hotels which participated in a "Greening your Hotel" seminar facilitated by the Caribbean Hotel Association in conjunction with CAST in March 1997 undertook environmental audits. Further, the SLHTA has been undertaking training workshops for its members, the most recent being the "The Environmental Management Training Workshop" held in August 2001. Additionally, the United Nations Environmental Programme has provided a number of training and technical assistance programmes to support sound environmental management in the sector.

Environmental Policy Framework

The Department of the Environment is also guided by the Medium Term Strategy 2000-2002. The focus for the department is on capacity building and institutional strengthening. Medium term initiatives of the department are in the areas of coastal zone management, waste management, watershed management, land use management, water resources, mineral resources, air pollution and National Protected Areas. The approach is to be an integrated development planning approach that will encompass the social cultural spatial environmental and other dimensions of development in the planning process. See appendix 10 for the Principal Environmental Laws in St. Lucia.

At the national level, the government of St. Lucia has adopted the St. George's Declaration of Principles for Environmental Sustainability, a commitment by member states of the Organisation of Eastern Caribbean States (OECS):

> *to actions necessary to achieve developmental goals in ways that ensure that environmental quality is maintained or improved*
> (OECS Environmental Review 2001).

In keeping with the St. George's Declaration, it is anticipated that a National Environmental Strategy will be developed. The OECS Natural Resources Management Unit (NRMU) assists member states in matters pertaining to the sustainable use of natural resources and to secure funding necessary to attain that goal. Technical assistance totalling $50,000 is being provided to the island for the conduct of an institutional and legal review of its environmental management agencies. A consolidated and rationalised framework for inter-sectoral co-ordination in environmental management is the expected outcome. The agency is also involved in sustainable tourism initiatives and is currently providing assistance to the St. Lucia Nature Heritage Programme in the implementation of environmental management systems for sites and attractions in St. Lucia (NRMU 2001).

Legal and Institutional Framework

The principal legal instrument for the tourism sector is the Tourism Incentives Act 1996. Regulations related to tourism development and tourism activities are listed in table 3.6.

The Ministry of Tourism is the responsible for policy formulation and product development while the St. Lucia Tourist Board carries out all marketing and promotional functions. Other agencies are involved in management and development of the industry and they include:

- The St. Lucia Hotel and Tourism Association
- The St. Lucia Air and Sea Ports Authority
- The National Development Corporation
- The National Conservation Authority
- The St. Lucia National Trust
- The Ministry of Health, Human Services, Family Affairs and Gender Relation
- Ministry of Agriculture, Forestry and Fisheries
- The Ministry of Finance, Planning and Sustainable Development
- The Solid Waste Management Authority
- The Soufriere Regional Development Foundation
- The Soufriere Marine Management Association
- The St. Lucia National Taxi Association
- The St. Lucia Dry Goods Vendors Association
- The St. Lucia Dive Association
- The Caribbean Environmental Health Institute

?? The Organisation of Eastern Caribbean States Natural Resources Management Unit

Tourism Revenue

The major sources of revenue from the tourism sector are Hotel Accommodation, Cruise-ship Head Tax and the Environmental Levy. Other sources of revenue accrue from taxes on income, import duty and other non-tax revenue. According to the St. Lucia Social and Economic Review 2000, central government collected EC $27.6 million from tourism-specific revenue in the form of hotel accommodation tax, airport tax and disembarkation charges. Additional revenue accrued from the sector include landing fees collected by the St. Lucia Air and Sea Ports Authority, taxes and duties levied on imports consumed in the industry and income, corporation[7] and property taxes paid by tourism establishments. (Social and Economic review 2000). Government of St. Lucia estimates 2001/2002 provides a total capital expenditure figure of EC $29.757 million for the sector[8]. Of this the project total for Corporate Planning and Development is EC $11.637 while Marketing and Promotion and National Conservation's total cost are EC $ 15.120 and EC $3.0 million respectively. It must be noted that although there no direct finance for environmental management various components exists with the projects identified.

Policy Instruments

The government of St. Lucia uses a combination of policy instruments within the tourism sector. The legal framework provides the regulations that govern the industry. For example, the Fisheries (Snorkelling Licence) Regulations (No. 223/2000) established a licensing system for operators of snorkelling facilities and a snorkelling fee of US$1.00 /day per person has been instituted from February 1st 2001. The Beach Protection Act provides for the protection of beaches through its permit system for beach sand mining. Under the Solid Waste Management Act, hotels in St. Lucia are legally obligated to have licensed contractors collect solid waste. The enforcement of Mooring Zones together with Multiple Use Areas to be used for combined activities such as fishing and diving is an

[7] Since approximately 95 percent of the properties on the island qualify for exemption from corporation tax, these revenues are insignificant.

important instrument to minimise conflict by resource users. These regulations have been implemented in the Soufriere Marine Management Area (SMMA) and the Canaries Anse La Raye Management Area (CAMMA). While environmental impact assessments are still not mandatory, it is expected that with the passing of the Planning Bill, these will soon be enforced.

Market Based Instruments are primarily in the form of user fees. Three protected areas managed by the St. Lucia National Trust have all implemented user fees See Table 4.7

The SMMA and the CAMMA employ two sets of fees. Within the Marine Reserves there is a daily dive fee of US $4.00 and an annual dive fee of US $12.00. There is also a mooring fee for yachts on anchor. These range from a 2 day fee of EC $27.00 for yachts beneath 35 feet to EC $54.00 for yachts with a minimum of 60 feet. There is also a weekly rate. In the Soufriere Sulphur Spring an entrance fee of US $5.00 has been in effect for some time. These revenues are all utilised in the operation and management of the areas.

[8] In an attempt to match sector specific revenues with expenditure, capital expenditure has been used as a proxy.

Report On December 17, 2001 Focus Group Meeting At Bay Gardens Hotel In St. Lucia Facilitated By Dennis Pantin And Deidre Charles

Representatives of seven(7) hotels participated in this focus group meeting

Familiarity with Government policies on environmental management relating tourism

The participants in this focus group came largely from engineering and/or environmental management divisions and were generally unaware of the policies of the Government of St. Lucia. One participant suggested a meeting with policy makers to provide answers to questions (e.g. the use of the $10 tyre disposal fee).

Issue : Solid Waste

Solid waste was identified as a national problem. In part it was felt that this was the result of inadequate receptacles for public litter, e.g. at Pigeon Pt. An improvement was however reported in public solid waste collection from the Vigie Airport in Castries to Gros Islet where much of the hotels are concentrated. The St. Lucian Solid Waste Management Company employs licensed contractors for general solid waste collection but participants were skeptical as to the standards required of them. Most hotels, in any case, tend to employ private contractors. Hotel waste tended to be commingled. One hotel reported that everything other than oil and compost goes to the chiller and is then taken away by contractors. Participants reported that there is no requirement for hotels to ensure that garbage is disposed of appropriately. Particular mention was made of food waste being given by contractors to pig farmers. This was reported to be banned in Australia given potential dangers of negative impacts on the food chain. It was noted that proper treatment of this food waste required boiling before feeding to pigs but only one farmer is known to be doing this. One hotel reported that the contract that it gives to private firms to dispose of its waste requires that they boil food waste before access by pig farmers. Questioned as to the feasibility of hotels making a contribution to post-collection safety by themselves boiling waste food, participants felt that this was not possible given constraints of space and equipment.

Separation/Recycling

In terms of recycling participants reported that there was no State requirement for separation and no incentives for recycling. It was felt, however, that a system of separation would help since hotels would not need to dispose of all waste every day. As a result of the absence of separation and of compactor trucks as opposed to the open trucks used by contractors, it was impossible to quantify the quantum of solid waste being generated by hotels. Participants indicated that for separation to be practiced at their hotels, it would be necessary to persuade the financial comptrollers that separation would save money. The conclusion expressed was the need for Government policy. E.g. on deposit-refund systems for plastic bottles which now end up in the rivers and sea.

Issue: Sewage Waste

Participants reported that a central sewage treatment plant has been established at Rodney Bay which is a major concentration zone for hotels. However, it is not mandatory to connect to this system. As a result, some hotels are not connected. A representative of one hotel present, which is connected, reported that it was very expensive due to the limited number of subscribers although the facility was designed for everyone in the Rodney Bay area- residents as well as hotels. It was speculated that the limited load of the plant was impacting negatively on its efficiency.

It was noted that there are no routine spot checks of hotel package treatment plants. One hotel reported monthly monitoring by CEHI for which it paid of its treatment plant and bordering coastal waters. Concern also was expressed about problems upstream of hotels in terms of sewage disposal and its related impact on coastal waters. One representative indicated that there were plans at his hotel for a large volume holding tank for sewage waste but that this had been put on the back burner. It was felt that Government policy would make it a priority project. Concerns also were expressed about disposal of liquid waste in wetlands and about the capacity of WASCO to accept sludge.

Issue: Chemical Use

It was noted that there is no law controlling chemical use in hotels. However, most suppliers offer biodegradable materials - this was particularly true of importers but participants were not as certain as to this in

terms of locally produced chemicals. It was felt that, in the long term, biodegradable chemicals were cheaper. Some hotels were reported to be utilizing the Materials Standard Data Sheet(MSDS) to determine their chemical use.

Drivers of Environmental Management

European tourists were identified as being more environmentally sensitive than those from the USA. Participants stressed the need to monitor all aspects of hotel operations which could have environmental impacts. However, it was felt that hotels faced more pressure from tour operators and airlines that from the Ministry of Health. One participant expressed the desire for Ministry officials to visit weekly in order to put pressure on his staff to meet standards set. However, one hotel representative reported five(5) visits from the Health Ministry since there was a mosquito problem close to the wetlands abounding his hotels. Attention was paid, unfortunately, only to the mosquito issue. Relatedly, there was a general view among participants that food inspectors need to visit more frequently. Participants noted that even when such inspectors visited their follow-up was poor. There was no write-up of problems, for e.g. It was proposed that the Government should standardize its approach to monitoring of hotels with a clear guidelines as to the minimum no of visits per year, documentation and follow-up.

Issue: Water

Water supply was identified as a major problem given supply constraints. It was reported that in May, 2001 St. Lucia was down to one month's supply. However, hotels were hardly affected with only two shut-off periods in the Rodney Bay area. However, other participants reported more frequent periods of water supply interruption. A discussion ensued on in-house possibilities for water conservation. It was pointed out that kitchen staff had a culture of continuous water flow given their emphasis on health. It was pointed out that introduction of aerators in faucets can reduce water flow from 5-2 gallons per minute. It also was suggested that there could be peak and off-peak water rates (as well as electricity). One hotel indicated that it reduced its water intake flow in low occupancy from 120-85? Per hour. Another hotel reported reducing its water supply requirement by 7,000 gallons a day through introduction of water saving devices.

Issue: Energy

Air conditioning was identified as a major concern in terms of energy demand. It was reported that hotels in St. Lucia were responsible for 20% of the energy consumed in the island. The significance of this share of hotels was illustrated by representative of one hotel which indicated that if it planned to shut down its electric system it needed to inform the Electricity Company since this could lead to overload elsewhere given the significance demand generated by this hotel. Several suggestions were made which could reduce energy use in AC systems including:

?? Better insulation of building;
?? Use of split units which also avoid breaking of wall as in traditional window units;
?? Linking electronic key to door to AC such that when a guest leaves the room the AC is automatically shut down. It was reported that a $20 control system could facilitate this in new AC units, given a supportive electrical wiring system. However, there could be consumer resistance since some tourists leave the AC on to ensure the room is cool when they return. Also in some hotels, a continuous AC avoids problems of mildew accumulation[9].
?? Use of peak and off peak rates also could encourage energy saving.

There was a debate on the use of standby generators in terms of whether they were cheaper than energy off the grid. It was pointed out that in Negril, Jamaica, hotels were encouraged to use their standby generators in peak hours. However, use of generators was banned in Jamaica.

Environmental Management in Hotels

The large hotels- particularly chain operators- were reported to face annual internal inspections from travel agents and airlines (e.g. Thompson, BA). Problems were therefore seen to be more likely in smaller hotels and restaurants. In response to a Question, participants reported that only in some hotels was there a manual or other documentation on environmental management practices to be followed. It was felt that while it was the duty of every HOD to

[9] It was also reported that cleaning staff tended to shut down the AC given the alternating temperature within rooms and the outer corridors between them.

check/inspect internal operations, external inspection could raise the priority with which this was treated. In response to another Question on key environmental issues facing hotels, participants suggested the need for education and training of staff as well as other stakeholders who supply hotels. In terms of staff training, it was felt that guests are influenced by the culture of the hotel.

Hotel Survey by Country

St. Lucia

General Information

83% of the hotel population surveyed is located on the beach. 43% have between 201 and 400 rooms while the other 57% have between 51-200 rooms. A large number (71%) are foreign owned with 57% belonging to a Caribbean hotel chain and 29% belonging to an international hotel chain. Half the hotels are located on over 60 acres while the other half are situated on an area between 10 and 30 acres. 14% employed over 600 employees and 57% hire between 101 and 400 employees. The major cost cutting exercise is via temporary staff (57%) and shorter workweek (43%).

Energy

71% of the hotels monitor energy use and implement energy saving measures. When asked with 57% indicating use of solar as an alternative source of energy. Those who did not, cited management (14%) and not needed (14%) as their reasons. However, all hotels (100%) agreed that policy is required for solar/alternative energy and energy efficient lighting, equipment, machinery and appliances. As for policy, 57%-100% of hotels are willing to implement these policies within 1-12 months of formulation. To date only 43% are satisfied with its contribution to profitability.

Water

All hotels (100%) utilize the government supply as the major source of potable water and with 71% also drawing on bottled water supply. 100% of the hotels monitor water usage and implement water saving measures. However, a mere 14% have policy in place for low-flush toilets, 39% for rainwater storage and 0% for sprinklers. As for government policy for new/expanding and existing hotels this is believed to be non-existent (67%). There seems to be a greater response to policy on rainwater storage and shower flow restrictions as 50% and 57% respectively agreed to implement this within 1-12 months of formulation. However, they are also slower to react to the other measures. 14%-29% admitted to having already put in place low flush toilets, shower-flow restrictions and water recycling technologies. Water saving is impacting positively to profitability as 83% of the hotels are satisfied with its contribution.

Solid Waste

50% of hotels monitor both the quantity and type of solid waste generated by their hotels but only a small 14% implement measures for its reduction. Hotels believe (43%-71%) that not enough is being done on collection, safe disposal and recycling of hazardous waste and the recycling of bottles and cardboard/paper. 86%-100% of the hotels requires policy/incentives for this and other reduce, reuse and recycle measures. As for policy on new/expanding and existing hotels no hotel is satisfied. Even though 14%-29% admit to already having put in place systems for composting organic waste, bulk dispensers for toiletries and cleaners and separation recycling facilities over 67% are willing to do so within 1-12 months of policy formulation. Thus far, only 20% satisfied with its contribution to profitability of the hotel.

Effluent and Emissions

A majority of hotels, 57%, dispose of wastewater via its own treatment plant and public sewer system (29%). Policy/incentives are not necessarily required since only 14% see it useful for environmentally friendly products and 17% for environmentally friendly pumps and sprays. 34% are satisfied with policy on the use of environmentally friendly products while 57% are willing to implement this within 1-12 months of policy formulation, interestingly, 43% admitted to already use environmentally friendly cleaning products and detergent. A mere 33% enjoys contribution to the hotel's profitability.

Other

17% of the hotels surveyed have received awards for environmental efforts, and 71% are interested in a green certification programme.

Chapter 5 – The Tobago Case Study

5.1 : Introduction

This case study of Tobago is divided into three main Sections. The first reviews the available data on the economic contribution of tourism in Tobago. Section 2 addresses the environmental impacts of tourism in Tobago while the third and final section evaluates the existing policy framework to address these impacts.

5.2 : The Economic Contribution of Tourism in Tobago

Tobago is a relatively latecomer into the international tourism market with substantial growth being experienced by this sector over the last decade in the wake of a significant investment in resort type development particularly along the southwest coast, the hub of the tourism industry. The coastal area from Plymouth to Rockly Bay is the location of: the island's premier beaches; the world renowned Buccoo Reef; many of the guest houses, villas and hotels including the island's largest resort type development at Petit Trou Lowlands. In fact, it is estimated [10]that 2150 of the 2595 hotel rooms[11] in the island are located in the southwest region. Moreover, there is rapid expansion in hotel facilities in this area in recent years. The development at Lowlands, for example, will include, when completed: a 200-room hotel, 65 villas, 70 condominiums, apartments, an 18-hole golf course, a 9-hole golf course, a 120-yacht marina, dock facilities, yacht club, shopping centre, entertainment facilities and an interpretive centre.

Although the value of the output produced by the tourism sector is not well measured, the sector has clearly emerged as the leading dynamic activity in Tobago, replacing the once dominant agriculture sector. Undoubtedly, the dynamism displayed by this sector has had a beneficial effect on the island's economy in terms of income and employment generation, foreign exchange earnings and government's tax revenues; but this has not

[10] Tourism Division, Tobago House of Assembly

been an unmixed blessing. Although, there is a dearth of good baseline data, there is evidence that some disquieting trends have begun to emerge in environmental conditions, particularly in the southwest region where the industry is largely concentrated.

5.3 : The Environmental Impacts of Tourism in Tobago

The expansion of the Tourism Sector in Tobago highlights the inherent conflicts and tensions between development and the environment in countries of the Caribbean region where the environmental vulnerabilities of limited land space and the fragility of ecosystems pose serious challenge to efforts to promote sustainable development. The management of this tradeoff is of fundamental importance in the island's development strategy given that it is only about 300 square kilometers (116 sq. miles) in area, and approximately 60 km (28 miles) from top to bottom; and the island's natural assets: coral reefs, tropical rain forests, beaches, lagoons, flora and fauna are essential components of its tourism product. The analysis of the specific environmental impacts of tourism has been constrained by the absence of good baseline data. However, based on the available evidence and a priori reasoning the following major impacts can be discerned:

?? The deterioration of water quality
?? Degradation of sensitive ecosystems
?? Loss of avifauna
?? Sand Mining
?? Increased pollution from solid waste
?? Loss of wetlands
?? Loss of biodiversity

Deterioration of Water Quality

Wastewater pollution is a serious environmental problem in Tobago. However, available baseline data on water quality, do not allow for an incisive evaluation of the contribution of the tourism sector to this unsatisfactory state of affairs. In most instances, the data are either non-existent or are not sufficiently disaggregated, as is the case with the data

[11]Includes: villas, guest houses and bread and breakfast

provided by the Water and Sewerage Authority (WASA) through its regular, routine testing (chemical and bacteriological) of sea water quality. The most useful information on water quality is that provided by: special water quality surveys conducted by relevant government agencies investigating specific environmental complaints; and Environmental Impact Assessments undertaken by developers in compliance with the requirements of applicable legislation.

Notwithstanding the data limitations; there is evidence that the water at the beaches in southwest Tobago and at the fringing Buccoo Coral Reef have come under increased stress from the increased loading of the environment with inadequately treated, and, in some instances, untreated, wastewater (2150 m 3/d[12] from hotels[13]). A major factor in this regard, is that the treatment of wastewater, particularly at the smaller establishments, is generally confined to the primary level (removal/settlement of solids) and in some cases extending to the secondary level (reduction of biological oxygen demand). There is seldom any treatment at the tertiary level, which involves the removal of nutrients. In this context, it is to be noted that only the larger hotels are equipped with wastewater treatment plants. The other establishments are reliant on septic tanks and soak-away or the centralized collection system, the design of which, in many cases, results in discharges that are high in both Biological Oxygen Demand (BOD) and nutrient levels. In the case of the most poorly designed soak-away systems, there may be seepage of sewage liquor into the water table, eventually contaminating the coastal waters. The problem is particularly severe at Buccoo Bay in view of the porous nature of the coralline limestone, which facilitates the seepage of pollutants into the water table[14].

The periodic malfunctioning of wastewater treatment plants at various hotels has also contributed to the deterioration in water quality. For example, Environmental Management Authority investigations in 1998 confirmed that dysfunctional wastewater treatment plants at two major hotels had resulted in the discharge of wastewater, which

[12] The estimate of 1 m3/d per room was extrapolated from the wastewater flow of the 129 room Coco Reef Hotel, which generates a wastewater flow of 131 m3/d

[13] Including guesthouses, villas, and bread and breakfast establishments.

exceeded the maximum permissible limits for liquid effluent from domestic wastewater plants with respect to the following key parameters: faecal coliform, BOD5 Total Suspended Solids and total residue chlorine[15]. In the case of one of these hotels, the wastewater was directly discharged into a nearby river.

The impact of Yachting

The last few years have witnessed a rapid expansion in the yachting industry, which is largely concentrated at Charlotteville in the north. In the wake of the rapid growth that has taken place in the industry, concerns have been expressed about pollution of the surrounding sea from yacht-generated waste. Although information is not available on waste generated by the industry; given the marked absence of specialized facilities for the proper disposal of ship generated waste, and existing inadequacies in the provision of infrastructure for the collection and disposal of waste in general, it is reasonable to conclude that some if not most of the waste is being improperly disposed of in the surrounding sea. The problem is considered to be particularly severe at Pirates Bay, Pigeon point, Plymouth, and Store Bay [16].The burgeoning problem of pollution from yachts can be gleaned from the large number of complaints made to the Environmental Management Authority and other relevant government agencies about incidence of pollution from yachts. For example, the environmental NGO, Environment Tobago reported the sighting, in September 1999, of a large quantity of tissue paper on the reef at Pirate's Bay in close proximity to several yachts. This prompted a reef clean up in which a significant volume of garbage was retrieved.

Degradation of sensitive ecosystems

Tobago contains several fragile and ecologically sensitive ecosystems notably the fringing coral reefs at Buccoo , Speyside, Man-of-War Bay, Arnos Vale and Culloden. These reefs and in particular the Buccoo Reef and increasingly the Speyside Reefs have been at the centre of the island's tourism development thrust. In this regard, it is to be

[14] B.E. Lapointe and A.Potts, (2001), Study on Integrated Water Quality and Coral Reef Monitoring on Tobago's Fringing reefs.
[15] EMA, (1998), Tobago Water Sampling Report.
[16] National biological Strategy And Action Plan tourism Sector Report EMA

noted that the Buccoo Reef is one of the most visited recreational sites in Tobago. Regrettably over the years, there has been a serious degradation of these very sensitive ecosystems, as a direct and indirect result of tourism related activities.. This proverbial *killing of the goose that laid the golden egg* can only be described as an ecological and economic disaster given the relative importance of this fragile, natural treasure in the island's tourism and economic development thrusts. The problem derives in the main, from a serious lack of appreciation among key stakeholders of the extreme sensitivity of this fragile but ecologically important ecosystem to small disturbances in temperature, salinity, light, oxygen, and nutrient. Small changes in these parameters invariably precipitate profound changes in the health and dynamics of the reef. Although this Study focuses on the degradation that has occurred at the Buccoo Reef where baseline data are available, the experience at the other reefs has been similar but the effects have not been as severe.

There is mounting evidence that land-based nutrient pollution, inclusive of that produced by the hotel and guesthouse industry to which attention has already been drawn, is the leading cause of coral decline at the Buccoo and other fringing coral reefs in Tobago. In this regard, it is to be noted that excess levels of nutrients over stimulate the growth of aquatic plants and algae. When nutrient levels increase, the delicate balance that exists between corals and algae is destroyed and the large algae can overgrow the corals. When this situation is prolonged, the corals are smothered and die beneath the algal carpet. This, in turn, affects the fish and other aquatic organisms using the area, leading to a decrease in animal and plant diversity. The results of research work currently being undertaken by the Buccoo Reef Trust, and the Fisheries Division, Tobago House of Assembly has indicated that this process is at a fairly advanced stage at the Buccoo Reef. In this regard, the findings of the Study[17] indicate, inter alia, that a large number of hard corals are dead or dying as a result of the relatively high levels of eutrophication (fertilization of surface water by elevated nutrients levels); and the existence of a high

[17] B.E. Lapointe and A.Potts, (2001), Study on Integrated Water Quality and Coral Reef Monitoring on Tobago's Fringing reefs.

cover of macroalgae, turf algae, octocorals, zonthids and sponges, which are considered to be classic " indicator species" of nutrient enrichment.

The degradation of the reef has also been as a direct consequence of reef users. Although the incidence of reef walking, removal and touching of corals by snorkelers in search of souvenirs; and damage to the reef by the impact of boat anchors and boat groundings are not as commonplace as before; they still major problems to be addressed. Scuba diving and spear fishing , which are very popular among tourists particularly at Speyside and Charlotteville in the north, have also contributed to the degradation of the marine environment. Spear fishing is harmful not only because it targets certain species that may be fundamental to the well-being of the reef ecosystem, but also targets species that add to the tourism value and beauty of the reef e.g. parrotfish. This practice may also destroy the reef itself due to spear damage of coral polyps[18].

Loss of avifana

The island's avifauna has been adversely affected by several tourism-related activities. Firstly, habitats have been destroyed due to construction activities within the sector. In some instances, such activities have resulted in a loss of important wetlands, the habitat for various fauna, primarily birds including the Southern Lapwing, Green heron, Yellow-crowned Night Heron, Cattle Egret and Mockingbird. Secondly, the increasing use of jet skis, and tourist visitation have exacerbated the noise pollution problem causing ecological disturbances in some habitats with consequential migration of birds. Tour operators have pointed that there has been an observable decline in the population of pelicans in the Bon Accord Lagoon, subsequent to the increase in jet skiing activities. There also have been isolated incidents of loss of avifauna as a result of pollution. For example, in January 23th and 24th 2001, a large number of birds were found dead on the grounds of the Coco Reef Hotel. Investigations on the "bird kill" subsequently revealed that it was a direct consequence of the use of the pesticide in landscaping activities, Vydate L by the hotel staff.

[18] Draft Final Report The Formulation of a Management Plan for the Speyside Reefs Marine Park.

Sand Mining

Sand mining, which is directly related to construction activities, has led to a serious degradation of one of the island's prime, natural asset, its beaches. The dearth of sand pits in Tobago in conjunction with the high cost of transportation, and the uncertainty of the ferry service between Trinidad and Tobago are powerful incentives to engage in this disturbing practice. Undoubtedly, the intensification of construction activities in the tourism sector over the last decade has created some supply bottlenecks with respect to sand, and has contributed to the problem of sand mining directly and indirectly. It has been reported that sands mind from the Kilgwyn wetlands was used in physical works on the extension of the airport at Crown Point.

Increased in pollution from solid waste

In Tobago, the disposal of solid waste is largely undertaken through landfilling. Most of the wastes is disposed of at the official landfill site at Studley Park, which is managed by The Solid Waste Management Company Limited. However, there are a few unofficial dumps, which received waste from the outlying districts. None of these sites are up to the level of a sanitary landfill. Moreover, budgetary constraints have resulted in these landfills being virtually open dumps. While both tourists and residents produce waste any increase in either population would impact on environmental quality. Given the dominance of the tourism sector in the island's economy, and the growth experienced in recent years, it can be reasonably inferred that tourism has had a significant negative effect on solid waste management in the island.

Loss of Wetlands

Construction activities have resulted, in a few instances, in the destruction of valuable wetlands. Given that tourism is the driving force in the economy, such occurrences must be viewed as direct or indirect effects of the sector. The Crown Point airport expansion project, in which a considerable portion of the Kilgwyn wetlands was destroyed by reclamation, underscores this point. The project had as its primary objective the upgrading of the airport to the status of an international to meet the needs of a fast growing tourism industry.

It has been reported that portions of the Petit Trou Wetlands were destroyed as a result of the location of a large scale resort development at the Lowlands Estate. This could not been ascertained by the findings of an EIA conducted by the Institute of Marine Affairs' as no measurements were taken of the wetlands before the commencement of construction activities.

Loss of Biodiversity

The destruction of vegetation cover including the loss of wetlands due to construction activities and increased in noise pollution, to which attention have already been drawn, have impacted negatively biodiversity. The destruction of natural habitats has impacted on wildlife. In the case of the Buccoo Reef, increased pollution and the related changes in water quality have led, *inter alia*, to the observable decline in the number of species of fish that live on the reef. Impacts are also felt on mangrove and wetland ecosystems, in terms of their variety and productivity[19]. The significant increase in tourist visitation has also resulted in the degradation of habitats with the consequential loss of biodiversity. This has been the experience of one of Tobago's most popular nature trail, the Gilpin Train which receives an estimated 8000 visitors per year. Similar concerns have been expressed with respect to Little Tobago, a small offshore island off the coast of Speyside an important seabird sanctuary and breeding-ground for a number of species. It has been reported that the Bird of Paradise, which once frequent the island, has not been sighted there in recent times[20].

Cruise ship tourism

Cruise ship tourism has been increasing in importance. In 1998, this activity was expanded to include Charlotteville. In the absence of data, no attempt was made to analyze the specific environmental impact of such activities. A priori reasoning suggests, however, that the expansion of the industry has placed additional burdens on the carrying capacity of existing infrastructure for environmental management, thus accentuating the trends that have been identified.

[19] National Biological Strategy and Action Plan The TourismSector Report Second Draft

There is no doubt that tourism is an important contributor to the economy of Tobago, however, there is growing evidence that has degraded the natural resource base. The challenge, therefore, is how to facilitate the continued development of the tourism sector while maintaining environmental quality. It is in this context, that the Tobago case study now turns to an evaluation of the Policy framework.

5.4 : Review of Tourism Policy Framework

There have been significant changes in the policy framework for tourism development and environmental management in recent years. The enactment of the Tobago House of Assembly Act 1996, for example, resulted in the devolution of political power to the Tobago House of Assembly (THA). The policy framework in Tobago has thus broadened to include not only national policies, but also policies of the THA. Additionally, there have also been enactments of several new pieces of environmental legislation in support of the national (Trinidad and Tobago) environmental policy. It is to be noted, however, that in several areas the recent policy changes are now in the process of being implemented or still to be implemented. Several government policy documents speaks to the issue of tourism in Tobago, among the most important include:

?? Trinidad and Tobago Tourism development Act 2000;
?? A National Tourism Policy For Trinidad & Tobago, May 15, 2001 - Ministry of Enterprise Development, Foreign Affairs, and Tourism[21];
?? The Tourism Master Plan, 1995;
?? Tobago Development Plan Medium -Term Policy Framework of Tobago, 1998-2000;
?? Tobago Development Plan The Strategic Plan;
?? The Medium Term Planning Framework 2002 - 2005 - The Ministry of Finance;
?? Management Plan for the Buccoo Reef Marine Park - Institute of Marine Affairs (IMA), 1991
.* The Formulation of A Management Plan for the Speyside Reefs Marine Park - IMA, Draft Final Report.

[20] National Biological Strategy and action Plan Tourism Sector Report EMA
21 The Ministry considers it to be the official policy document notwithstanding the lack of formal Cabinet approval.

Evaluation Of Tourism Policy In Terms of Its Effectiveness in Dealing With Environmental Concerns

By far the most comprehensive treatment of environmental issues within the tourism policy framework for Tobago is provided in the May, 2001 National Tourism Policy of the Ministry of Enterprise Development, Foreign Affairs and Tourism. The stated policy stance gives an encouraging picture of the progress that has been made in the integration of tourism and environmental policies. The policy contains a vision that acknowledges the need to develop a sustainable industry and to conserve, protect and improve the environment. Additionally, the policy identifies integrated national planning as the single most important mechanism for ensuring sustainable tourism.

On the other hand, there is a general lack of substantive treatment of environmental issues in the tourism policy articulated in the Tobago Development Plan and its companion document, the Tobago Strategic Plan. This deficiency is all the more surprising given the growing threat to the environment in Tobago as a result of the expansion of tourism activities, and the access of planners in Tobago to available environmental baseline data.

Outlined hereunder, are the main environmental policy provisions of the May, 2001 tourism Policy:

?? Government will promote sustainable and responsible consumption of water and energy in tourism plants using readily available technology, encourage sustainable waste disposal, green packaging, alternate power sources, clean energy, recycling, reuse and desalination
?? The Ministry with responsibility for tourism will create an ongoing forum for closer collaboration between the EMA and the private sector on tourism issues. All major development proposals must be accompanied by an Environmental Impact Assessment especially those located within the coastal zone and other ecologically critical areas
?? The government will initiate measures for ongoing social and environmental audits to ensure the use of effective systems of waste disposal on land as well as the sea
?? In collaboration with the Environmental Management Authority and the Institute of Marine Affairs, the Government will seek to regulate tourism activity and enforce penalties for prolonged non-functioning and/or inadequate waste disposal systems

- ?? Incentives would be provided under the Tourism development Act 2000 to assist stakeholders with the provision of adequate waste disposal systems
- ?? The Government will only approve those projects for which an adequate level of essential services - water, sewer, waste disposal, power - can be assured. It is mandatory for major investors to include plans for the storage of water in their building plans for approval.
- ?? Coastal zone Management will take place in collaboration with the relevant state agencies and coastal monitoring will be continued in order to acquire continuous and reliable data and the formulation of a rational response to threats posed by marine pollution, beach erosion, reclamation of mangrove swamps, sand mining, sea level changes etc
- ?? Sand mining will only be permitted in certain designated areas and at certain specified levels as determined by the relevant authority . Failure to comply will lead to prosecution
- ?? Government will collaborate with the appropriate organizations to address improper industrial practices and ensure policing of coastal waters at reefs and beaches, to prevent improper practices, such as sand mining, reef walking, improper waste disposal, and the pollution of rivers and swamp habitats by unfriendly agricultural and manufacturing entities
- ?? Policy instruments will be utilized to leave adequate windows to the sea along scenic landscapes
- ?? In an effort to alleviate the stress on the environment, certain areas in Tobago will be restricted and a valid permit needed to access others. The designated restricted areas include:
  - ✍✍Little Tobago - permit required
  - ✍✍The waterfalls around the island
  - ✍✍The rainforest
  - ✍✍All dive sites around Tobago
- ?? Due to the high accident capability, the operation of jet skis and similar high-powered craft will be permitted in limited number only in designated beaches and at minimum distance of 200 metres from the low-water mark. Those designated areas will be announced publicly. Permits will be issued for the operation of this activity and will be monitored to ensure compliance;
- ?? Beachfront developments will be required to strictly adhere to regulations and standards for development such as setbacks, waste disposal requirements etc.;
- ?? All cruise ships are required to dock at designated ports under the auspices of the Trinidad and Tobago Port Authority. No "beach stops" will be permitted;
- ?? In order to protect the coral reefs from further damage by visitors and fisherman and to conserve the marine life; government will, after due consultation with technical experts, designate one or more areas of the country, coastal waters as Marine Parks;
- ?? The Ministry with responsibility for Tourism will undertake to identify areas of historical and heritage value which should be preserved to future generations, government will seek to protect these from degradation;
- ?? Government will continue to ensure the capacity of the infrastructure, including roads, water supply, telecommunications, waste management, air and seaport

facilities, etc., keeps pace with the needs of the expanding tourism sector, particularly in priority development zones;

?? The Ministry of the Environment in collaboration with the Ministry with responsibility for Tourism will implement a system for collection and disposal of waste from yachts. Relevant information will be distributed to yachts at ports of entry, and at marinas, setting out these regulations and the appropriate penalties for offenders;

?? No anchorage will be permitted above coral reefs;

?? Yachting and mooring facilitation will be allowed only in designated anchorages, where facilities are available;

?? Cruise ships found polluting the coastal waters within the grand mile radius and the environment will be subject to a fine of five thousand dollars United States currency (US$5000);

?? Government will give preference to foreign investments that develop, promote and implement sustainable tourism;

National Environmental Policy

The National Environmental Policy is an essential part of the overall policy framework for promoting sustainable tourism. In terms of environmental management, sectoral policies, including tourism policy, are subsidiary to and intended to be supportive of the objectives of the over-arching national environmental policy framework, which in several areas constrains the implementation of tourism policy. In this regard, the following excerpt from the National Environmental Policy should be noted:

"The Policy is broadbased and, therefore, applies to all sectors and areas of activity by providing general guidelines for the conceptualization and development of plans, programmes and projects of any scale within Trinidad and Tobago. It is based on the premise that anticipatory environmental protection must be integrated into decision making."

As in the case of the tourism policy framework, there has been a strengthening of the policy framework for environmental management in recent years.

Policy

The National Environmental Policy seeks to provide a rational, practical and comprehensive framework for environmental management in Trinidad and Tobago.

The specific objectives of the Policy are to:

a) Prevent, reduce or eliminate various forms of pollution to ensure adequate protection of the environment and consequently the health and well-being of humans;
b) Conserve the biological diversity of the country and the stability and resilience of the ecosystems;
c) Undertake the retrospective analyses or evaluations to correct past developments decisions that might be inimical to the continued environmental health of the country.

In terms of tourism development, the following two basic principles on which the policy are predicated is of particular relevance:

i) *Conserve the vitality and diversity of Trinidad and Tobago's Natural Environment*
Development should be conservation-based and must protect the structure, functions and diversity of the natural systems on which our species depend. The aims of policy should, therefore, be to:

a) Conserve life-support systems, i.e., the ecological systems that cleanse air and water, regulate water flow, recycle essential elements, create and regenerate soil and enable ecosystems to renew themselves;
b) Conserve Biodiversity. This includes not only species of plants, animals and other organisms but also the range of generic stocks within each species, and the variety of different ecosystems;
Use renewable resources sustainably. These resources include soil, wild and domesticated organisms, forests, agricultural land, and the marine and freshwater ecosystems that support fisheries.

ii) *Keep within the Country's Carrying Capacity*

There are finite limits to the carrying capacity of Trinidad and Tobago's ecosystems so that renewable resources must be used sustainably. In order to keep growth within the Nation's carrying capacity, the following are required:

a) National physical development and planning policies must address in a realistic way the need to stabilize population growth, reduce poverty and promote equal access to all national services. An ecological approach to human settlements planning must be implemented in order to make our villages, towns and cities clean, green and efficient. Strategies and plans must also be introduced to use agricultural land optimally;
b) Resource conservation, waste minimization and recycling must be promoted as a way of life. Economic incentives, environmental taxes and

"Green" consumer movements must become an accepted part of our environmental management strategy;

With respect to the coastal and marine ecosystem, which is the principal location for tourism activities in Tobago, the Policy states that Government will:

a) Conserve representative examples of all coastal and marine ecosystems by including them in a system of protected areas;
b) Avoid promoting industrial, tourism, recreational or other types of developmental activities which contributes to the degradation of sensitive coastal ecosystems such as coral reefs and seagrass beds;
c) Reduce pollution to the marine environment from land-based, ship-based or fixed marine platform sources;
d) Enforce measures to restrict sand mining on sandy beaches;
e) Establish building setbacks from the shoreline; and
f) Encourage stakeholder participation in solving problems related to multi-user conflicts in coastal areas in keeping with sound integrated coastal zone management principles and philosophies.

Legislation

?? The Environmental Management Act 2000 established the Environmental Management Authority (EMA) as the agency responsible for the overall coordination of environmental policies in Trinidad and Tobago. The Act also establishes the Environmental Commission as a superior court of records to adjudicate on all environmental matters to which it is referred.
?? Certificate of Environmental Clearance Designated Activities Order, which designates a list of activities that require a Certificate of Environmental Clearance (CEC) before development can commence.
?? Certificate of Environmental Clearance Rules 2001, which prescribe the procedure to be followed for the grant of a CEC, and the standards for preparation and submission of any required environmental impact assessment. The Rules thus empower the EMA to assess the potential environmental impact that may come from a proposed development activity, and to determine the acceptable of proposed remedial measures.
?? Sensitive Areas Rules 2001, which empower the EMA to designate environmentally sensitive areas, and develop and implement measures to protect them with a view to, conservation of natural resources and protection of the environment; facilitation of sustainable economic and human development; and engendering increased environmental educational awareness and information sharing.
?? Sensitive Species Rules 2001, which empower the EMA to designate environmentally sensitive species, and to establish measures to protect and conserve them and facilitate their sustainable management.

The Town And Country Planning Act Chapter 35:01[22]

The Town and Country Planning Act is also an integral element of the policy framework for promoting sustainable tourism by virtue of its development control function. The Act makes specific provision for the control of development of land. Under Section 8 permission is required for any development of land which is carried out after the commencement of the Act.

The Act defines the expression "development" as meaning:

i. The carrying out of building, engineering, mining or other operations in, on, over, or under any land;
ii. The making of any material change in the use of any buildings or other land;
iii. The subdivision of any land.

The primary objective of development control under the Act, is to ensure that development, which is being implemented, is consistent with and in accordance with policy and the country's Development Plan. Other more specific objectives include:

i) The direction of development toward the optimum use of resources to provide the public with the highest possible environmental quality;
ii) The conservation and enhancement of the physical, ecological, cultural and historical environment within which development is located.

In granting approval for planning permission, the following general considerations are taken into account:

i) The consistency of the proposed land use with the guidelines for the location and distribution of land uses, which are set out in the National Physical Development Plan and/ or the more specific requirements outlined in any relevant regional, local area plan, or policy statement;
ii) Likely impact on the physical and natural environment;
iii) Physical characteristics and suitability of the site for the particular type of development being proposed.

It should be noted that planning permission cannot be granted for a designated activity under the Certificate of Environmental Clearance designated Activities Order until the Environmental Management Authority has issued a certificate of environmental

[22] This Act is to be repealed and replaced by The Planning And Development and Land Bill which is currently before Parliament

clearance. In this regard, it is to be note that an Environmental Impact Assessment (EIA) may be requested in cases where the type of development is likely to cause an adverse impact on the environment or where the site is located in an environmentally sensitive area. In the event of an application where an EIA is requested, a notice of planning permission will not be issued until the EIA is fully evaluated, and unless the results of the evaluation indicate that the proposal will not result in significant and adverse impact on the environment. Where such an eventuality is expected, proper mitigatory measures must be identified and are to be undertaken as a condition of the grant of the planning approval.

Tourism Development Incentives

The Tourism Development Act, 2000 provides for the under-mentioned benefits to be granted to various types of tourism projects, depending on their perceived potential to contribute substantially to the development of the tourism sector:

?? Tax exemptions (not exceeding seven (7) years) in respect of gains or profits from the approved tourism project.
?? Tax exemption in respect of gains or profits from the sale of villas or condominiums or the sites for villas or condominiums, which form part of an Integrated Resort Development (IRD).
?? A carry-over from a tax exemption period, of any losses arising out of the operation or renting of an approved tourism project.
?? A tax exemption in respect of interest received on an approved loan used for an approved tourism project.
?? The importation of vehicles for use in the tourism industry at the reduced rate of duty of ten percent (10%).
?? Total exemption from customs duty on imported building materials and articles of tourism equipment, or if purchased in Trinidad and Tobago, a drawback of customs duties or excise duties, these items not being locally manufactured.

The TDA identifies three categories of tourism activities that qualify for consideration for benefits, these categories are:

Tourism Accommodation Projects

Examples

- Integrated Resort Developments*
- Hotels
- Camp Sites
- Guest Houses
- Eco Lodges
- Dive Lodges

These projects will provide not less than eight (8) rooms and should contain public facilities i.e. dining, bar and lounge facilities for the entertainment and accommodation of guests. In general the tourist accommodation must not contain more than fifty percent (50%) of its bedroom accommodation in the form of self-contained apartments.

The letting of a room or apartment for the exclusive occupation of any person or company for more than one (1) month would be considered as inconsistent with the use of the accommodation facility.

Tourism accommodation facilities that have more than two hundred and fifty (250) rooms should include a convention hall as well as smaller meeting rooms.

****The Integrated Resort Development (IRD)***

This type of project usually incurs a capital expenditure of at least TT$350 million (US$48 million) and will include a hotel of at least two hundred (200) rooms, amenities such as golf courses or marinas and any other sporting, cultural or eco-tourism facilities. The IRD may also include villas and condominiums which will only be considered as tourist accommodation, if it is clearly shown that the villas and condominiums are critical to the viability and success of the entire resort development.

- Marinas
- Boatyards
- Dive Operations
- Water Sports
- Charter Boats
- Cruise Activities
- Tour Operations
- Recreational Space
- Theme Parks
- Cultural Centres
- Special Events
- Golf Courses
- Film Making

Tourism Ancillary Facilities and Services will include projects that provide support for and exist for the sole purpose of providing entertainment and attractions for use by tourists.

- Dive Re-Compression / Hyperbaric Chamber
- Heliport
- Sea Ports and Airports
- Communications
- Ecological and Environmental Maintenance
- Public Utilities – Water, Electricity, Sewerage Treatment Plant
- Roads
- Irrigation
- Land Clearance and Cleaning

Qualifying Criteria

In determining the combination of benefits that would be available to a tourism project, the level of capital expenditure and, in the case of tourism accommodation projects, the number of rooms is taken into consideration. Also important for most tourism projects is that the location to be used or the project has received Outline Planning Permission from the Town and Country Planning Division.

Evaluation of the Policy Framework

There have been some encouraging developments in the policy framework for environmental management with respect to tourism development in Tobago. For example, in the National Tourism Policy there has been less reliance on the command type approach with increased emphasis placed on cooperation among key stakeholders. In this regard, attention is drawn to the following policy approaches:

- the grant of incentives to encourage environmental friendly waste disposal systems;
- the emphasis placed on conserving natural resources and designating areas of conservation for the protection of natural habitats such as Little Tobago and rain forests;
- encouraging waste reduction through recycling and reuse of materials;
- encouraging sustainable production methods such as green packaging;
- establishing structured mechanisms to facilitate increased collaboration among the public and private sectors and other elements of civil society.

Despite the recent improvements in the policy framework, there are still serious shortcomings, which must be addressed if the observable threats to the environment in Tobago as a result of tourism development are to be negated. The deficiencies are predominantly those related to implementation. In this regard, it would appear that not much thought has been given to as to how the policies are to be operationalised.

The following are some of the major perceived weaknesses in the policy framework:

Lack of clearly defined objectives

A *sine qua non* for effective policy is a clear understanding of the nature and the extent of the problems/concerns being targeted, and the setting of clearly defined and realistic objectives to address these problems within a specified time frame. This policy imperative was not met in any of the afore-mentioned policy documents. In most instances where objectives were articulated, they were very vague and general. For example, the National Tourism Policy has as its environmental objective, "To enhance, protect and preserve the natural and social environment"

Lack of prioritization of policy objectives

There is a marked absence of priority setting with respect to stated objectives. In most instances, no attempt is made to distinguish between short, medium and long-term objectives. Given the competition for available scarce resources, it would not be possible to address all the issues simultaneously. In the absence of priorities, lower order goals may be pursued at the expense of objectives that are known to have potentially more serious deleterious effects on the environment. In this regard, greater urgency should be given to those problems which are irreversible or where the short term negative impacts are severe, for example, sewage pollution, the degradation of coral reefs, eutrophication of coastal waters in ecologically sensitive areas, destruction of wetlands and other wildlife habitats.

Absence of a target group policy

The target population comprises of heterogeneous individuals and economic agents, who inhabit different ecosystems and contribute differently to environmental problems. There are also marked differences in environmental literacy, and their willingness to undertake environmentally responsible behaviour. Effective policy, therefore, requires targeting of policies to different subsets of individuals and economic agents for example, tourists and hoteliers. In addition clear targets and information are required so that target groups know how they are expected to modify their behaviour, e.g. produce less waste. Target groups need to know what is expected of them, and when. They also need to know which measures have priority. With very few exceptions policy instruments were not fashioned on the basis of target groups; but rather " a one size fit all approach".

A major shortcoming in terms of targeting is the absence of policies to encourage good environmental stewardship on the part of two main stakeholders tourists and hoteliers. For example, there are no policies to promote greater environmental literacy among tourists. No industry has a greater stake in safeguarding the environment than that providing tourist accommodation, yet the policy is very shortsighted in this respect. In this regard, there is a lack of policy instruments to encourage hoteliers to benchmark, measure and monitor environmental performance; to educate enlighten and motivate staff and guests to be good environmental citizens.

Lack of sufficient and appropriate instruments for implementation

The effectiveness of policy depends to a great extent on whether or not the persons or institutions responsible for its implementation and follow-up have tools at their disposal, which are suited to the set of circumstances. In many instances, there is a lack of policy instruments for effective implementation; tools are not clearly and explicitly expressed in the policies In this regard attention is drawn to the following statement in The National Tourism Policy:

> *" The more detailed procedures and concrete actions which will be required at sectoral levels to achieve effective environmental management will, therefore, find their bases in the principles and broader approaches embodied in this National Environmental Policy".*

The lack of emphasis on market instruments

Although the National Environment Policy places emphasis on the polluter pay principle, and there has been some movement away for an exclusive reliance on regulatory instruments ;not much use has been made of market instruments. This situation has negatively impacted on the efficiency of the policy framework and can be counter productive.

Weak implementation capabilities

Implementation capability is a decisive factor in the effectiveness of policy. Apart from the general weaknesses in the various policy instruments to which attention has already been drawn, there has not been a commensurate strengthening of institutional capacity to effectively implement both the tourism and environment policies. Many of the implementation agencies continue to complain of being under-funded and not possessing the trained manpower and wherewithal to effectively discharge their functions. In the case of the regulatory agencies for environmental management, capacity constraints have significantly impaired the enforcement function. In this regard attention is drawn to the Report of the Cabinet appointed Committee To Facilitate timely Enforcement Actions by State Agencies with Respect To Environmental Issues dated September 27th, 2000. The Report notes, inter-alia:

> *"Institutional weaknesses related to inadequate human resource capacity, absence of structured mechanisms for enforcement, and deficiencies with respect to the provision of equipment and services compromise the effectiveness of the enforcement function"*

Inadequate systems for monitoring and dearth of environmental baseline data

Attention has already been drawn to the dearth of up-to-date environmental baseline data. In the absence of an informed perspective of the environmental impact of different

individuals and economic agents of their own activities it is more difficult to hold them accountable and to design specific instruments to target them. The lack of data on ambient conditions also constrains the implementation of environmental standards. Additionally, the policy framework does not provide for periodic data collection (monitoring) to ascertain whether the objectives are being realized. In this regard, three forms of monitoring are required:

?? physical measurement in the environment to evaluate environmental quality and the burden placed on the environment by different individuals and economic agents
?? monitoring the progress of the target groups in meeting their targets
?? monitoring policy and enforcement processes

The absence of effective monitoring mechanisms significantly impairs the effectiveness of the requirement for an EIA as the implementation of mitigatory measures cannot be verified. In situations where there is some monitoring of environmental impacts, the credibility of such monitoring is seriously compromised by the lack of independence. Invariably, the developers themselves undertake monitoring. Moreover, all stakeholders are not involved in the development of the terms of reference and/or are allowed access to the findings for the EIA. This continues to be a serious concern with several development projects most noteworthy is the development of the Lowland Estate. In this regard, The NGO, Environment Tobago has strongly opposed the development on grounds, *inter alia,* that " there is little or no independent monitoring of the environmental impacts of this large scale project".

Further, they petitioned the developers and the relevant public authorities to

> "*provide a clear public statement identifying what measures the developers have taken, or plan to take to minimize damage to the environment, particularly in regard to the mangrove surrounding the Petit Trou Lagoon and the reef system protecting it'.*

Relevant public authorities were also requested to :

> *" provide public statements identifying the measures they have taken, or plan to take to effectively monitor this development project from inception to completion and beyond".*

Lack of a genuine political will

In the final analysis the effectiveness of policy is determined by a genuine political will to confront the problems on the part of the authorities. This problem has particular relevance to the implementation of the provisions of the Town And Country Planning Act. In this regard, the following finding of the aforementioned Report on Enforcement of Environmental Laws is quite pertinent:

> *"In many situations where enforcement action is expected to have negative socio-political implications and cannot be taken without Ministerial sanction, such*

> *approval is often not forthcoming. Two clear examples are the lack of a consistent approach in dealing with the problem of squatting, and where development activities have been undertaken without the requisite planning approval"*

The lack of fiscal incentives to promote sustainable consumption and production patterns

The thrust of the incentives provided under the Tourism Development Act is directed at stimulating investment in the tourism sector. There are no provisions that specifically target at inducing environmentally responsible behaviour by key stakeholders. Regrettably, there are no fiscal incentives to ensure environmentally compatible development. No attempt has been made to synchronize environmental objectives with fiscal policy. It would appear that the overriding concern was to preserve if not enhance the overall competitiveness of the domestic tourism industry.

Undoubtedly, Trinidad and Tobago has made considerable strides over the last few years in developing and strengthening the policy framework for promoting sound environmental management practices, and sustainable tourism. Despite these efforts, however, and as the evidence suggests the threats to the environment in Tobago has been growing. This situation is symptomatic of a number of factors including deficiencies in the policy framework for tourism development, and is a manifestation of the inherent tension between economic growth and the environment. This is particularly the case in Tobago, where there is extensive reliance on natural resources in the island's economic development thrust, with natural capital being the main source of working capital. While such conflicts between the environment and economic activity are inescapable, they can, however, be minimized by the implementation of effective policies that re-orient tourism activities in more sustainable directions.

The need for effective policy instruments consistent with the National Environmental Policy is an urgent priority. In the absence of which, the National Environment Policy and the implicit tourism environmental policy would simply constitute a listing of platitudes.

Report On Tobago Focus Group Of December 19 2001 At Crown Point On The Bay Hotel, Facilitated By Dennis Pantin And Anthony Bartholomew

There were representatives of four(4) hotels, together with two European consultants, at this focus group which was negatively impacted upon by heavy rains during that day.

Issue: Knowledge of Government policy on environmental management of tourism
Participants were unaware of Government policies. One participant expressed the view that public officials responsible for monitoring bathing water quality targeted only Store Bay. The view was also expressed that there was need for a distinct Ministry of Tourism One participant expressed frustration as to which government office he could complain to about problems facing his hotel and the industry in Tobago. There also was a complaint about mixed signals from the Trinidad and Tobago Government and the Tobago House of Assembly. It was reported, for example, that the Tourism and Industrial Development Co.(TIDCO) employed a consultant who came up with a five-year plan for Tobago based on creating a niche market. Then the THA and TIDCO "stopped talking" and the THA came up with an alternative plan for agro-tourism.
A general concern was expressed about the infrastructural report for tourism. One hotelier reported having to maintain the public roadway and also to provide street lighting.

Issue: Bathing Water Quality
Participants identified bathing water quality as a significant problem in Tobago.
Participants reported complaints by tourists about earaches. One representative indicated that they were receiving such complaints by 2-3 guests every month. The standard prescription was for use of anti-biotics. However, it was reported that in the case of one hotel (named but not represented at this focus group meeting) a medical doctor had to be called in to attend to the large number of complaints. It was reported that an IMA survey of residents in Tobago indicated that 90% were fearful of bathing in the sea. However, even where data on bathing water quality was available it was not released until years after. This was a negative approach to seeking to improve quality. The sewage problem was a general one, not limited to the hotels and including inadequacies in housing estates in southwest Tobago. Effluent from residents was reported to flow into coastal water. It was suggested that a central sewer system was needed. It was reported that anchors of yachts have broken existing outflow pipes of hotels. In addition, such yachts also posed a problem of operating without holding tanks and anchoring off the best beaches. The European consultant suggested that the hotels were not without blame and that only one hotel in Tobago has continuous water quality monitoring. It was also reported that loss of wetlands and increasing solid run-off were leading to increasing mudflows in the sea. One example was cited of a mudflow quarter mile out to sea and thereby impacting negatively on dive sites.

Issue: Solid Waste
The public collection system was identified as inadequate and only one of the participants reported utilizing it for disposal of its solid waste. The others rely on private contractors. It was pointed out that private contractors were originally employed to complement the official collection system, given its inadequacies. However, once the THA became aware, it then withdrew completely. The result was that the private contractors then increased their fees. The question was asked as to whether the participants were aware of the final disposal of their solid waste. This was generally felt to be Studley Park solid waste dump – itself identified as inadequate being both open and not sealed. However, one hotelier reported being charged for improper disposal of his waste and had to rely on his records to indicate that he had paid a contractor to dispose of this properly.
It was indicated that there was no national policy on waste separation but hotels tended to do some of this, particularly in terms of glass bottles.

Issue: Water Supply
This is reported to have improved tremendously in recent years. However, the visiting consultant expressed view that some hotels - particularly the recently completed Hilton- was receiving privileged water supply access while neighbouring communities were dry. This, it was felt, could impact negatively if tourists became aware of this information from taxi-drivers or other members of the community.

Other Issues: Groynes, Crime
The view was expressed that groynes erected by some hotel facilities were negatively impacting the slope of Store Bay. It was reported that this was becoming steeper and resulting in breaking limbs as a result of tumbling.
Crime also was reported to be a growing problem with one restaurant- in an unlit area- having to close because of attacks on customers.

Issue: Proposals
Participants made a number of proposals for future public policy including:

?? Education of public servants on the importance of environmental management in tourism in Tobago;
?? Education of Buccoo Reef boat crew;
?? Improved design of boats for Buccoo Reef with shorter props, inboard engineer, etc. to reduce negative impacts on the reef;
?? Need for monitoring of coastal waters around Tobago-not merely Store Bay- and the provision of this data to the public on a real time basis;
?? Education of other stakeholders including taxi-drivers(e.g. re black smoke from their engines turning off tourists since this was not permissible in their countries);
?? There was need for improvement in the quality of the Botanical Gardens;
?? There was a problem of stray dogs;

General
Concerns were expressed about the impact of the identified, negative environmental issues on the image of Tobago as a tourist destination. It was felt that the Internet was likely to have the most significant impact in terms of persons posting messages of a negative nature. It should be reported, however, that representative of one guesthouse indicated that she did not think that Tobago faced any particular environmental problems.

Hotel Survey by Country

Tobago
General
The largest proportion of hotels surveyed (27%) had between 101 and 200 rooms. This is closely followed by those between 21 to 50 rooms. No hotels have between 20 and 30 rooms. Hotels are largely locally owned (67%), single, independent properties (83%). Considering that the hotels are not generally large it is not surprising that 67% are located on less than 30 acres of land. Hotels in Tobago tend to employ less than 50 employees. The most popular methods of cutting costs opted for by the hotels is via temporary staff, done by 50% of hotels.

Energy
On the question of monitoring energy in the respective hotels 67% responded in the affirmative. Interestingly, 80% have already implemented energy saving measures with 50% adopting the use of solar energy. For those hotels that do not investment cost is the number one reason cited. It was agreed by all hotels that policy is required for energy saving methodologies such as solar and energy efficient lighting, machinery and appliances, as it was felt by the majority (83%) that not enough is being cone by the government by way of policy/incentives for new/expanding and existing hotels. Hotels are willing to do their part in that 80%-100% of hotels indicated that they would implement such measures within the first two years if government were to provide the incentive. In fact, 100% of the hotels agreed to convert to energy efficient lighting within the first year, given government's co-operation. Already up to 59% are enjoying contributions to profitability. This has potential to increase.

Water
The government supply is the main source of potable water for all hotels in Tobago, with 67% also complementing this with bottled water. Though 80% claim to monitor the water usage of the respective hotels, 50% have adopted water-saving methodologies. Again, investment cost is the most popular reason given for those who do not. As with energy, all hotels agree that policy is required for this such as low flush toilets, sprinklers and rainwater storage tanks. It is the belief of 83% of the hotels that government is not playing an active a role as they would like in terms of providing incentives and formulating policy for new/expanding and existing hotels. A large number of hotels, up to 83%, are willing to implement these measures within 2 years given the appropriate incentives from government. Already 17%-20% have adopted these measures such as rainwater storage, low flush toilets and sprinklers with sensors. Thus far 20% are

relatively happy these measures are contributing to profitability.

Solid Waste

When asked whether hotels monitor the quantity of solid waste they generate 83% claim that they do. A further 67% stated that they also monitor the type though only 17% have implemented measures for its reduction. Generally, hotels are not satisfied that systems are in place for the safe collection and disposal of hazardous waste and recycling of glass bottles, paper and cardboard. All hotels agree that government needs to provide policy/incentive for recycling, composting of organic waste, bulk dispensers and other RRR measures for both new/expanding and existing hotels. Given government's co-operation up to 83% of hotels are willing to implement some of these measures within the first year. To date 67% of hotels are quite satisfied the contributions these measures are making towards the hotel's profit.

Effluent & Emissions

The majority of hotels or 67% use Soakaway/septic tanks. 33% make use of their own treatment plant. As with the others, a large number of hotels, up to 100% in some instances have agreed that policy/incentives are required by the government for the use of environmentally friendly products, equipment and machinery. Given government's contribution by way of policy/incentive over 67% agreed to implement the relevant measures within 2 years. In fact 80% stated that within one year they would convert to environmentally friendly products. No hotel is reaping benefits from such measures.

Other Issues

At the time of the survey 80% of the hotels in Tobago have already received some form of award for environmental effort. 67% have indicated that they are interested in a green certification programme.

Chapter 6: Summary and Recommendations

This study is concerned with the insertion of environmental management in tourist sector policies in the Caribbean. The research approach to the study involved the following. First a review of relevant, existing literature. Second, interviews with key officials in the relevant policy making institutions in four islands: Barbados, The Bahamas, St. Lucia and Tobago. These four countries were chosen on the basis of their reflection of the three stages of tourist sector development in the region: mature, intermediate and emerging, respectively. Third, focus group meetings with a sample of hotel representatives, in the case study countries, selected to reflect the industry by size and ownership, as well as with some policy makers. The objective of these focus group meetings was to discern the understanding of these hoteliers of, and their views on, existing national environmental policies for the tourism industry in their country, as well as details of their internal, hotel-specific environmental management policies. Fourth, administering of a Questionnaire to hoteliers participating in the focus group meetings with the same objectives as that of the focus group but captured, in this instance, in a formal instrument. Fifth, a survey of tourists to discern the demand for more environmentally sensitive tourism which was administered in St. Lucia and Tobago[23].

This Report begins with an Executive Summary followed by six (6) Chapters. Chapter 1 will provide a review of the empirical trends in Caribbean tourism encompassing both the economic and environmental. Chapter 2 is the first island case study of Barbados. The following three (3) chapters (Chapters 3-5) provide similar island case studies of The Bahamas, St. Lucia and Tobago, respectively. Finally, this Chapter 6 provides a summary and recommendations.

This concluding chapter begins with a number of generalized, summary observations from which flow a number of specific recommendations. This is followed by a similar approach but, this time, in terms of the four case study countries.

[23] The report draws on an earlier similar survey of tourists in Barbados

General Summary Observations And Recommendations

The following 14 summary observations can be made with regards to the tourism industry in the Caribbean in terms of its environmental impacts and related policy interventions.

1. Tourism is the single most common industry in the region - particularly in the island economies. Moreover, tourism is the fastest growing industry in virtually every Caribbean country, including those in which the sector is not presently an important economic contributor. Tourism also is the most important and sometimes the only productive sector in some of these economies. In fact, the Caribbean has become the most tourism-dependent region in the world over the past three decades. Since 1990 tourist activity has doubled and now represents 15-20% of GDP and employment in Tobago, and roughly 40-50+% in Bahamas, Barbados and St. Lucia.

2. However, this mass tourism growth has altered the region's delicate terrestrial and marine ecosystems. The environment (ecological and socio-cultural) which is the economic 'goose' which explains the economic significance of tourism, as summarized immediately above, is under significant threat in several Caribbean tourist destinations. Scenic hillside and watersheds have been defaced and destroyed by condominium construction and road works. Erosion has despoiled wetland habitats and lagoons; and coastal resort and infrastructure constructions have altered shorelines. Sand mining, solid and liquid waste dumping, and boat anchoring and discharge have damaged reefs. As a result, endemic birds, mammals and reefs and under unprecedented threat, and tourism's sustainability is in question unless improved environmental policies and practices can be widely implemented.

3. The degree of economic significance and of related environmental impacts of tourism in the Caribbean is a function largely of the degree of tourist penetration. Three stages can be identified in the life cycle of tourist development in the region: mature, intermediate and emerging. The four case studies selected reflect these three stages.

4. Tourism sector laws and policies have been predominantly concerned with the promotion of investment and marketing. As a result, there is little recognition in the tourism sector policy matrix of the environmental externalities- whether negative, or sometimes positive- which result from tourism. Many areas of grey therefore exist in terms of responsibilities of agents in the tourist industry for environmental protection. Admittedly, there has been a growing recognition of these deficiencies in both the public and private sector. The two UN Conferences on the Environment- 1992 UNCED and the 1994 UNSID Conference in Barbados- together with the related Agenda 21 and Programme of Action, respectively, have slowly been seeping into the policy matrix.

5. Relatedly, few resources are being allocated to systemic monitoring of environmental impacts- whether ecological or socio-cultural. This, however, is a more general national problem, and not specific to tourism. The empirical evidence on environmental deterioration is therefore spotty, in most instances, and also rarely specific enough to identify point sources, such as tourist facilities. As a result, there is need to rely on anecdotal evidence, and extrapolation from whatever partial data exists, to draw conclusions on the environmental impacts of tourism.

6. Existing laws and policies relating to the environmental impacts of tourism can only be found elsewhere in the larger national environmental management framework.

7. These national environmental laws and policies have been jerrybuilt over-time and generally lack overall coherence. Implementation therefore requires collaboration and cooperation among several State agencies. The implication is that some activities with significant environmental impacts escape scrutiny. One example is that of regulations on the environmental impacts of the construction phase of tourist, and other physical structures. An earlier, but recent study on this topic identified a range of physical planning indicators which would need to be taken into account for a proper management of this first phase of environmental impacts of tourism[24].

8. The water and energy demands of tourism increasingly compete with those of the resident population as the degree of tourist penetration increases. This problem is particularly acute in islands with absolute water resource constraints but also exists in others where the problem is that of water supply distribution and availability. In the case of energy there is a similar concern. One hotelier reported in the St. Lucia focus group meeting, for example, that it was required to inform the electricity company of any planned changes in demand, of a substantial nature, since this could impact, if not anticipated, on the overall island electricity grid.

9. Solid and liquid wastes are the two most commonly cited areas of concern in terms of their direct environmental impacts on the tourism industry. In terms of solid waste, there was consensus across all four case study countries that national solid waste policy posed a major constraint to effective hotel-level policies. Representatives of hotels complained repeatedly that it made little sense for them to separate solid waste since there was no supporting national policy in this regard. One spillover effect was that of litter which impacted negatively on the attractiveness of their destinations[25]. Another concern was the inadequate treatment of toxic and hazardous wastes. However, the role of the tourist sector cannot be over-stated. In the case of St. Lucia, for example, total cruise ship generated solid

[24] See Pantin (ed). Greening of Tourism in the Caribbean and its adaptation to climate change. UWI-SEDU, 2001.

[25] In a 2001 tourism workshop in St. Lucia, a participant reported that cruiseships had threatened to boycott one Caribbean island unless the capital city was cleaned up.

waste is estimated to equal, or exceed, domestic volumes while all tourist-generated solid waste is estimated to be double that of permanent urban residents. A similar problem exists in terms of liquid waste, particularly sewage since this also impacts negatively on the quality of the destination-particularly in terms of bathing water quality. Participants in one focus group stated that there were regular complaints about ear, eye and skin infections and that one hotel had apparently faced a major outbreak sometime in the past. The problem, as in the case of solid waste, is partially a result of hotel-generated liquid waste, but also that of residents. As noted in Chapter 1, in 1991, only 10% of the Caribbean population was linked to a central sewage system and nearly 60% of treatment plants in the Eastern Caribbean were operating inefficiently in 1992. There has only been a marginal change since then. As a result, it was virtually impossible to separate the two sources and hence, national policy was necessary to cover both bases, as it were.

10. Cruiseship and yacht tourism were significant growth sectors within the tourism industry but were largely outside of the national policy framework. As a result, the 'Tragedy of the Commons" was a reality which needed to be addressed at the regional level. All the case studies report complaints about dumping of waste by such cruiseships and yachts, particularly those on The Bahamas and Tobago.

11. While all environmental assets were under threat- both from tourism and other anthropogenic sources- coral reefs seemed to be of priority concern given their multiple functions, including beach protection; increasingly relevant in the context of climate change. As noted in Chapter1, 29% of the reefs in the Caribbean are at significant risk. The Global Coral Reef Monitoring Network also projects that the Bahamas, like the rest of the Caribbean Atlantic region, may lose up to 33% of its remaining reefs as a result of natural and anthropogenic forces.

12. Sand-mining also is another common problem and cries out for further investigation in terms of the costs of alternative sources relative to benefits of retention of existing beach sand deposits.

13. The impetus for the 'greening of tourism' – including certification of hotels - has been coming from the demand side as tourists increasingly express concern about environmental impacts as well as a willingness to pay more for 'green' hotels. In part, this a positive spillover effect from international hotel chains which are tending to operate on the same template throughout the world. However, focus groups with representatives of a cross-section of hotels in the four case study countries - and detailed in Appendix 2- indicate that the rate of change may be too slow to arrest the rate of environmental deterioration.

14. However, and finally, there is significant skepticism among hotels as to the benefits relative to the costs from formal certification of their hotels in terms of costs, relative to benefits. In part, this is the result of the existence of alternative certification programmes with no clear indication of the relative competitive, market benefits from embrace of the one versus the other.

General Policy Recommendations

Four general recommendations are now advanced below as flowing from the fourteen(14) general observations made above.

A. There is need for recognition of the fact that there are limits to the eco-cultural carrying capacity of tourist destinations in the Caribbean. As a result, studies are required to determine the boundaries, or limits of acceptable change, that are feasible whether in small islands in general or, more particularly, in local, geographic areas or clusters of tourist development[26]. These studies would differ in their policy implications depending on whether the destination is at the mature, intermediate or emerging stage.

B. An update of environmental laws and policies is proposed to reduce the myriad of laws and institutions which need to be involved in environmental management. Relatedly, policy instruments require updating to increase the significance of market based, as opposed to command and control, instruments. Relatedly, instruments such as EIAs need to be placed on a more arms length and transparent basis. The norm is for the investor to pay for the EIA. The result is that there is an implicit incentive for those who specialize in EIAs to err in favour of investors[27].

C. There is need for a review of tourism-sector specific environmental legislation, standards, policies and related policy instruments, in the Caribbean and other relevant countries (e.g. the Pacific) to develop a best practice template upon which individual countries, and hotels, in the region can draw.

D. A related study is required of the inputs utilized in the tourism industry from construction to operation (and inclusive of cruise-ship, yacht tourism) with a similar objective as in (C) above, which is to identify best practices. One example would be in terms of use of chemicals. One example of this need is the case of a substantial bird kill, reported in the Tobago case study, resulting from the use of a poisonous pesticide in landscaping activities in one hotel.

[26] Drawing, for example, on the Tourism Penetration Index discussed in Chapter 1 of this report
[27] See Pantin(ed)., 2001 for an elaboration on this issue and related policy recommendations

Case Study Specific Summary Observations And Policy Recommendations

The four case studies reflect the problems and policy concerns summarized above. **The Bahamas**, with the most extensive tourist plan in the smaller-island Caribbean, represents the classic case of the mature, successful mass-tourist destination. It is blessed with proximity to the lucrative North American origin market, the third longest barrier reef in the world, abundant natural and man-made attractions in the Nassau-Freeport area, and diverse ecotourism (boating, bird watching) opportunities in the Family Island archipelago. Despite this patrimony, a generation of concentrated hotel and residential development has altered shorelines, cleared mangroves and filled in salt pond habitats for migrating birds. The impacts plus sand mining, illicit dumping and the indiscriminate discharge of waste and bunker from cruise ships and yachts have polluted coastal waters and threatened land and marine species. Residents increasingly complain of crowding, traffic congestion, foreign economic (hotel) control, and declining access to public beaches.

Policy problems are two-fold: lack of enforcement of existing legislation (dumping, beach mining, over fishing etc.) and, more importantly, the absence of specific environmental legislation targeting the construction of facilities/infrastructure and providing incentives for the introduction of green water, power and other technologies. Given these weaknesses, the following policies are suggested.

1. Develop a set of specific, stringent construction guidelines for any private or public development in the coastal zone or other fragile areas (hillsides, watersheds, ponds) and invite the BHA to assist in vetting the guidelines to ensure realism and improve compliance.

2. Require the submission of a standard EIS mandatory for any such proposed development and further require that it specifically address (1) how the a guidelines will be followed, and/or (2) how any potential environmental damage will be mitigated or repaired.

3. Link approval to how fully the project addresses the guidelines and have the planning office (or delegated agency) monitor adherence to the guidelines

during the construction phase before final approval of tax abatement is granted.

4. Consider establishing an environmental conservation fund from some portion of the hotel tax revenues to be used for monitoring, ecological studies, enforcement personnel and so on.

5. To continue to deflect development away from the Nassau-Freeport area and reduce overall economic dualism, modify existing hotel incentive legislation on a graduated scale to heavily favor the more desirable (less colonized) Family Island locations, and disfavor the congested areas.

6. For new hotel development in the congested areas, consider requiring various green technologies as requirements for project approval and tax abatement. In view of present water scarcity and ground water contamination problems, water conservation fixtures and sewage treatment facilities seem paramount. For existing hotels, once their incentive period is over, make renewal contingent on similar green technology requirements.

7. Review existing legislation and enforcement of land and sea-based waste dumping to determine whether the current penalty structure deters violators and whether upward revisions are in order.

The case of **Barbados** exemplifies a mature destination with long-standing tourism experience, abundant recreational and cultural assets, and a relatively balanced economy. Decades of tourism development have generated a variety of new employment opportunities and significantly improved residents' quality of life, particularly in expanded infrastructure and public utilities and improved access to quality education and health services. However, the intense hotel colonization of south and west coasts adjacent to the primary reef systems has visibly damaged coral growth and destroyed most mangrove forests. Culprits have included construction-induced sediment loading, storm runoff, eutrophication from poorly treated hotel waste, and dredging and land reclamation schemes. Visitors have contributed by trampling coral and dive boats have dragged anchors over dive sites. Tourist modernization has also been accompanied by a loss of renewable resource uses, realty inflation, increasing land use conflicts and resident uneasiness over the commercialization of traditional hospitality and creeping Americanization.

Of the four islands, Barbados exhibits the most sophisticated architecture of protective legislation, boasts the most effective permitting and monitoring machinery in place, and—with its preponderance of local hotel ownership—has the best record of resolving visitor industry problems through public-private dialogue. Because of the environmental sensitivity of its visitor mix, Barbados may also benefit the most from building on its relatively widespread environmental awareness a new set of initiatives with the following directions.

1. Ear-mark a small portion of the cruise passenger head-tax for environmental funds to be used exclusively for (1) monitoring hotel compliance with existing environmental legislation, (2) maintaining assets and infrastructure, and (3) further ecological studies.

2. Develop a multi-year plan to control and/or treat sewage waste which would includes initiatives for the funding the necessary capital improvements.

3. A similar multi-year initiative for controlling the solid waste/recycling and litter problem.

4. Review the permitting process for south and west coast new hotel and existing facility expansion with a view toward tightening requirements for approval, specifically with respect to solid and liquid waste disposal to prevent further lagoon contamination and reef damage.

5. To support the positive efforts the private sector has already achieved in hotel certification and to put some teeth into the recent (2001) Green Paper on Sustainable Tourism, develop attractive incentive legislation that encourages water and power conservation technologies and wastewater treatment since this study suggests the majority of hotel managers would respond favorably.

St. Lucia represents an intermediate tourist destination that has experienced three decades of sustained growth en route to restructuring away from traditional dependence on agriculture (bananas). It boasts a large-scale, mainly foreign-owned beachfront hotel plant that caters increasingly to middle-class Americans seeking sun and sea. Because of the expansion of shopping and touring attractions, the number of one-day cruise visitors quadrupled since 1990. During the first two decades, growth was rapid and unplanned. As a result, shorelines have been altered by dredging, beaches eroded by sand mining, and mangroves cleared for hotel construction. The collection and

disposal of solid waste, especially from cruise passengers, is becoming increasingly costly, and poorly treated sewage, particularly from the smaller properties, is polluting coastal waters. Marine areas are also burdened by the pressure of unregulated boat anchoring and nearshore waste discharge from pleasure craft.

As an intermediate destination, St. Lucia faces of twin challenges of managing growth and resolving resource-use conflicts. To address these issues, in recent years the government has initiated a loosely integrated planning program to re-position tourism on a more sustainable footing. The major components include diversifying the product to include new natural and heritage attractions, linking tourism more closely with local food and manufacture suppliers to raise the multiplier, emphasizing green operational practices and technologies to reduce waste and resource impacts, and environmental education for the general population and targeted industry workers.

As these recent initiatives are broad in scope and represent a major reorientation of traditional mass tourism promotion, a more focused approach is suggested that addresses four of the critical areas that has surfaced in this study: environmental sound resort development, waste management and reduction, green technology incentives and monitoring, especially for small hotels, and establishing a institutional structure for resolving multi-use resource conflicts in the coastal zone. These four directions could fill existing policy lacunae and form the backbone of a tourism environmental strategy not yet in place. Specific recommendations include the following.

1. Develop environmentally compatible guidelines for resort and/or infrastructure construction in the coastal zone including a mandatory EIS, and link final approval to adherence to these guidelines as monitored by the planning office.

2. In view of the relatively large size and land scale of the existing hotel plant, the Ministry of Tourism should sponsor a study to compare the economic benefits and environmental costs of large versus small hotels to determine whether greater emphasis is warranted for smaller scale, less intrusive properties that are more compatible with the sustainability implied in the Medium Term Development Strategy (2000-2001).

3. A comprehensive waste master plan should be drawn together by an interagency taskforce representing various government departments with jurisdiction. It would include a review of existing hotel practice (sewage hook-ups, wastewater treatment etc.) and compliance with existing legislation, designing a long term solid waste plan for separation/disposal/recycling, and an assessment of local monitoring capability and the penalty structure for violations, particularly for sea-based yacht and cruise ship discharges.

4. Secondarily but related, the Ministry of Tourism should sponsor a study of the economic benefits and solid waste and other costs of growing cruise passenger visitation to determine whether this style of low value-added tourism is compatible with long-term sustainability.

5. Building on the success achieved with solar water heaters, and assuming the large international hotels will continue to introduce green technologies because their scale economies allow clear cost savings and marketing benefits, develop an incentive package especially attractive to smaller hotels to purchase green water and power equipment. Survey results suggest hotel managers would respond to such new legislation and that the majority of St. Lucia's visitors would take certification into account in their accommodation decisions.

6. Given St. Lucia's track experience in resolving resource-use conflicts and successful management of marine reserves, and assuming an increase in multi-use demands, the government should review existing conflict resolution methods to determine whether a more comprehensive institutionalized mechanism is needed. One tested model is the Coastal Zone Management Program of the U.S. Virgin Islands whereby representatives from government, industry and resource users regularly meet to air concerns and resolve conflicts.

Tourism represents a secondary sector in Trinidad behind petrochemicals and absorbs about a tenth of the economy. In **Tobago,** however, tourism is the leading and most dynamic sector accounting for at least 15-20% of all activity. Its present strength is derived from its abundant tropical assets including the renowned Buccoo Reef, premier beaches, waterfalls and rainforests, and from a decade of rapid resort development along the southwest coast. Although empirical verification is lacking, casual observation suggests that the declining marine species and water quality surrounding Buccoo Reef and other fringing corals is partially the result of poorly treated, nutrient-rich sewage pollution from coastal hotels. High levels of visitation and yacht discharges are also implicated. Likewise sand mining for airport expansion and resort construction activity

have been associated with wetland habitat destruction and the assumed loss of avifauna. Focus group representatives also complained of solid waste dumping at unofficial sites.

In response to these problems, government has very recently enacted a comprehensive National Tourism Policy with detailed provisions for extensive monitoring of hotels and cruise ship/yachts waste practices, incentives for waste disposal, recycling and green technologies, mandatory EIAs required for proposed coastal and other developments, authority to restrict access and permits to sensitive habitats and to establish Marine Parks, participatory mechanisms for joint public-private decision-making, and so on. However, little attention has been paid to operationalising these provisions. Given the broad scope of the planned initiatives and Tobago's limited financial and human resources, successful implementation will require the following specific steps.

1. Defining key realistic objectives. This can best be accomplished by entering into a strategic dialogue with all stakeholders and social partners to determine Tobago's desired destination identity. This entails a community consensus on those natural/heritage assets and cultural traits that are compatible with Tobago's insular identity and with the hospitality ethos it wishes to foster. Although laborious and time-consuming, determining destination identity is the key challenge facing Stage I islands like Tobago early in the resort cycle and with a long-term planning horizon.

2. Once key assets are determined, tourism policy can be targeted. Priorities should be developed for establishing the infrastructure needed for non-intrusive access to and sustainable visitation of the identified assets. The sewering of southwest Tobago sticks out as an obvious example of such a priority[28].

3. Current major and future threats to the assets must be assessed[29]. This will require establishing a monitoring system and baseline data reporting on both land and marine pollution threats. It will likely necessitate securing an environmental levy preferably from visitor taxes to fund staffing, training, equipment purchases and so on.

4. Finally, the government must clearly communicate to the main stakeholders, namely the asset providers and users (hoteliers, dive shop operators, visitors etc.), the specific environmental behavior expectations necessary to maintain the specific assets and the island's enduring hospitality identity.

[28] See Attzs, Marlene, M.Sc. Economics thesis on An Infrastructural Approach to Sustainable Tourism Development: Case study of South-West Tobago, 1999.

[29] The four final recommendations come out of a focus group meeting held specifically with policy makers and the Buccoo Reef Trust in Tobago.

5. The problem of over-fishing, particularly with respect to such vulnerable reef-dwelling species, as groupers, lobsters and conchs needed to be addressed in the following manner: First, educate fisherman about the benefits of conservation and how they can directly benefit from conservation of the fish stock. Second, designate conservation Strategic Marine Protected Areas. Third, establish a minimum legal landing size catch. Fourth, undertake stock assessment on the most important commercial species.

6. Need to put in place an appropriate package of incentives to engender environmentally responsible behaviour, in particular conservation. In this regard, it was felt that community involvement was critical to the success of conservation efforts.

7. There was an urgent need to intensify efforts at public education and awareness. In this regard it was felt that increase attention should be paid to sensitizing residents as to the importance of the environment in the island's tourism development thrust, and measures that they could individually and collectively undertake to promote sustainable tourism.

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Appendix 1 – Statistical and Related Tables

Table 1.1: Combined Tourist Arrivals to the Caribbean : Stay over and Cruise
1990 – 1999 (thousands)

	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Total Stay over arrivals	7,572	7,270	12,310	13,340	14,233	14,469	14,905	15,859	16,475	17,016
Total Cruise Passengers	6,446	7,110	8,759	8,866	8,851	8,985	9,963	11,076	11,157	10,844
Total Stayover&Cruise	**14,018**	**14,381**	**21,068**	**22,206**	**23,084**	**23,454**	**24,868**	**26,935**	**27,633**	**27,860**

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Figure 1.1: Combined Tourist Arrivals to the Caribbean : Stay over and CruiseShip

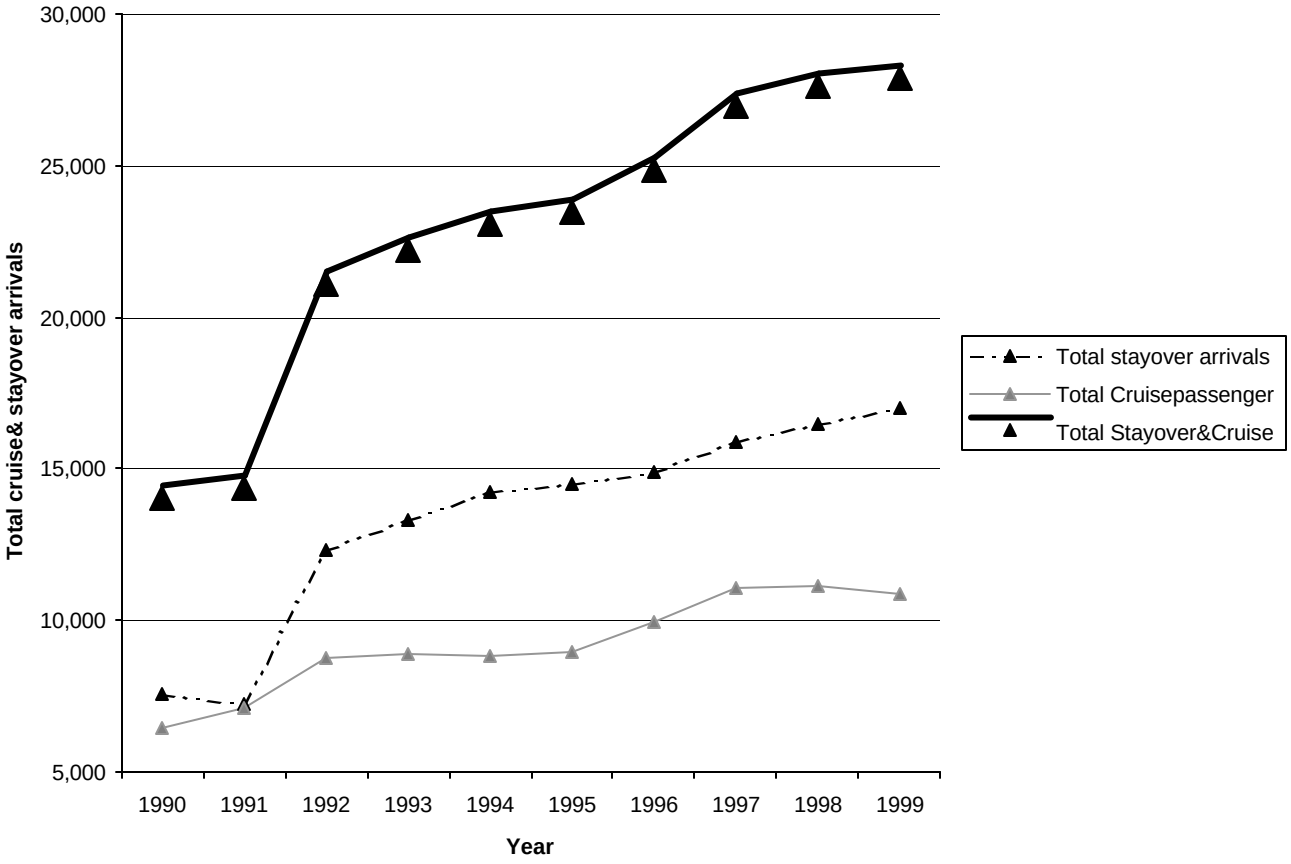

Table 1.2:Total Stay over Arrivals for the Caribbean by Destination :1990-1999 (in thousands)

Destination	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Anguilla	31	30	30	38	44	39	38	43	44	47
Antigua and Barbuda	206	205	218	249	263	220	228	240	234	240
Aruba	433	501	542	562	582	619	641	646	647	683
Bahamas	1,562	1,427	1,399	1,489	1,516	1,598	1,633	1,618	1,528	1,577
Barbados	432	215	386	396	426	442	447	472	512	518
Belize	216	215	246	279	314	321	349	305	288	327
Bermuda	433	385	374	413	416	388	390	380	369	354
Bonaire	41	50	51	55	56	59	65	63	62	62
British Virgin Islands	160	136	117	200	239	220	244	244	279	286
Cayman Islands	253	237	246	279	314	361	373	381	404	395
Cuba	340	424	461	544	617	763	1,004	1,170	1,416	1,603
Curacao	208	206	207	214	226	224	214	205	199	198
Dominica	45	46	47	52	57	61	63	66	66	74
Dominican Republic	-	-	1,524	1,636	1,767	1,776	1,926	2,211	2,309	2,649
Grenada	126	85	88	94	109	108	108	111	116	125
Guadeloupe	288	132	341	453	556	640	625	660	693	711
Guyana	64	73	75	107	113	106	92	76	69	75
Haiti	120	119	90	77	70	145	150	149	147	143
Jamaica	841	845	1,057	1,105	1,098	1,147	1,163	1,192	1,225	1,248
Martinique	282	315	321	366	419	457	477	513	549	564
Montserrat	19	19	17	21	21	18	9	5	8	10
Puerto Rico	-	-	2,754	2,923	3,113	3,054	3,128	3,379	3,492	3,228
Saba	5	7	18	16	14	10	10	11	11	9
St. Eustatius	-	-	13	10	11	9	8	9	9	9
St. Kitts and Nevis	76	84	88	89	94	79	84	88	93	84
St. Lucia	138	159	178	194	219	232	236	248	252	261
St. Maarten	565	548	569	520	586	480	365	439	459	445
St. Vincent & Grenadines	54	52	53	57	55	60	58	65	67	68
Suriname	29	104	30	39	42	43	53	61	55	63
Trinidad and Tobago	194	220	235	248	266	260	266	324	348	359
Turks and Caicos Islands	42	55	52	67	71	78	87	92	106	118
US Virgin Islands	370	376	487	550	541	454	373	393	422	484
Total Stay over Arrivals	**7,572**	**7,270**	**12,310**	**13,340**	**14,233**	**14,469**	**14,905**	**15,859**	**16,475**	**17,016**

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Appendix Table 1.3: Total Cruiseship Passenger Arrivals for the Caribbean by Destination

: 1990 – 1999 (thousands)

Destination	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Antigua and Barbuda	227	256	250	238	236	227	270	286	336	328
Aruba	130	133	217	251	257	294	317	298	258	289
Bahamas	1,854	2,020	2,139	2,047	1,806	1,544	1,687	1,744	1,730	1,982
Barbados	363	372	400	429	460	485	510	518	507	433
Belize	-	-	2	6	13	8	0	3	14	34
Bermuda	113	128	131	155	173	170	182	182	188	193
Bonaire	5	13	28	17	12	11	15	20	20	17
British Virgin Islands	95	79	88	113	82	122	160	105	105	181
Cayman Islands	362	475	614	606	599	683	771	865	853	1,036
Cuba	-	-	-	-	-	-	-	2	-	-
Curacao	159	157	160	183	161	172	173	215	231	221
Dominica	7	65	90	88	126	135	193	231	239	202
Dominican Republic	-	-	50	28	50	31	111	271	393	283
Grenada	183	196	196	200	201	250	267	247	266	246
Guadeloupe	261	261	246	263	314	419	613	544	334	293
Haiti	-	-	-	-	-	225	250	238	246	243
Jamaica	386	491	650	630	595	605	658	712	674	764
Martinique	421	417	399	429	420	428	408	387	415	339
Montserrat	-	-	6	9	11	9	-	-	-	-
Puerto Rico	-	-	1,019	968	977	1,001	1,025	1,236	1,243	1,149
St. Kitts and Nevis	34	53	74	83	113	121	86	96	154	137
St. Lucia	102	153	165	154	172	176	182	310	372	351
St. Maarten	515	502	470	660	719	564	657	886	882	616
St. Vincent and Grenadines	79	88	63	69	71	85	63	31	35	48
Trinidad and Tobago	32	32	27	33	45	49	48	32	47	57
US Virgin Islands	1,120	1,221	1,277	1,209	1,241	1,171	1,316	1,619	1,616	1,403
Total Cruiseship Passenger Arrivals	**6,446**	**7,110**	**8,759**	**8,866**	**8,851**	**8,985**	**9,963**	**11,076**	**11,157**	**10,844**

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Appendix Table 1.4 : Total Number of Tourist Rooms in Caribbean Destinations : 1990 – 1999

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	741	863	920	978	978	951	866	915	1,045	1,120
Antigua and Barbuda	2,752	2,752	3,317	3,317	3,317	3,317	3,185	3,185	3,185	3,185
Aruba	5,736	5,864	6,238	6,150	6,366	6,881	6,822	6,962	7,212	7,320
Bahamas	13,475	13,165	13,541	13,521	13,398	13,421	13,288	13,288	14,243	14,153
Barbados	6,709	5,387	5,902	5,580	5,685	5,084	6,315	5,349	5,752	6,585
Belize	2,115	2,784	2,913	3,325	3,504	3,708	3,690	3,905	3,921	3,963
Bermuda	4,265	4,251	4,258	4,236	4,161	4,141	4,152	4,135	3,857	3,276
Bonaire	1,038	1,038	1,038	810	831	1,052	1,128	1,069	1,086	989
British Virgin Islands	1,138	1,165	1,195	1,198	1,224	1,452	1,558	1,587	1,594	1,626
Cayman Islands	3,064	3,275	3,428	3,453	3,532	3,585	4,477	4,501	4,216	4,318
Cuba	12,868	16,638	18,682	22,561	23,254	24,233	26,878	31,837	35,708	33,000
Curacao	1,631	1,722	2,200	2,200	2,200	1,950	2,343	2,696	2,528	2,768
Dominica	531	547	603	757	757	588	764	824	824	857
Dominican Republic	-	-	24,410	26,801	28,967	32,475	35,729	38,250	42,412	49,410
Grenada	1,105	1,118	1,114	1,428	1,428	1,652	1,669	1,775	1,802	1,928
Guadeloupe	6,064	7,016	7,440	7,798	7,550	7,917	8,294	8,350	8,371	8,260
Guyana	538	538	538	538	639	639	639	730	730	730
Haiti	-	-	1,500	1,500	1,500	1,758	1,758	1,758	1,758	1,758
Jamaica	16,103	17,337	18,489	18,935	19,760	20,896	21,984	22,954	22,713	23,067
Martinique	5,802	5,658	5,730	6,960	7,220	7,210	7,300	7,400	7,400	7,341
Montserrat	710	710	710	710	710	710	-	-	-	243
Puerto Rico	-	-	8,415	5,851	9,519	10,251	10,245	10,849	11,828	11,635
Saba	90	100	100	100	186	186	186	186	91	87
St. Eustatius	-	-	102	139	139	139	77	77	77	62
St. Kitts and Nevis	1,402	1,392	1,330	1,600	1,593	1,563	1,610	1,729	1,762	1,754
St. Lucia	2,370	2,464	1,659	2,919	2,954	3,974	3,986	3,701	3,769	3,065
St. Maarten	3,400	3,400	3,400	3,707	3,707	3,707	3,910	4,049	4,174	3,065
St. Vincent & Grenadines	1,058	1,109	1,164	1,230	1,215	1,176	1,251	1,254	1,550	1,540
Suriname	532	-	-	-	967	1,024	1,088	1,276	1,276	1,276
Trinidad and Tobago	2,125	-	2,314	2,652	2,950	3,107	3,536	3,652	3,971	4,236
Turks and Caicos	1,014	1,026	1,115	1,139	1,068	1,068	1,500	1,493	1,562	1,674
US Virgin Islands	4,520	4,739	5,049	5,405	5,461	5,154	4,087	4,401	4,929	4,849
Total Rooms	**102,896**	**106,058**	**148,814**	**157,498**	**166,740**	**174,969**	**184,315**	**194,137**	**205,346**	**209,140**

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Appendix Table 1.5: Visitor Expenditures in the Caribbean
: 1990 – 1999 (US$ Mn)

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	35	31	35	43	51	49	48	57	58	57
Antigua and Barbuda	298	314	243	277	293	247	258	269	256	291
Aruba	353	396	442	464	451	521	614	668	715	774
Bahamas	1,333	1,193	1,244	1,304	1,333	1,346	1,450	1,416	1,354	1,583
Barbados	494	460	463	528	598	612	633	657	703	677
Belize	91	95	65	70	71	78	84	88	99	112
Bermuda	490	456	443	505	525	488	472	478	487	-
Bonaire	132	24	27	28	32	37	42	44	43	45
British Virgin Islands	132	109	100	196	198	205	268	210	232	300
Cayman Islands	236	222	230	271	334	394	368	436	450	-
Cuba	243	387	567	720	850	1,100	1,380	1,353	1,626	-
Curacao	238	232	161	194	187	175	186	201	261	267
Dominica	25	28	26	29	31	34	37	40	38	49
Dominican Republic	-	-	1,055	1,070	1,148	1,568	1,766	2,099	2,142	2,483
Grenada	38	42	42	48	59	58	60	59	63	62
Guadeloupe	197	234	271	370	330	380	354	372	372	-
Guyana	27	30	31	45	85	78	70	60	52	-
Haiti	46	46	35	30	27	56	58	57	57	-
Jamaica	740	764	858	942	973	1,069	1,100	1,131	1,197	1,280
Martinique	240	255	282	332	379	415	411	397	415	404
Montserrat	7	10	14	17	24	20	10	6	8	3
Puerto Rico	-	-	1,567	1,659	1,782	1,842	1,930	2,125	2,156	2,326
St. Kitts and Nevis	58	68	67	70	77	65	67	67	76	70
St. Lucia	154	173	208	221	224	268	269	284	291	311
St. Maarten	316	310	340	390	420	349	322	379	413	449
St. Vincent and Grenadines	56	53	41	44	44	41	64	71	74	79
Suriname	11	11	19	17	13	31	38	63	44	53
Trinidad and Tobago	95	101	109	82	87	73	108	193	201	-
Turks and Caicos Islands	37	50	48	53	70	53	99	113	157	238
US Virgin Islands	697	778	816	902	920	822	781	894	941	955
Total Visitor Exp.	**6,817**	**6,871**	**9,848**	**10,919**	**11,616**	**12,474**	**13,343**	**14,285**	**14,980**	**12,867**

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Table 1.6: Visitor Expenditures as a % of GDP in Caribbean Tourist Destinations

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	76	66	69	78	83	79	74	80	75	65
Antigua and Barbuda	89	87	67	71	69	59	57	55	49	52
Aruba	39	42	43	-	-	36	39	41	41	42
Bahamas	43	39	41	43	44	39	40	36	34	-
Barbados	33	32	34	38	41	39	37	37	36	33
Belize	27	26	16	13	13	13	14	14	16	16
Bermuda	37	34	34	32	33	28	25	26	24	-
Cayman Islands	33	30	29	32	55	61	55	61	60	-
Cuba	1	2	3	6	7	8	10	9	11	-
Dominica	18	19	16	17	17	18	18	19	17	22
Dominican Republic	-	-	13	13	12	13	12	14	14	-
Grenada	21	23	23	26	31	30	30	28	28	26
Guyana	8	10	10	11	19	15	12	10	11	-
Jamaica	19	37	26	31	25	25	23	19	20	21
Montserrat	12	21	28	33	43	39	23	17	25	9
Puerto Rico	-	-	5	4	4	4	4	4	4	4
St. Kitts and Nevis	43	48	44	42	41	33	32	30	31	-
St. Lucia	44	46	50	53	51	57	56	57	55	56
St. Vincent &Grenadines	34	30	21	22	21	18	27	29	28	29
Suriname	1	1	1	7	4	7	6	9	7	-
Trinidad and Tobago	2	2	2	2	2	1	2	4	3	-

Source : Caribbean Tourism Organization – Socio Economic Data (1999)

Table 1.7: Construction of the Tourism Penetration Index.

Island	Spending/	Density/ Rooms/	Impact Indices *(b)*		
TPI Score *(c)*	population (US$)	1,000 *(a)*	km^2	Spending	De
Most-penetrated					
St. Maarten	11,364	249	98.8	0.899	(
Balearic Islands	6,995	418	50.3	0.553	1
Cayman Islands	12,641	246	17.3	1.000	(
British Virgin Islands	11,053	297	10.6	0.874	(
Aruba	9,652	204	37.5	0.763	(
Bermuda	7,710	110	82.7	0.609	(
Malta	1,696	77	122.4	0.133	(
Guam	10,855	75	13.7	0.858	(
Northern Mariana Islands	10,652	98	8.1	0.842	(
Hawaii	9,127	134	4.2	0.722	(
Canary Islands	2,740	164	52.3	0.215	(
Intermediate					
Turks-Caicos	6,941	120	3.5	0.584	(
Anguilla	5,182	119	10.1	0.409	(
US Virgin Islands	5,008	79	12.6	0.395	(
Bahamas	4,986	111	1.3	0.393	(
Bonaire	4,000	135	3.6	0.315	(
Antigua	4,203	83	7.2	0.331	(
Barbados	2,768	58	14.1	0.218	(
Cyprus	2,174	88	3.9	0.170	(
Cook Islands	2,500	62	3.8	0.196	(
Maldives	953	30	23.5	0.066	(
St. Kitts	1,674	53	6.5	0.131	(
St. Lucia	1,831	44	6.1	0.143	(
Seychelles	1,544	47	5.0	0.121	(
Curaçao	1,403	37	4.8	0.109	(
Martinique	971	47	5.3	0.075	(
French Polynesia	1,426	25	1.0	0.111	(

Guadeloupe	884	28	5.0	0.068	(
Niue	1,000	38	0.3	0.077	(
Grenada	608	30	5.2	0.046	(
Dominica	615	41	0.8	0.047	(
Montserrat	1,000	28	1.0	0.077	(
Least-penetrated					
St. Vincent	579	18	3.7	0.044	(
Mauritius	410	13	3.7	0.031	(
Réunion	347	22	0.7	0.026	(
New Caledonia	584	7	0.1	0.044	(
Fiji	365	10	0.3	0.027	(
Tonga	119	11	1.0	0.008	(
Trinidad and Tobago	175	8	0.7	0.012	(
Vanuatu	243	7	0.1	0.017	(
Samoa	170	6	0.3	0.012	(
Comoros	46	9	0.2	0.002	(
Tuvalu	27	2	2.3	0.000	(
Marshall Islands	46	2	1.7	0.002	(
Cape Verde	37	4	0.4	0.001	(
Kiribati	23	3	0.3	0.000	(
Solomon Islands	31	1	0.1	0.001	(

Sources: Compendium of Tourism Statistics 1993--1997 (WTO, 1999); The World Factbook (CIA, 1999); McElroy (2002).

Notes: (a) Calculated as: [(tourists x stay) + day visitors] / [(population x 365) x 1,000].

(b) Calculated as: (Indicator value -- minimum) / (maximum -- minimum).

(c) Unweighted average of the three indices.

Table 1.8: Estimated Tourist Demand For Water in the Caribbean 1990-1999 (mn/gns)

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	13.9	16.2	17.2	18.3	18.3	17.8	16.2	17.1	19.6	21.0
Antigua and Barbuda	51.5	51.5	62.1	62.1	62.1	62.1	59.6	59.6	59.6	59.6
Aruba	107.4	109.8	116.8	115.1	119.2	128.8	127.7	130.3	135.0	137.0
Bahamas	252.3	246.4	253.5	253.1	250.8	251.2	248.8	248.8	266.6	264.9
Barbados	125.6	100.8	110.5	104.5	106.4	95.2	118.2	100.1	107.7	123.3
Belize	39.6	52.1	54.5	62.2	65.6	69.4	69.1	73.1	73.4	74.2
Bermuda	79.8	79.6	79.7	79.3	77.9	77.5	77.7	77.4	72.2	61.3
Bonaire	19.4	19.4	19.4	15.2	15.6	19.7	21.1	20.0	20.3	18.5
British Virgin Islands	21.3	21.8	22.4	22.4	22.9	27.2	29.2	29.7	29.8	30.4
Cayman Islands	57.4	61.3	64.2	64.6	66.1	67.1	83.8	84.3	78.9	80.8
Cuba	240.9	311.5	349.7	422.3	435.3	453.6	503.2	596.0	668.5	617.8
Curacao	30.5	32.2	41.2	41.2	41.2	36.5	43.9	50.5	47.3	51.8
Dominica	9.9	10.2	11.3	14.2	14.2	11.0	14.3	15.4	15.4	16.0
Dominican Republic	-	-	457.0	501.7	542.3	607.9	668.8	716.0	794.0	925.0
Grenada	20.7	20.9	20.9	26.7	26.7	30.9	31.2	33.2	33.7	36.1
Guadeloupe	113.5	131.3	139.3	146.0	141.3	148.2	155.3	156.3	156.7	154.6
Guyana	10.1	10.1	10.1	10.1	12.0	12.0	12.0	13.7	13.7	13.7
Haiti	-	-	28.1	28.1	28.1	32.9	32.9	32.9	32.9	32.9
Jamaica	301.4	324.5	346.1	354.5	369.9	391.2	411.5	429.7	425.2	431.8
Martinique	108.6	105.9	107.3	130.3	135.2	135.0	136.7	138.5	138.5	137.4
Montserrat	13.3	13.3	13.3	13.3	13.3	13.3	-	-	0.0	4.5
Puerto Rico	-	-	157.5	109.5	178.2	191.9	191.8	203.1	221.4	217.8
Saba	1.7	1.9	1.9	1.9	3.5	3.5	3.5	3.5	1.7	1.6
St. Eustatius	-	-	1.9	2.6	2.6	2.6	1.4	1.4	1.4	1.2
St. Kitts and Nevis	26.2	26.1	24.9	30.0	29.8	29.3	30.1	32.4	33.0	32.8
St. Lucia	44.4	46.1	31.1	54.6	55.3	74.4	74.6	69.3	70.6	57.4
St. Maarten	63.6	63.6	63.6	69.4	69.4	69.4	73.2	75.8	78.1	57.4
St. Vincent and Grenadines	19.8	20.8	21.8	23.0	22.7	22.0	23.4	23.5	29.0	28.8
Suriname	10.0	-	-	-	18.1	19.2	20.4	23.9	23.9	23.9
Trinidad and Tobago	39.8	-	43.3	49.6	55.2	58.2	66.2	68.4	74.3	79.3
Turks and Caicos Islands	19.0	19.2	20.9	21.3	20.0	20.0	28.1	27.9	29.2	31.3
US Virgin Islands	84.6	88.7	94.5	101.2	102.2	96.5	76.5	82.4	92.3	90.8
Total water	1,926.2	1,985.4	2,785.8	2,948.4	3,121.4	3,275.4	3,450.4	3,634.2	3,844.1	3,915.1

Table 1.9: Estimated Energy Demand by Tourists in the Caribbean 1990-1999

(mns/KWh)

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	1.7	1.9	2.1	2.2	2.2	2.1	2.0	2.1	2.4	2.5
Antigua and Barbuda	6.2	6.2	7.5	7.5	7.5	7.5	7.2	7.2	7.2	7.2
Aruba	12.9	13.2	14.1	13.9	14.3	15.5	15.4	15.7	16.2	16.5
Bahamas	30.4	29.7	30.5	30.5	30.2	30.2	29.9	29.9	32.1	31.9
Barbados	15.1	12.1	13.3	12.6	12.8	11.5	14.2	12.0	13.0	14.8
Belize	4.8	6.3	6.6	7.5	7.9	8.4	8.3	8.8	8.8	8.9
Bermuda	9.6	9.6	9.6	9.5	9.4	9.3	9.4	9.3	8.7	7.4
Bonaire	2.3	2.3	2.3	1.8	1.9	2.4	2.5	2.4	2.4	2.2
British Virgin Islands	2.6	2.6	2.7	2.7	2.8	3.3	3.5	3.6	3.6	3.7
Cayman Islands	6.9	7.4	7.7	7.8	8.0	8.1	10.1	10.1	9.5	9.7
Cuba	29.0	37.5	42.1	50.8	52.4	54.6	60.5	71.7	80.4	74.3
Curacao	3.7	3.9	5.0	5.0	5.0	4.4	5.3	6.1	5.7	6.2
Dominica	1.2	1.2	1.4	1.7	1.7	1.3	1.7	1.9	1.9	1.9
Dominican Republic	-	-	55.0	60.4	65.3	73.2	80.5	86.2	95.5	111.3
Grenada	2.5	2.5	2.5	3.2	3.2	3.7	3.8	4.0	4.1	4.3
Guadeloupe	13.7	15.8	16.8	17.6	17.0	17.8	18.7	18.8	18.9	18.6
Guyana	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.6	1.6	1.6
Haiti	-	-	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0
Jamaica	36.3	39.1	41.6	42.7	44.5	47.1	49.5	51.7	51.2	52.0
Martinique	13.1	12.7	12.9	15.7	16.3	16.2	16.4	16.7	16.7	16.5
Montserrat	1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	0.5
Puerto Rico	-	-	19.0	13.2	21.4	23.1	23.1	24.4	26.6	26.2
Saba	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.2	0.2
St. Eustatius	-	-	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1
St. Kitts and Nevis	3.2	3.1	3.0	3.6	3.6	3.5	3.6	3.9	4.0	4.0
St. Lucia	5.3	5.6	3.7	6.6	6.7	9.0	9.0	8.3	8.5	6.9
St. Maarten	7.7	7.7	7.7	8.4	8.4	8.4	8.8	9.1	9.4	6.9
St. Vincent and Grenadines	2.4	2.5	2.6	2.8	2.7	2.6	2.8	2.8	3.5	3.5
Suriname	1.2	-	-	-	2.2	2.3	2.5	2.9	2.9	2.9
Trinidad and Tobago	4.8	-	5.2	6.0	6.6	7.0	8.0	8.2	8.9	9.5
Turks and Caicos Islands	2.3	2.3	2.5	2.6	2.4	2.4	3.4	3.4	3.5	3.8
US Virgin Islands	10.2	10.7	11.4	12.2	12.3	11.6	9.2	9.9	11.1	10.9
Total Energy	231.8	238.9	335.2	354.8	375.6	394.1	415.2	437.3	462.6	471.1

Table 1.10: Estimated Solid Waste Generated By Tourism in the Caribbean 1990-1999 (tonnes)

Destination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Anguilla	231	269	287	305	305	297	270	285	326	349
Antigua and Barbuda	859	859	1,035	1,035	1,035	1,035	994	994	994	994
Aruba	1,790	1,830	1,946	1,919	1,986	2,147	2,128	2,172	2,250	2,284
Bahamas	4,204	4,107	4,225	4,219	4,180	4,187	4,146	4,146	4,444	4,416
Barbados	2,093	1,681	1,841	1,741	1,774	1,586	1,970	1,669	1,795	2,055
Belize	660	869	909	1,037	1,093	1,157	1,151	1,218	1,223	1,236
Bermuda	1,331	1,326	1,328	1,322	1,298	1,292	1,295	1,290	1,203	1,022
Bonaire	324	324	324	253	259	328	352	334	339	309
British Virgin Islands	355	363	373	374	382	453	486	495	497	507
Cayman Islands	956	1,022	1,070	1,077	1,102	1,119	1,397	1,404	1,315	1,347
Cuba	4,015	5,191	5,829	7,039	7,255	7,561	8,386	9,933	11,141	10,296
Curacao	509	537	686	686	686	608	731	841	789	864
Dominica	166	171	188	236	236	183	238	257	257	267
Dominican Republic	-	-	7,616	8,362	9,038	10,132	11,147	11,934	13,233	15,416
Grenada	345	349	348	446	446	515	521	554	562	602
Guadeloupe	1,892	2,189	2,321	2,433	2,356	2,470	2,588	2,605	2,612	2,577
Guyana	168	168	168	168	199	199	199	228	228	228
Haiti	-	-	468	468	468	548	548	548	548	548
Jamaica	5,024	5,409	5,769	5,908	6,165	6,520	6,859	7,162	7,086	7,197
Martinique	1,810	1,765	1,788	2,172	2,253	2,250	2,278	2,309	2,309	2,290
Montserrat	222	222	222	222	222	222	-	-	-	76
Puerto Rico	-	-	2,625	1,826	2,970	3,198	3,196	3,385	3,690	3,630
Saba	28	31	31	31	58	58	58	58	28	27
St. Eustatius	-	-	32	43	43	43	24	24	24	19
St. Kitts and Nevis	437	434	415	499	497	488	502	539	550	547
St. Lucia	739	769	518	911	922	1,240	1,244	1,155	1,176	956
St. Maarten	1,061	1,061	1,061	1,157	1,157	1,157	1,220	1,263	1,302	956
St. Vincent and Grenadines	330	346	363	384	379	367	390	391	484	480
Suriname	166	-	-	-	302	319	339	398	398	398
Trinidad and Tobago	663	-	722	827	920	969	1,103	1,139	1,239	1,322
Turks and Caicos Islands	316	320	348	355	333	333	468	466	487	522
US Virgin Islands	1,410	1,479	1,575	1,686	1,704	1,608	1,275	1,373	1,538	1,513
Total Solid Waste	32,104	33,090	46,430	49,139	52,023	54,590	57,506	60,571	64,068	65,252

Figure 4.1

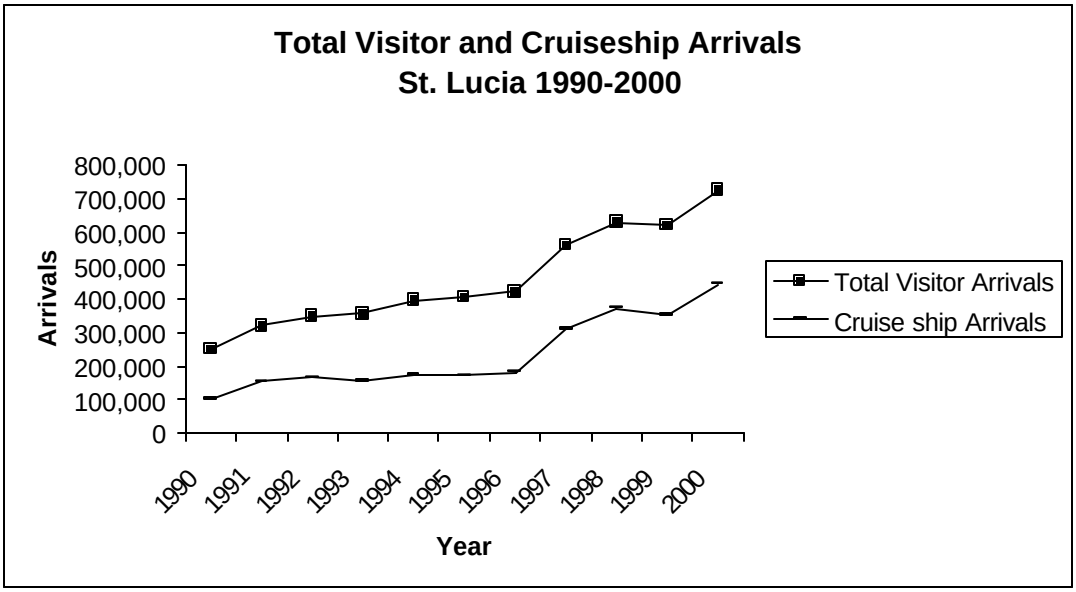

Figure 4.2

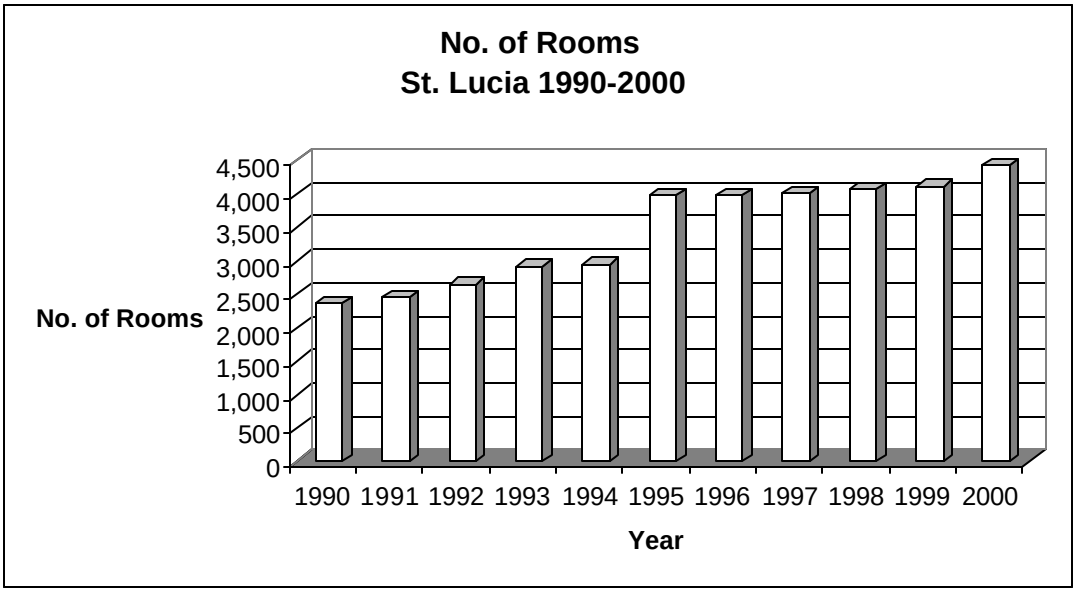

Table 4.1 – Selected Tourism Statistics for St. Lucia

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
TOTAL ARRIVALS	250,662	318,768	348,869	355,259	395,410	406,454	421,746	563,632	629,598	621,001	726,254
TOTAL VISITOR ARRIVALS	148,714	165,987	183,937	200,886	223,872	236,883	241,232	253,369	257,530	269,768	282,703
STAYOVER/TOURIST ARRIVALS	140,987	159,034	177,488	194,136	218,567	231,259	235,659	248,406	252,237	263,793	269,850
by AIR	138,929	157,728	176,173	189,219	209,134	215,860	220,476	230,233	236,137	248,049	258,775
by SEA	2,058	1,306	1,315	4,917	9,433	15,399	15,183	18,173	16,100	15,744	11,075
CRUISESHIP PASSENGER	101,948	152,781	164,932	154,373	171,538	169,571	180,514	310,263	372,068	351,233	443,551
CRUISE SHIP CALLS	226	318	319	411	301	265	280	322	345	356	389
AVERAGE HOTEL OCCUPANCY	70.8	65.9	73.7	67.9	71	73.2	66.6	71.4	75.3	72.5	67.0
NUMBER OF ROOMS AVAILABLE	2,370	2,464	2,659	2,919	2,954	3,974	3,986	4,014	4,077	4,125	4,428
VISITOR EXPENDITURE (MILLION EC)	415.4	466.6	565.19	585.3	608.8	715	725	766	765	740	752

Source: St. Lucia Tourist Board, 2001.

Table 4.2 : Estimated Daily per Capita Water Consumption at Selected Hotels in St. Lucia

Hotel	Per Capita Consumption (litres)
Bay Gardens	767
Auberge Seraphine	516
Le Sport	793
Glencastle	571
Average	662

Source: CEHI: A Review of Water Conservation Practices and Potential for Tourist Facilities in Barbados and St. Lucia, Environmental Health Project, Activity Report No.67, 1999.

Table 4.3 - Use of Water Conservation Devices or Practices at Hotels in St.Lucia

Hotel	Device or Practice						
	Low-Flow Toilets	Flow Restrictors/ Aerators	Foot Pedals	Towel Reuse	Drip Irrigation	Wastewater Reuse	Staff Training
Auberge Seraphine	*					*	
Bay Gardens							
Glencastle Resorts							
Jalousie Hilton		*				*	
Le Sport	*	*		*		*	
Orange Grove Hotel							
Rex St. Lucia	*	*		*			

Source: CEHI: A Review of Water Conservation Practices and Potential for Tourist Facilities in Barbados and St. Lucia, Environmental Health Project, Activity Report No.67, 1999.

Table 4.4
The Estimated Quantity of Solid Waste Generated by Stayover Tourists and Excursionist by Census District in St. Lucia (1992-2005)

	1992-1993		1993-1997		1998-2005	
Census District	No. of tourist	Waste	No. of tourist	Waste	No. of tourist	Waste
Gros Islet	2370	2610	2570	2980	3280	4260
Castries	1610	1270	1670	1960	2030	2640
Soufriere	500	550	820	950	1320	1720
Vieux Fort	550	610	760	880	1170	1520
Total	5030	5540	5840	6770	7800	10140

Source: Schen,M. Solid Waste Management in St. Lucia: CEHI-GTZ Institutional Strengthening Project, 1992.

Table 4.5

Fees per person	Pigeon Island	Fregate Island Nature Reserve	Maria Island Nature Reserve
Entry Fee	EC $5.00 (locals) EC $10.00 (foreigners)	US $5.00	US $35.00 (includes entrance fee, tour guide and boat ride)
Guided Tours		EC $40.00	

Source: St. Lucia National Trust

Table 4.6
Ministry of Tourism and Civil Aviation
Work Programme (Environmental Section) : St. Lucia

Programme	Activities
?? Sustainable Tourism Awareness Campaign with emphasis on land based sources of marine pollution	School Competitions; Lectures; Newspaper articles; Television programmes
?? Establishment of the Pitons as a World Tourism Site	Field Visits Meeting to discuss proposal to submit to World Heritage Committee
?? Standardisation of Environmental Practices	Meetings and Site visits organised by the Bureau of Standards
?? "Green Hotel" project with emphasis on smaller properties	Public awareness campaigns; Organisation of technical workshops for hoteliers; Consultations; sourcing of resource persons.
?? Environmental Policy for Tourism Sector	Consultations; Research on other environmental policies of other islands.
?? Establishment of Community Based Tourism Outlets – Phase 11	Consultations; Needs assessment survey.
?? Training and Capacity building for Vendors	Co-ordination with NCA for the purpose of identification of concessionaries.

Table 4.7

Regulation	Authority
Beach Protection Act 1967 (No.2 of 1967) (Amendment) No.9 of 1984	Protection of beaches through permitting system for beach sand mining.
Fisheries (Snorkelling Licence) Regulations (No.223/2000) promulgated under the Fisheries Act 1984 (No.10 of 1984)	Establishes a licensing system for operators of snorkelling facilities.
Land Development Act 1971	Land use planning and development control
National Conservation Authority Act 1999	Established the National Conservation Authority responsible for the conservation maintenance and beautification of topographic features of the island.
St. Lucia National Trust Act 1975 (No. 16 of 1975)	Providing for the preservation of buildings and objects of historic and architectural value and areas of natural or scenic importance.
Tourist Industry Development Act 1981	Provides for the establishment of the Tourist Industry Development Board responsible for promotion and development of the tourism industry.

Compiled by Author.

Table 4.8
Principal Environmental Laws in St. Lucia

Legislation	Authority	Regulations
Agriculture Small Tenancy Act (No. 22 of 1983)	Enforcement of regulations requiring sound soil and water conservation practices on small land holdings	Regulations
Air and Seaport Act 1981 (Amendment) 1983. Regulations of 1985	Development and management of the nations air and seaports	Regulations
Beach Protection Act 1967 (No.2 of 1967) (Amendment) No.9 of 1984	Protection of beaches through permitting system for beach sand mining	None
Crown Lands Ordinance 1946	Establishes the Crown Land Committee to review and make recommendations on the allocation/use of Crown Land	Regulations
Employers Occupational Health and Safety Act 1985	Providing inspection of food handling premises	None
Fisheries Act 1984 (No.10 of 1984) Fisheries Regulations SI (No.9 of 1994)	Management of fisheries and marine reserves	Regulations
Forest, Soil and Water Conservation Ordinance Cap 25 1946. (Amendment) 1957, 1983.	Management of forest Establishment of forest reserves and protected forest Soil and water conservation programmes to protect forested areas.	Regulations (Rules)
Housing and Urban development Corporation Act (1971)	Planning and development of housing projects	None
Land Conservation and Improvement Act 1992 (No.10 of 1992)	Provision for better land and drainage conservation	None
Land Development (Interim Control) Act 1971 (No.8 of 1971) (Amendment) Act (1990)	Land use planning and development control	None
Litter Act 1983 (No.24 of 1983) (Amendment) Act (No.15, 1985) (No. 14, 1993)	Control of litter in public or private places	None
Maritime Areas Act 1984	To make provision to territorial sea continental shelf – establish contiguous zone – economic zone and other related purposes. Implements various provisions of the United Nations Conventions on the Law of the Sea.	None

Merchant Shipping Act 1981	An act to introduce in St. Lucia the Law of England with regard to Merchant Shipping and matters connected therewith including marine pollution.	None
National Development Corporation Act 1971	Promotion of economic growth/industrial development	None
Oil and Navigable Waters Act (cap 91)	Provision against the discharge or escape of oil into the territorial waters of the colony	None
Parks and Beaches Commission Act 1983 (No.4 of 1983)	Providing for the management of public parks, gardens and beaches advisory body re. Coastal erosion	None
Pesticides Control Act (No. 7 of 1975)	Establishes the Pesticide Control Board Control of import, use labelling and storage of pesticides	Regulations
Public Health Act 1975 (No. 8 of 1975)	Regulatory oversight for sewerage, industrial and solid waste disposal Removal of nuisance and unsanitary conditions on premises (rubbish, night soil etc.)	Regulations
Plant Protection Act 1988 (No.21 of 1988) Statutory Instrument No.66 of 1995 and Section Instrument No.71 of 1995	Control of pests and diseases injurious to plants and to prevent the introduction of exotic species of the same	Regulations
Radioactive Minerals Act 1957	Authorises the explore for or mining of minerals	None
Rodney Bay Development Act 1970	Authorisation of land improvements works at Rodney Bay Limited	None
Slum Clearance and Housing Ordinance 1946	Housing of persons – acquisition Management slum areas – redevelopment in Improvement of unhealthy areas – demolition of unsanitary areas	Regulations
St. Lucia National Trust Act 1975 (No. 16 of 1975)	Providing for the preservation of buildings and objects of historic and architectural value and areas of natural or scenic importance	Regulation (Rules)
St. Lucia Solid Waste Management Authority Act 1996 (No.20, 1996). Environmental Levy Order SI 1996, No.68 and Tipping Fee Order SI 1996, No.69	Establishes the National Solid Waste Management Authority	None
Timber Industry Development Act 1984	Development of timber industry Promotion of timber production	None
Tourist Industry Development Act 1981	Promotion and development of tourism industry	None
Town and Country Planning Ordinance Cap 175, 1946 and amended.	Physical planning and building control	Regulations
Water and Sewerage Authority Act 1984 (No. 18 of 1984)	Management of water supply and resources Development and control of sewerage systems Protection of surface water supply intakes	Regulations
Wildlife Protection Act 1980. (No.9 of 1980).	Providing for conservation of wildlife and recommendations for designation of wildlife reserves Enforcement of hunting regulations	None

Reproduced from British Airways (1998) . An Assessment of the Environmental Impacts of Tourism in St. Lucia Report 5/98.

Table 3.1 - Pre 1992 Bahamas Environmental Related Legislation

1. Agriculture Act
2. Bahamas National Trust Act
3. Cart and Drays Act
4. Coastal Protection Act
5. Continental Shelf Act
6. Derelict Motor Vehicles (Disposal) Act
7. Deserted Tenement Act
8. Discharge of Oil (Prevention) Act
9. Environmental Health Act
10. Fisheries Act
11. Fisheries Resources (Jurisdiction & Conservation) Act
12. Hawksbill Creek Grand Bahamas (Deep Water Harbour & Industrial Area) Act
13. Merchant Shipping (Oil Pollution) Act
14. **National Trust Act**
15. **Plants Protection Act**
16. Road Traffic Act
17. Sponge and Turtle Fisheries Act
18. Water and Sewerage Act
19. Water Skiing and Motor Boat Control Act
20. Wild Animals (Protection) Act
21. Wild Birds (Protection) Act
22. The Hotel Act

Source: Complied

Table 3.2
Post-1992
Bahamas Environmental Related Legislation

1. Archipelagic Waters and Maritime Jurisdiction Act
2. Conservation and Protection of The Physical Environment of The Bahamas Act
3. Conservation and Protection of The Physical Landscape of The Bahamas Regulations
4. Declaration of Protected Trees Order 1997
5. Quarrying and Mining Zones Order 1997

Table 3.3 - Proposed Bahamas Environmental Related Legislation

1. Marine Mammal Protection Act
2. Revised Fisheries Act
3. The Air Pollution Act
4. The Environment Planning & Protection Act
5. The Ozone Protection Act

Table 3.4
Summary of Requirements/Regulated Areas in Hotels in The Bahamas Under the 1970 Bahamas Hotels Act

1. Maintenance of Interior of Hotels
2. Maintenance of Exterior of Hotels
3. Maintenance of Upholstery etc
4. Sleeping Rooms
5. China, Glassware & Tableware
6. Garbage
7. Sewage Disposal Plants
8. Fire
9. Relevant Ministries Approval
10. Books & Records

Appendix 2 – Focus Group Reports

Report On The Focus Group Meeting At Almond Beach Club, St. James, Barbados
December 14, 2001, 10am.
Facilitated By: Dennis Pantin And Michelle Best

Present were representatives of ten (10) hotels and guesthouses together with one representative of the Ministry of Tourism and one of the Barbados Hotel Tourism Association.

ISSUE: Familiarity with Environmental Policies of the Barbados Government, particularly those related to Tourism.

The hoteliers present seemed to have a varied familiarity with the environmental policies of the Barbados government. This seemed to be a function of the individual's location within the management structure of the hotel. Apparently, the Ministry of Tourism has involved the hotel industry in the process of consultation with regards to a new Tourism Incentives Bill to replace the existing Hotel Act which is currently being revised following such consultation. One hotelier present was extremely familiar with this draft bill while others were not. However, this draft bill itself does not focus specifically or apparently significantly on environmental issues but includes tax incentives for introduction of environmental technologies. It was pointed out that Barbados also has recently enacted a Coastal Zone Management Act as well as a Marine Pollution Act. Both of these focus particularly on the marine environment and one hotelier wondered as to why the land-based sources of pollution were not being addressed. It was then pointed out that there are a number of existing laws which address land based pollution.

ISSUE: Solid Waste
Relatedly, there was a general consensus that solid waste was a serious and growing problem in Barbados. The problem was not, however, particularly of the tourism sector but of the society as a whole. In fact, the hotel industry was facing the frustration of adopting solid waste separation techniques but without supporting system at the national level. One hotelier reported, for example, that a recent review of its certification programme raised concerns about its solid waste separation and the hotel had to explain the difficulty of source separation without a supporting national infrastructure.
Litter was identified as a natural problem caused inter alia by the absence of enforcement. It was reported for example that there is only one recent example of someone being charged with littering – sentenced to 280 hours of community service.
In the ensuing general discussion it was felt that the Barbados government had no immediate plan to implement a national solid waste separation programme.
It also was reported that the Barbados government was investigating incineration as an alternative to separation. However, it was pointed out that incineration generated several problems, in its turn, including energy costs and as well as greenhouse gas effects of the same together with the toxicity of the ash.

An alternative gasification system to incineration was mentioned which did not have the ash problem since it was contained. However, this was identified as very expensive with mention made of a recent offer by a German company to undertake a $10mn feasibility study for such a system. There also was debate among participants in the role of the private sector in recycling.(e.g. Environmental Tech.). Private sector initiatives at waste recycling were reported to be struggling to survive in the absence of government support. Relatedly, it was pointed out that, currently, the Environmental Levy goes into the Consolidated Fund but that, at least some of this could be allocated to waste management efforts. A participant reported that in the Turks and Caicos, for e.g., 1% of the hotel tax is dedicated to a Conservation Fund. Mention was also made of the recent Green Fund established in Trinidad and Tobago. It was suggested that there could be private sector recycling alongside government regulation and financing.

There was also a debate among participants in the focus group on the view expressed by one participant that the tourism industry need not wait on government policy and in fact that there could be an industry-driven environmental management policies. It was pointed out that this already has begun in terms of hotels seeking Green Globe Certification, with seven(7) hotels in Barbados already being certified. It also was noted that there also was a pilot programme for Quality Tourism in the Caribbean (QTC) Standard coordinated by CAREC in Trinidad and Tobago and flowing from its earlier Healthy Hotels programme. In a side discussion on certification some concerns were raised about Green Globe including the view that it was expensive to maintain Green Globe Certification since this required an annual review. However, it was pointed out that annual re-certification avoids slippage on environmental management. On this score one of the main challenges of the QTC was that it is a voluntary standard.

ISSUE: Evidence of Environmental Problems
It was reported that coral reefs along the West Coast were dead although the contributing factors were not only tourism but including a historic pattern of chemical use in the island and more recently, shift in inter cropping of sugar cane lands and use of combine harvesting leading to increasing soil run off.

ISSUE: Drivers of Environmental Standards
There was general consensus among the focus group participants that tour operating was driving industry standards.

Question on negative feedback loop from the Environmental problems in Industry

Relatedly,, it was pointed out that many tourists were increasingly environmental conscious and asking questions. One diver, for example, was reported to have seeing a leak in a sewer outflow line and was extremely upset as a result.

ISSUE: Chemical Use in Hotels

The question was asked of whether hoteliers were increasingly using environmentally friendly products as cleaning agents and in laundry operations. The answer seemed to indicate an increasing interest in use of eco-friendly chemicals. In general, those present s reported using either no chemicals or vinegar in cleaning.

However, there were mixed views as to whether use of the more eco-friendly products was more expensive than alternatives. One hotelier reported importing chemicals from Europe where costs were not higher. Moreover, it was pointed out that the relative lower frequency of use required of eco-friendly chemicals as opposed to alternative implied that costs were not necessarily higher. The problem here seems to be the absence of an adequate information set among hoteliers in terms of the effective costs of alternative chemical agents.

However, a general problem was reported with Aloe Vera being sold to tourists in the beaches since it was proving impossible to remove such stains from towels, etc. One hotel reported a "Say No to Aloe Campaign" while another hotel has been advising guests on a list of alternative sun tan lotions.

ISSUE: Water Conservation

Water costs were identified as relatively inexpensive and although Barbados was water short this does not appear to have filtered through to society. The introduction of a desalination plant in 2000 also appears to have lead to a reduction in concerns about water shortages.

ISSUE: Sewage Waste

All agreed that there is a problem of sewage waste disposed in the island best illustrated by the decision to sewer the island beginning in the South Coast and with plans to move later to the West Coast. However, progress was painfully slow. The south coast project began in 1994 and then stopped in 1997 for 2 ½ years as a result inter alia, of the dismissal of the original contractor.

The related law was also posing a problem since it has banned hotels from constructing private sewage plants since the law required that it be connected to the public system. One hotelier reported applying in 1997 to expand its existing treatment plant pari passu with its increase in rooms. This was refused but the central sewer system was still not operational. As a result, the hotel was facing difficulties with its existing system.

In the ensuing general discussion it also was pointed out that the central sewer system would only undertake primary treatment since it was decided that secondary and tertiary treatment would have been too expensive.

It was also pointed out that expanding the central sewer system to the west coast would pose a major challenge given its destruction a road traffic in the laying a pipeline and the absence of alternative road networks in the West Coast.

ISSUE: Energy Conservation

It was generally agreed that hotels were engaging in such energy conservation given high-energy costs. (e.g. 32 cents/ kilowatt -four times that of the Trinidad and Tobago charges).

It was indicated that management of Electrical equipment was central to such energy conservation since costs could increase astronomically from mal-functioning equipment. Also, that sensors were important especially in high energy area of air conditioning.

General

The view also was expressed that import duties and requirements were onerous and constrained purchase of some types of equipment which could reduce energy or water use.

The Bahamas Focus Group Report[30]

Criteria for Choice of Invitees

The hotel sector participants were selected as part of a screening process to have hoteliers with adequate experience with the issue being discussed. These participants were, therefore, of a fairly homogeneous background in terms of environmental practices being done at the hotel. At the same time, however, these hotel officials represented the various types of hotel ownership that exist in The Bahamas.

BAHAMAS GOVERNMENT OFFICIALS

Officials form the following government organizations were invited for additional input into discussions by the hotel representatives:

The Bahamas Ministry of Tourism (MOT)

The Bahamas Ministry of Tourism is the focal government agency dealing with the country's hotel and tourism industry. MOT through its Business Development Division is in the process of drafting a Cabinet Paper related to Duty Free Exemption for Green Technology in The Bahamas. The aim is for government to facilitate lower or no duties on specially listed imports that would assist in the hotel and tourism industry as well as the resident population being more water and energy efficient and encourage waste minimization.

The Bahamas Department of Environmental Health (DEHS)

DEHS is a key government agency charged with the responsibility for environmental management in the country and plays a pivotal role in policy development as it relates to solid wastes, emissions and effluent management in The Bahamas. Hotels must have an official approval from this Department before it is given a license to operate. This license is renewed on an annual basis and as such they must get this Department's approval on an annual basis. DEHS is also responsible for the management of the landfill sites.

[30] This focus group was conducted on Wednesday, Jan.9,2002 on the Bahamas Tourism Training Centre. Facilitators were Dr. Jennifer Edwards assisted by Ms. Marlene Davidson and Mr. Brendon Braithwaite,

1. EXISTING ENVIRONMENTAL POLICIES OF THE BAHAMAS GOVERNMENT
Re: The Hotel & Tourism Sector

The hotel officials were well acquainted with the general environmental policies of The Bahamas government that were related to the hotel sector. The conclusion is that it is very difficult for any hotelier not to have some level of awareness of the government's environmental policies for the hotel sector as they form part of the licensing requirements for all hotels under the Environmental Health Services Act. The policy requires hotels to obtain approval from the Department of Environmental Health on an annual basis as it relates to emissions, effluents and solid wastes and other health risk areas within hotels in order to have its annual hotel license renewed.

The agreement by hoteliers, however, was that:

1. Although environmental policies are reflected within the hotel licensing procedure, there is no specific environmental policy for hotels
2. All hotels must operate within the requirements of government for the general environment
3. Government should seek to diligently enforce the existing environmental laws by allocate more resources to ensure that all existing environmental laws are followed by, not only the hotel and tourism sector, but by all sectors and residents of the country. Stiffer penalties for not abiding by these laws should also be implemented.

The following was a view put forward that was supported but not to the fullest extent:

1. There are a large number of environmental laws in The Bahamas and there is really no need to have another specifically for the hotel and tourism sector.

2. SOLID WASTES

Solid Wastes preoccupied the discussions as the main environmental problem facing the country. All participants agreed that the hotel and tourism sector generates a staggering amount of solid wastes and the country is not in a position to handle this. The hotel representatives provided various experiences with their own situation.

Views expressed included the following:

5. Hotels are willing to participate in solid waste separation programmes but this is useless in The Bahamas as all waste is still dumped at the same official site where no sorting is carried our for recycling purposes etc. The non-existence of recycling facilities for paper, cardboard boxes and other commonly generated solid wastes was viewed as a distinct drawback in to effective solid waste management by the hotel sector.

6. Government should show its commitment in this area by undertaking some form of recycling or by seriously encouraging and supporting any private investor willing to get into any aspect of the business of recycling
7. Government should consider charging a fee to the commercial sector for use of the dump site and this may encourage hotels, for example, to be involved more involved in solid waste reduction methods
8. While this is so (3 above), large hotels already have to pay private sector garbage collectors to remove its solid waste and due to this efforts are in place to reduce the number of trip paid for by more effective solid waste reduction practices

The DEHS representative noted that:
Solid waste generation and management is a national problem particularly on New Providence. Businesses and residents of the country not only generate large quantities of solid waste but also choose to dump them in unofficial areas and even to litter the streets. Unfortunately, although there are penalties for littering it is very difficult to catch the culprits in action. In addition, given the resources required by government, it is highly unlikely that government can get into the recycling business. Government cannot charge for dumping at the official site as this would lead to an increase in the existing illicit dumping that already occurs in the country.

MOT representatives felt that:
There need to be more public awareness programmes as it relates to solid waste generation and littering and suggested that government agencies such as MOT and DEHS could have joint campaigns in this regard.

3. GREEN CERTIFICATION

Only one of the hotels represented (Sandals Royal Bahamian) was involved in obtaining some form of green certification (GREEN GLOBE). The other hoteliers agreed that they would not mind being involved in a green certification programme but noted that this was a very costly exercise which makes it very difficult for them to do so. One of these hoteliers explained, for example, of the large capital investment recently spent in retrofitting light bulbs to the energy efficient type. The hotels has now to recover from this before it can get into any other major programmes as required by green certification boards.

The Hotel Encouragement Act
MOT officials felt that hoteliers could obtain the import duty benefits under the new Hotel Encouragement Act for projects required for green certification. Hoteliers could not agree with this as restrictions applied in terms of the investment capital required for the project. In fact, although a hotel could use the benefits under this Act for purchase of green technologies, there were so many pre-requisites making it useful to only a restricted number of hotels.

Hoteliers expressed the following views:

4. Hotels should take the lead in environmental responsibility in The Bahamas and should be encouraged by the government to do so.
5. Government should provide specific incentives to encourage the use of green technologies by hotels as not all can access benefits under the existing Hotel Encouragement Act. (Only one of the hoteliers was aware of the Green Technology Paper being developed for Cabinet by MOT as he was involved in its development and provided input on behalf on Bahamas hotels. MOT officials took the opportunity to inquire as to the type of incentives hoteliers would like to see government provide and for what specific items).
6. Hotels can not only increase their cost savings by being environmentally responsible, but can also cash in on the ready market for environmentally friendly accommodation especially by Europeans. This can only help in expanding the hotel and tourism industry of the country.

Quality Tourism in The Caribbean Standards (QTC)

One of the hoteliers provided insight into the need for hoteliers to be environmentally responsible particularly if they are to facilitate the expanding European market. He explained that European tour operators have put the safety of their clients directly under the responsibility of hotels and so they are more demanding that hotels are environmentally responsible and safe. In fact, these operators are placing more and more pressure on hotels to abide by certain environmentally safe standards and in the future any hotel not willing to abide by these standards may find itself out of business. This hotelier expanded that he was, in fact, a member of the Quality Tourism in the Caribbean Standard (QTC) Committee which was working on developing safe standards for the Caribbean's hotel and tourism sector to meet in part some of the requirements of tour operators. This project was IDB funded and was being coordinated by CAREC in Trinidad & Tobago. It stemmed from the Healthy Hotels Project of CAREC and The Bahamas is one of the countries in the region in which the QTC project was being pilot tested. He additionally explained that the aim is to get regional hotels to buy into this programme, which would recognition that the hotel has met the required standards and is certified accordingly. In effect QTC hopes to be a Caribbean wide regulation which hotels would see the need to buy into. Hotels with QTC standards would then be featured in the brochures of environmentally conscious tour operators such as BA and TUI and as such stand a better chance of their clients opting to stay at that hotel. This hotelier believes that environmental legislation is not the way to go but rather voluntary programmes such as this, which encourages hoteliers to regulate themselves. He supports, however, that government should provide encouragement by way of incentives and the right environment for this.

4. ENVIRONMENTAL LEGISLATION

There was no full consensus on the role of environmental legislation for the Hotels Sector. While the QTC committee member believed that the government of The Bahamas should not have any specific environmental legislation for hotels, another felt

that the hotel sector needed specific legislative guidance to ensure that they follow environmental procedures and to be heavily fined if they do not.

Discussions flowed from this with the following views:

3. If the government were to lay down environmental legislation for the hotel sector in The Bahamas, they must at the same provide a suitable environment to facilitate the adoption of these legislatures. Government, for instance, would need to make sure that suitable recycling facilities were available in the country, provide relevant incentives and resources and provide the monitoring and enforcement resources as required. All of which they are unable to do at this point even with the existing environmental legislation.

4. The hotel sector in The Bahamas is highly regulated and already abides under a large variety of government rules and regulations. Enforced additional environmental requirements would not help the situation.

5. WATER & SEWERAGE

The DEHS representative encouraged every hotel in The Bahamas to make use of their own sewerage treatment and reverse osmosis (RO) plant as government was not in a position to facilitate all of the country in these areas. He explained that it was in fact a government requirement for large hotels to make use of their own plants with regular inspections undertaken by DEHS to ensure that these plants continue to operate safely. While one of the hotel officials explained of the success of using their own RO and sewerage treatment plants, the agreement was that it was not feasible for all hotels, particularly small ones, to even think of installing an RO plant given the cost and space needed for this. It was felt that government assistance by way of import duty concessions could be given to hotels in this area. It was agreed, however, hotels should and could reuse water in some way. It was felt that staff training was necessary to achieve the water conservation goals.

6. GENERAL ENVIRONMENTAL MOVEMENT IN THE BAHAMAS

Hotel participants felt that the private sector was the driving force behind the environmental movement in The Bahamas and that government was not leading the way. It was viewed, for example, that the hotel sector is very proactive in terms of implementing environmental practices while the government was lagging behind in its support to this sector in this area. The DEHS official in fact supported the view of hoteliers and noted that his department was more inclined to react to things that are hot so the hotel sector should make, for example, the issue of recycling a hot issue putting enough pressure on government and it will respond. Community clean up was express by the DEHS representative as being a hot issue and his department has been preoccupied with it in recent times.

7. CONCLUSIONS

1. There is no specific environmental legislation for the hotel & tourism sector in The Bahamas, however, there is a high level of government environmental laws for the country
2. Hotels would have to respond to the pressure from tour operators for environmentally sensitive accommodation if they are to remain competitive
3. Government in The Bahamas should play a supporting role by encouraging the hotel sector to participate in environmentally responsible practices and in achieving various green certification standards and should not try to enforce additional environmental legislation on this sector
4. The Bahamas government should seek to ensure that existing environmental laws are enforced and the required penalties are carried out
5. The Bahamas government should provide a comprehensive set of incentives specifically to the hotel and tourism sector to encourage its greening on a large scale
6. A recycling plant is greatly needed in The Bahamas

Report On December 17, 2001 Focus Group Meeting At Bay Gardens Hotel In St. Lucia Facilitated By Dennis Pantin And Deidre Charles

Representatives of seven(7) hotels participated in this focus group meeting

Familiarity with Government policies on environmental management relating tourism

The participants in this focus group came largely from engineering and/or environmental management divisions and were generally unaware of the policies of the Government of St. Lucia. One participant suggested a meeting with policy makers to provide answers to questions (e.g. the use of the $10 tyre disposal fee).

Solid Waste

Solid waste was identified as a national problem. In part it was felt that this was the result of inadequate receptacles for public litter, e.g. at Pigeon Pt. An improvement was however reported in public solid waste collection from the Vigie Airport in Castries to Gros Islet where much of the hotels are concentrated. The St. Lucian Solid Waste Management co. employs licensed contractors for general solid waste collection but participants were skeptical as to the standards required of them. Most hotels, in any case, tend to employ private contractors. Hotel waste tended to be commingled. One hotel reported that everything other than oil and compost goes to the chiller and is then taken away by contractors. Participants reported that there is no requirement for hotels to ensure that garbage is disposed of appropriately. Particular mention was made of food waste being given by contractors to pig farmers. This was reportedly banned in Australia given potential dangers of negative impacts on the food chain. It was noted that proper treatment of this food waste required boiling before

feeding to pigs but only one farmer is known to be doing this. One hotel reported that the contract that it gives to private firms to dispose of its waste requires that they boil food waste before access by pig farmers. Questioned as to the feasibility of hotels making a contribution to post-collection safety by themselves boiling waste food, participants felt that this was not possible given constraints of space and equipment.

Separation/Recycling

In terms of recycling participants reported that there was no State requirement for separation and no incentives for recycling. It was felt, however, that a system of separation would help since hotels would not need to dispose of all waste every day. As a result of the absence of separation and of compactor trucks as opposed to the open trucks used by contractors, it was impossible to quantify the quantum of solid waste being generated by hotels. Participants indicated that for separation to be practiced at their hotels, it would be necessary to persuade the financial comptrollers that separation would save money. The conclusion expressed was the need for Government policy. E. g. on deposit-refund systems for plastic bottles which now end up in the rivers and sea.

Issue: Sewage Waste

Participants reported that a central sewage treatment plant has been established at Rodney Bay which is a major concentration zone for hotels. However, it is not mandatory to connect to this system. As a result, some hotels are not connected. A representative of one hotel present, which is connected, reported that it was very expensive due to the limited number of subscribers although the facility was designed for everyone in the Rodney Bay area- residents as well as hotels. It was speculated that the limited load of the plant was impacting negatively on its efficiency.

It was noted that there are no routine spot checks of hotel package treatment plants. One hotel reported monthly monitoring by CEHI for which it paid of its treatment plant and bordering coastal waters. Concern also was expressed about problems upstream of hotels in terms of sewage disposal and its related impact on coastal waters. One representative indicated that there were plans at his hotel for a large volume holding tank for sewage waste but that this had been put on the back burner. It was felt that Government policy would make it a priority project.

Concerns also were expressed about disposal of liquid waste in wetlands and about the capacity of WASCO to accept sludge.

Issue: Chemical Use

It was noted that there is no law controlling chemical use in hotels. However, most suppliers offer biodegradable materials- this was particularly true of importers but participants were not as certain as to this in terms of locally produced chemicals. It was felt that, in the long term, biodegradable chemicals were cheaper. Some hotels were reported to be utilizing the Materials Standard Data Sheet(MSDS) to determine their chemical use.

Drivers of Environmental Management

European tourists were identified as being more environmentally sensitive than those from the USA. Participants stressed the need to monitor all aspects of hotel operations which could have environmental impacts. However, it was felt that hotels faced more pressure from tour operators and airlines that from the Ministry of Health. One participant expressed the desire for Ministry officials to visit weekly in order to put pressure on his staff to meet standards set. However, one hotel representative reported five(5) visits from the Health Ministry since there was a mosquito problem close to the wetlands abounding his hotels. Attention was paid, unfortunately, only to the mosquito issue. Relatedly, there was a general view among participants that food inspectors need to visit more frequently. Participants noted that even when such inspectors visited their follow-up was poor. There was no write-up of problems, for e.g. It was proposed that the Government should standardize its approach to monitoring of hotels with a clear guidelines as to the minimum no of visits per year, documentation and follow-up.

Issue of Water

Water supply was identified as a major problem given supply constraints. It was reported that in May, 2001 St. Lucia was down to one month's supply. However, hotels were hardly affected with only two shut-off periods in the Rodney Bay area. However, other participants reported more frequent periods of water supply interruption.

A discussion ensued on in-house possibilities for water conservation. It was pointed out that kitchen staff had a culture of continuous water flow given their emphasis on health. It was pointed out that introduction of aerators in faucets can reduce water flow from 5-2 gallons per minute. It also was suggested that there could be peak and off-peak water rates (as well as electricity). One hotel indicated that it reduced its water intake flow in low occupancy from 120-85? Per hour. Another hotel reported reducing its water supply requirement by 7,000 gallons a day through introduction of water saving devices.

Issue: Energy

Air conditioning was identified as a major concern in terms of energy demand. It was reported that hotels in St. Lucia were responsible for 20% of the energy consumed in the island. The significance of this share of hotels was illustrated by representative of one hotel which indicated that if it planned to shut down its electric system it needed to inform the Electricity Company since this could lead to overload elsewhere given the significance demand generated by this hotel.

Several suggestions were made which could reduce energy use in AC systems including:

?? Better insulation of building;
?? Use of split units which also avoid breaking of wall as in traditional window units;
?? Linking electronic key to door to AC such that when a guest leaves the room the AC is automatically shut down. It was reported that a $20 control system could facilitate this in new AC units, given a supportive electrical wiring system. However, there could be consumer resistance since some tourists leave the AC on to ensure

the room is cool when they return. Also in some hotels, a continuous AC avoids problems of mildew accumulation[31].

?? Use of peak and off peak rates also could encourage energy saving.

There was a debate on the use of standby generators in terms of whether they were cheaper than energy off the grid. It was pointed out that in Negril, Jamaica, hotels were encouraged to use their standby generators in peak hours. However, use of generators was banned in Jamaica.

Environmental Management in Hotels

The large hotels- particularly chain operators- were reported to face annual internal inspections from travel agents and airlines (e.g. Thompson, BA). Problems were therefore seen to be more likely in smaller hotels and restaurants.

In response to a Question, participants reported that only in some hotels was there a manual or other documentation on environmental management practices to be followed. It was felt that while it was the duty of every HOD to check/inspect internal operations, external inspection could raise the priority with which this was treated.

In response to another Question on key environmental issues facing hotels, participants suggested the need for education and training of staff as well as other stakeholders who supply hotels. In terms of staff training, it was felt that guests are influenced by the culture of the hotel.

Report On Tobago Focus Group Of Dec. 19, 2001 At Crown Point On The Bay Hotel, Facilitated By Dennis Pantin And Anthony Bartholomew

There were representatives of four(4) hotels, together with two European consultants, at this focus group which was negatively impacted upon by heavy rains during that day.

Issue: Knowledge of Government policy on environmental management of tourism

Participants were unaware of Government policies. One participant expressed the view that public officials responsible for monitoring bathing water quality targeted only Store Bay. The view was also expressed that there was need for a distinct Ministry of Tourism One participant expressed frustration as to which government office he could complain to about problems facing his hotel and the industry in Tobago. There also was a complaint about mixed signals from the Trinidad and Tobago Government and the Tobago House of Assembly. It was reported, for example, that the Tourism and Industrial Development Co.(TIDCO) employed a consultant who came up with a five-year plan for Tobago based on creating a niche market. Then the THA and TIDCO "stopped talking" and the THA came up with an alternative plan for agro-tourism.

A general concern was expressed about the infrastructural report for tourism. One hotelier reported having to maintain the public roadway and also to provide street lighting.

[31] It was also reported that cleaning staff tended to shut down the AC given the alternating temperature within rooms and the outer corridors between them.

Issue: Bathing Water Quality

Participants identified bathing water quality as a significant problem in Tobago. Participants reported complaints by tourists about earaches. One representative indicated that they were receiving such complaints by 2-3 guests every month. The standard prescription was for use of anti-biotics. However, it was reported that in the case of one hotel (named but not represented at this focus group meeting) a medical doctor had to be called in to attend to the large number of complaints.

It was reported that an IMA survey of residents in Tobago indicated that 90% were fearful of bathing in the sea. However, even where data on bathing water quality was available it was not released until years after. This was a negative approach to seeking to improve quality. The sewage problem was a general one, not limited to the hotels and including inadequacies in housing estates in southwest Tobago. Effluent from residents was reported to flow into coastal water. It was suggested that a central sewer system was needed. It was reported that anchors of yachts have broken existing outflow pipes of hotels. In addition, such yachts also posed a problem of operating without holding tanks and anchoring off the best beaches. The European consultant suggested that the hotels were not without blame and that only one hotel in Tobago has continuous water quality monitoring. It was also reported that loss of wetlands and increasing solid run-off were leading to increasing mudflows in the sea. One example was cited of a mudflow quarter mile out to sea and thereby impacting negatively on dive sites.

Issue: Solid Waste

The public collection system was identified as inadequate and only one of the participants reported utilizing it for disposal of its solid waste. The others rely on private contractors. It was pointed out that private contractors were originally employed to complement the official collection system, given its inadequacies. However, once the THA became aware, it then withdrew completely. The result was that the private contractors then increased their fees. The question was asked as to whether the participants were aware of the final disposal of their solid waste. This was generally felt to be Studley Park solid waste dump –itself identified as inadequate being both open and not sealed. However, one hotelier reported being charged for improper disposal of his waste and had to rely on his records to indicate that he had paid a contractor to dispose of this properly.

It was indicated that there was no national policy on waste separation but hotels tended to do some of this, particularly in terms of glass bottles.

Issue: Water Supply

This is reported to have improved tremendously in recent years. However, the visiting consultant expressed view that some hotels- particularly the recently completed Hilton- was receiving privileged water supply access while neighbouring communities were dry. This, it was felt, could impact negatively if tourists became aware of this information from taxi-drivers or other members of the community.

Other Issues: Groynes, Crime

The view was expressed that groynes erected by some hotel facilities were negatively impacting the slope of Store Bay. It was reported that this was becoming steeper and resulting in breaking limbs as a result of tumbling.

Crime also was reported to be a growing problem with one restaurant- in an unlit area- having to close because of attacks on customers.

Issue: Proposals

Participants made a number of proposals for future public policy including:

?? Education of public servants on the importance of environmental management in tourism in Tobago;
?? Education of Buccoo Reef boat crew;
?? Improved design of boats for Buccoo Reef with shorter props, inboard engineer, etc. to reduce negative impacts on the reef;
?? Need for monitoring of coastal waters around Tobago-not merely Store Bay- and the provision of this data to the public on a real time basis;
?? Education of other stakeholders including taxi-drivers(e.g. re black smoke from their engines turning off tourists since this was not permissible in their countries);
?? There was need for improvement in the quality of the Botanical Gardens;
?? There was a problem of stray dogs;

General

Concerns were expressed about the impact of the identified, negative environmental issues on the image of Tobago as a tourist destination. It was felt that the Internet was likely to have the most significant impact in terms of persons posting messages of a negative nature. It should be reported, however, that representative of one guesthouse indicated that she did not think that Tobago faced any particular environmental problems.

Appendix 3 – Analysis of Survey of Hotels and Tourists

Overall Hotel Survey Analysis in the four case study countries

63% of the hotels surveyed in the four case study countries were located on the beach. The largest number of hotels (27%) had between 101 and 200 rooms and 7% had over 400 rooms. 52% of the hotels were locally owned. 60% of the hotels surveyed were single/independent hotel property (60%). International hotels chain account for 24% and Caribbean hotel chain 14%. Though hotels varied in the areas they occurred, 66% are located in 1-10 acres of land. The most popular method of cutting costs is via a shorter workweek, done by 41% of the hotels. Second to this is the employment of temporary staff, done by 31% of hotels.

Energy

83% of hotels monitor the use of energy in their respective hotels and 76% have implemented energy saving measures of which use solar energy is the most popular(41%). . Investment costs was the major reason (38% of hotels) identified for choosing solar. Hoteliers believe that government is not doing enough as they, 89%-95% of hoteliers, cited the need for policy on energy-saving methodologies such as solar, lighting, equipment, machinery and appliances. Within 73%-76% of hoteliers stated that policy/incentives to existing and new/expanding hotels are at best poor, if not non-existent. Hotels are willing to participate in the energy saving process given policy implementation and incentives. This is indicated, for example, in the response by 71% of hoteliers indicating willingness to implement the use of solar energy within 2 years, given government policy/incentive. Already 59% are satisfied with the contribution energy-saving devices are making to profitability.

Water

The major source of potable water, as can be seen in the table is the government supply, utilized by 79% of hotels. Bottled water also is used as a complement and utilized by 57% of hotels. Rainwater is the least popular type and drawn upon by only 10% of hotels. 85% of the hotels monitor water usage in the respective hotels and 71% have

incorporated water saving measures. For the hotels that do not the popular reason given is they do not see the need to with . 5% citing investment costs. Again a large number of hotels, over 88% see the need for greater government involvement with respect to policy formulation and implementation for this cause such as low flush toilets, sprinklers and rainwater storage tanks. Over 76% agreed that not enough incentives are being offered by the government for new/expanding and existing hotels on the matter. On the other hand, up to 78% of hotels are willing to institutionalize some of these measures within the first two years of policy implementation. Currently, 46% of all hotels are pleased with the contribution these measures are making towards profitability of the hotel.

Solid Waste

54% of all hotels monitor the quantity of solid waste generated by them. There is a general displeasure by hoteliers on government's attention to this matter with 75% of hotels expressing the view that current systems are not in place to deal with recycling of cardboard and paper. 69% believe that hazardous waste is not collected and disposed of safely. Hotels require Policy/incentives, both new/expanding and existing to deal with solid waste particularly those related to bulk dispensers and recycling. Given positive measures by government in this direction, hotels generally are willing to comply. As an example 90%, of hotels stated that they would institute separation of solid waste for recycling within the first two years of it being made policy. In fact 69% agreed to do it within one year. Similarly, 61% agreed to do the same with respect to bulk dispensers for toiletry. Thus far only 25% are comfortable with the contributions these measures are making to the hotel's profitability.

Effluent & Emissions

The most commonly used method of wastewater disposal is via soakaway/septic tanks with 38% of hotels choosing this alternative. Following this is the hotel's own treatment plant, done by 29% of hotels. At least 80% of all hotels saw the need for policy/incentives for environmentally friendly products, methodologies and devices such

as non-CFC based refrigerants (91%) and pump sprays (78%). Given government's commitment to this venture up to 79% of hotels are willing to comply within 2 years. Similar to the section above, a mere 28% of hotels are satisfied with the contribution these measure are currently making to the hotel's profitability.

Other

It was revealed in the survey that only 25% of all hotels have received awards for environmental efforts. However, 75% expressed interest in participation on a green certification programme.

Overall Hotel Survey Analysis By Room Size

General Information

Hotels were divided into seven room size categories: 1-10, 11-20, 21-50, 51-100, 101-200, 201-400 and over 400. All categories have hotels located on the beach, with the exception of the smallest category. This is in direct contrast to the larger hotels with 80%-100% of the three largest sized hotels located on the beach. The small hotels tend to be locally owned, single/independent properties while the larger hotels, particularly with those of over 200 rooms, tend to be foreign owned, belonging to an international or Caribbean chain. Only 25% of hotels with 51-100 and 201-400 rooms are on an area of land of more than 60 acres. As can be expected smaller hotels employ less than 50 employees. Larger hotels hire between 201 and 400 employees. 67% of hotels with over 400 rooms hire more than 600 employees. The most popular method of cutting costs appear to be a shorter work week, with the exception of the largest category of hotels which cited the hiring of temporary staff as their most popular method.

Energy

Energy is being monitored by all categories of hotels. However, only 50% of the smallest hotels do so as compared to 86% and 100% of the two largest categories. A greater number of larger hotels have implemented energy saving measures (between 71% and 100%) than the smaller hotels (between 0% and 75%). The greatest number of hotels using solar energy falls within the 51-100 category (20%). This is followed by the 101-200 room category with 18%. No hotels with over 400 room use solar energy. Investment cost is the major reason given by all sizes of hotels as the reason for not

adopting this measure. There is consensus among the various categories that policy is required for alternative energy source and energy-efficient devices such as lighting, machinery and appliances. This holds for both new/expanding and existing hotels. While 29%-43% of the three largest hotel categories have indicated that some of these measures are already in place, all categories expressed eagerness in implementing these, that is, within a time frame of 2 years, given appropriate policy/incentives. Interestingly, hotels are satisfied with the contribution of these measures, in varying degrees, to the hotel's profitability.

Water

The government supply and bottled water are the two major sources of potable water with the smaller hotels favoring the former and larger hotels favoring the latter. 100% of the three largest categories monitor water usage as compared to varying degrees of the other categories. Of the larger hotels 82%-100% have implemented water-saving measures. Smaller hotels cited investment costs as the major reason for not doing so while the larger hotels included other reasons. Again there is a consensus among all categories that policy is required for these measures such as low flush toilets, sprinkler timers and rainwater storage tanks. While the larger hotels have indicated that they have already put in place some of these measures there is an eagerness expressed by hotels to do so given policy/incentives, particularly from the two smallest categories where 100% agreed to do so within 12 months of its implementation. Only hotels with over 400 rooms do we find that all are fully satisfied with the contribution these measures are currently making to the hotel's profitability.

Solid Waste

50%-56% of the two smallest categories monitor the quantity of solid waste generated by the hotel comparable to 33%-64% of the two largest sized categories. Hotels across the board feel that not enough is being done with respect to the collection and safe disposal of hazardous waste and the recycling of bottles, cardboard and paper. They believe that policy is required for recycling, composting of organic waste and bulk dispensers for both new/expanding and existing hotels. While 43%-82% of the three largest hotels categories

have already put some of these measures into action hotels across the board are willing to do so, particularly the two smallest categories where 75% have expressed willingness to do so within 12 months of relevant policy implementation and/or incentives. 66% of hotels with over 400 rooms are satisfied with the contribution these measures are making towards the hotels profitability. No hotels in the two smallest categories share this sentiment.

Effluent & Emissions

The soakaway/septic tank is the major form of wastewater collection/disposal for smaller hotels while the larger hotels tend to favor their own treatment plants. Hotels across the board believe that policy is required for environmentally products such as pump sprays, non-CFC based refrigerants, machinery and equipment. While 14%-43% of the three largest categories of hotels have already begun implementing some of these measures all categories have expressed a willingness to do so given appropriate incentives. In particular 75%-100% of the hotels in the two smallest categories claimed to adopt these measures within 12 months of policy implementation. From the table we see that 100% of the three smallest categories are realizing little or no benefits from energy-saving measures. On the other hand 33%-66% of the three largest hotel categories are satisfied with it contribution to the hotel's profitability.

Other

On the question of rewards for environmental efforts 29% of hotels with 101-400 rooms have achieved this. So have 25% of hotels with 1-10 rooms and 22% of those with 21-50 rooms. Additionally, 100% of the hotels in the 11-20 and 51-100 room categories have expressed interest in participating in a green certification programme. This can be compared to only 33% of hotels with over 400 rooms expressing similar interests.

Hotel Survey By Country

Barbados

General Information

66% of the hotels surveyed in Barbados were located on the beach with 50% of the hotels within the relatively large of between 101 and 200 rooms. Most of the hotels (78%) are locally owned. There are no international or Caribbean hotel chains. 11% are local hotel chains while the majority were single/independent (89%) hotel properties. No hotels were on over 20 acres of land with 6% of the hotel population on areas of between 10 and 20 acres of land. No hotel employs over 600 employees. In fact, 55% employ between 201 and 600 employees. The cost cutting method most employed is a shorter workweek (33%).

Energy

While 100% of at the hotels monitor energy use, 89% implement energy saving measures and 56% use solar as an alternative source of energy. The major reason given for this is high investment costs. Strong agreement was expressed (100%) for government policy in support of solar/alternative energy source, energy efficient lighting and energy efficient equipment, machinery and appliances. It was revealed that policy on energy saving for both new/expanding and existing hotels are non-existent. A favorable response was gotten with respect to reaction to energy-saving methodologies. 43% of the hotels would implement solar/alternative energy within the 1-12 months of introduction of policy. Similarly, 75% agreed to implement efficient lighting within that period, 57% for energy efficient equipment and 100% for energy efficient technology. While 44.5 are satisfied with its contribution only 11% were dissatisfied.

Water

Government supply of water is the main sources of potable water for all the hotels. Of this 89% monitor water usage and 88% implemented water saving measures. For the 22% that do not, 56% believed that it was not necessary and 33% cited investment costs. No hotel policy was in place with respect to low-flush toilets, sprinkler systems and rain-

water storage ,as with government policy/incentive which were non-existent for both now/expanding and existing hotels. Unlike energy savings methods hotels are less likely to react as favorable. A mere 25-50% resolved to implement water-saving methodologies such s a low-flush toilets, faucet sensors, shower-flow restrictions within 1-12 months of government making it policy. The general belief is that this is not profitable as only 26% indicated it contributed to their hotel's bottom-line..

Solid Waste

67% of hotels monitor the quantity of solid waste produced by their hotels. Of this 79% monitor the type of solid waste and have implemented reduction measures. Generally, hotels are not satisfied that enough is being done about it as 50%-71% believe that nothing is being done about the collection and safe disposal of hazardous waste and the recycling of hazardous waste, glass bottles cardboard and paper. 89% of the hotels agreed that policy/incentives are required for recycling, composting of organic waste ad bulk dispensers. However, between 63% and 83% are willing to implement measures to deal with this within 1-12 months of its policy formation. Unfortunately, policy for existing and new/expanding hotels in this area are non-existent. Its contribution to profitability is reflective of this as a mere 11% expressed satisfaction.

Effluent and Emissions

67% of the wastewater by hotels are disposed of via soakaway/septic tanks, 22% via the hotel's own treatment plant and 11% via other treatment plants. Hotels generally felt that policy/incentives are required for environmentally friendly products, pump sprays, machinery/equipment, CFC refrigerants and other environment friendly products. 89% of the hotel population indicated that policy on the matter is practically non-existent. However, 67%-89% of the hotels are willing to implement any such policy within 1-12 months of introduction of relevant policies.

Other

Thus far, 50% of the hotels have received awards for environmental efforts. but only 57% are interested in a green certification programme.

Bahamas

Energy

85% of the hotels surveyed in The Bahamas stated that they monitor the use of energy and 70% have thus far adopted energy saving measures with solar energy used by 25%. Hotels recognize the importance of energy saving in not only the operation of the hotel but the country as a whole as 80-95% agree that policy is required for alternative energy source and energy efficient lighting, equipment, machinery and appliance. However, investment cost is cited by 50% of hotels as the major reason for not implementing any energy saving measures. Relatedly, there is the general feeling that enough is not being done by the government for new/expanding and existing hotels in this area. Although 10%-45% of hotels have institutionalized energy saving methodologies, with lighting being the most common, up to 70% of hotels are willing to incorporate energy saving measures within the space of 2 years, given the government's policy implementation/incentive on the matter. Thus far 80% of the hotels are satisfied with the contribution of the introduction of energy-saving measures to their profitability.

Water

The government supply is the source of water for 55% of the hotels. However, bottled water also is used by 70% of hotels. A large number of hotels in the Bahamas monitor water usage (80%) and 70% have implemented water-saving measures. For those that do not 5% did not see it being necessary and 20% cited investment costs as the reason for not doing so. The majority of hotels stated that government policy is required for water-saving methodologies such as the use of low flush toilets and sprinkler timers. As with energy-saving, hotels were generally dissatisfied with government's policy/incentives for new/expanding and existing hotels on the matter. Notwithstanding the 5%-25% of hotels that already have implemented some water-saving devices (low flush toilets being the most popular – 25%), 50%-75% are willing to follow given government's policy implementation/incentives on the matter**.** Interestingly, 65% of the hotels admitted that regardless of incentives they would never implement water-saving technology. Already, 45% of the hotels are reaping significant benefits from utilizing water-saving measures.

Solid Waste

Less than half the number of hotels or 40%, monitor the quantity of solid waste generated by their respective hotels and even less (25%) monitor the type. Not surprisingly, a mere 40% have included measures for the reduction of solid waste in operations. There is a general feeling by hotels that not enough is being done or facilities available for the collection and safe disposal of hazardous waste and recycling for both new/expanding and existing hotels. Hoteliers believe that government needs to implement policy and/or provide incentives for this, particularly for recycling and bulk dispensers as over 55% are willing to bring this on stream within 1-12 months of government's response. However, 5% indicated that they never would adopt these measures. 40% are satisfied with the contribution these measures are making to the hotel's profitability.

Effluent and Emissions

Soakaway/septic and the public sewer system are the two major methods of wastewater disposal for 30% of hotels in the Bahamas. 20% have their own treatment plant and10% utilize that of another hotel. As before hotels are calling for greater involvement or contribution from government by way of policy/incentives. As an example, 95% of hotels see the need for policy/incentive for environmentally friendly products and machinery/equipment. Interestingly, 75% of hotels are satisfied with it contribution to profitability.

Other

When questioned about formal recognition for environmental efforts a mere 10% indicated that they were the recipients of any such award. However, 75% did share an interest in becoming involved in a green certification programme.

St. Lucia

General Information

83% of the hotel population surveyed is located on the beach. 43% have between 201 and 400 rooms while the other 57% have between 51-200 rooms. A large number (71%) are foreign owned with 57% belonging to a Caribbean hotel chain and 29% belonging to an international hotel chain. Half the hotels are located on over 60 acres while the other half are situated on an area between 10 and 30 acres. 14% employed over 600 employees and 57% hire between 101 and 400 employees. The major cost cutting exercise is via temporary staff (57%) and shorter workweek (43%).

Energy

71% of the hotels monitor energy use and implement energy saving measures. When asked with 57% indicating use of solar as an alternative source of energy. Those who did not, cited management (14%) and not needed (14%) as their reasons. However, all hotels (100%) agreed that policy is required for solar/alternative energy and energy efficient lighting, equipment, machinery and appliances. As for policy, 57%-100% of hotels are willing to implement these policies within 1-12 months of formulation. To date only 43% are satisfied with its contribution to profitability.

Water

All hotels (100%) utilize the government supply as the major source of potable water and with 71% also drawing on bottled water supply. 100% of the hotels monitor water usage and implement water saving measures. However, a mere 14% have policy in place for low-flush toilets, 39% for rainwater storage and 0% for sprinklers. As for government policy for new/expanding and existing hotels this is believed to be non-existent (67%). There seems to be a greater response to policy on rainwater storage and shower flow restrictions as 50% and 57% respectively agreed to implement this within 1-12 months of formulation. However, they are also slower to react to the other measures. 14%-29%

admitted to having already put in place low flush toilets, shower-flow restrictions and water recycling technologies. Water saving is impacting positively to profitability as 83% of the hotels are satisfied with its contribution.

Solid Waste

50% of hotels monitor both the quantity and type of solid waste generated by their hotels but only a small 14% implement measures for its reduction. Hotels believe (43%-71%) that not enough is being done on collection, safe disposal and recycling of hazardous waste and the recycling of bottles and cardboard/paper. 86%-100% of the hotels requires policy/incentives for this and other reduce, reuse and recycle measures. As for policy on new/expanding and existing hotels no hotel is satisfied. Even though 14%-29% admit to already having put in place systems for composting organic waste, bulk dispensers for toiletries and cleaners and separation recycling facilities over 67% are willing to do so within 1-12 months of policy formulation. Thus far, only 20% satisfied with its contribution to profitability of the hotel.

Effluent and Emissions

A majority of hotels, 57%, dispose of wastewater via its own treatment plant and public sewer system (29%). Policy/incentives are not necessarily required since only 14% see it useful for environmentally friendly products and 17% for environmentally friendly pumps and sprays. 34% are satisfied with policy on the use of environmentally friendly products while 57% are willing to implement this within 1-12 months of policy formulation, interestingly, 43% admitted to already use environmentally friendly cleaning products and detergent. A mere 33% enjoys contribution to the hotel's profitability.

Other

17% of the hotels surveyed have received awards for environmental efforts, and 71% are interested in a green certification programme.

All Hotels

General Information

From table x we see that 73% of the hotels surveyed are located on the beach. 60% have between 101 and 400 rooms. The hotels tend to be mostly locally owned (56%), single/independent properties (56%) and only 6% are local/foreign ventures. This could explain why 56% of the hotels are situated on less than 11 acres of land. Also, a minimal 12% of hotels employ over 400 workers with 38% hiring less than 101 workers. The most popular methods employed for cutting costs are the use of temporary staff and pay cuts, 38% each.

Energy

Energy use seems to be monitored heavily by approximately 88%. Of the hotels surveyed, 81% have implemented energy saving measures. Of this 56% use solar as an alternative source of energy. For the hotels that do not, 6% sited management and investment costs as the reason. Another 6% did not see the necessity. Al hotels agree that policy is required for solar/energy and energy efficient lighting, equipment, machinery and appliances. When questioned about the policy for new/expanding and existing hotels with respect to this matter, no more than 14% were satisfied. However, 14% have already put in place systems for solar energy and energy lighting and 50%-100% agreed to have energy saving devices put in place within 1-12 months of policy formulation while 46% are satisfied with its contribution to the hotel's profitability.

Water

1005 of the hotels utilize the government supply as the main source of potable water. 93% monitor the hotel's water usage but 75% have put in place water saving practices. For the hotels that do not, the main reason sited for this was investment costs. Even though there is a general agreement that policy/incentives in existing and new/expanding hotels is lacking, none saw the need for policy on water-saving device. Additionally, while 7%-33% stated that they have already implemented these measures, at most 57% agreed to do so within 1-12 months of policy implementation. However, 69% agreed that they are satisfied with its contribution to the hotel's profitability.

Effluent and Emissions

Wastewater is disposed of via its own treatment plant and soakaway/septic tank by 38% of hotels. Hotels do not agree that the government has put in place adequate policy measures to deal with the use of environmentally friendly products yet hotels do not see a necessity for it. However, 69%-75% of the hotels is willing to implement these measures within 1-12 months of policy formulation on it. Responsible for this could be the general dissatisfaction be 80% of hotels with its contribution to profitability.

Other

On average, 36% of the hotels have received awards for environmental efforts but 64% are interested in a 'green' certification programme.

Tobago

General

The largest proportion of hotels surveyed (27%) had between 101 and 200 rooms. This is closely followed by those between 21 to 50 rooms. No hotels have between 20 and 30 rooms. Hotels are largely locally owned (67%), single, independent properties (83%). Considering that the hotels are not generally large it is not surprising that 67% are located on less than 30 acres of land. Hotels in Tobago tend to employ less than 50 employees. The most popular methods of cutting costs opted for by the hotels is via temporary staff, done by 50% of hotels.

Energy

On the question of monitoring energy in the respective hotels 67% responded in the affirmative. Interestingly, 80% have already implemented energy saving measures with 50% adopting the use of solar energy. For those hotels that do not investment cost is the number one reason cited. It was agreed by all hotels that policy is required for energy saving methodologies such as solar and energy efficient lighting, machinery and appliances, as it was felt by the majority (83%) that not enough is being cone by the government by way of policy/incentives for new/expanding and existing hotels. Hotels are willing to do their part in that 80%-100% of hotels indicated that they will implement such measures within the first two years if government were to provide the incentive. In

fact, 100% of the hotels agreed to convert to energy efficient lighting within the first year, given government's co-operation. Already up to 59% are enjoying contributions to profitability. This has potential to increase.

Water

The government supply is the main source of potable water for all hotels in Tobago, with 67% also complementing this with bottled water. Though 80% claim to monitor the water usage of the respective hotels, 50% have adopted water-saving methodologies. Again, investment cost is the most popular reason given for those who do not. As with energy, all hotels agree that policy is required for this such as low flush toilets, sprinklers and rainwater storage tanks. It is the belief of 83% of the hotels that government is not playing an active a role as they would like in terms of providing incentives and formulating policy for new/expanding and existing hotels. A large number of hotels, up to 83%, are willing to implement these measures within 2 years given the appropriate incentives from government. Already 17%-20% have adopted these measures such as rainwater storage, low flush toilets and sprinklers with sensors. Thus far 20% are relatively happy these measures are contributing to profitability.

Solid Waste

When asked whether hotels monitor the quantity of solid waste they generate 83% claim that they do. A further 67% stated that they also monitor the type though only 17% have implemented measures for its reduction. Generally, hotels are not satisfied that systems are in place for the safe collection and disposal of hazardous waste and recycling of glass bottles, paper and cardboard. All hotels agree that government needs to provide policy/incentive for recycling, composting of organic waste, bulk dispensers and other RRR measures for both new/expanding and existing hotels. Given government's co-operation up to 83% of hotels are willing to implement some of these measures within the first year. To date 67% of hotels are quite satisfied the contributions these measures are making towards the hotel's profit.

Effluent & Emissions

The majority of hotels or 67% use Soakaway/septic tanks. 33% make use of their own treatment plant. As with the others, a large number of hotels, up to 100% in some instances have agreed that policy/incentives are required by the government for the use of environmentally friendly products, equipment and machinery. Given government's contribution by way of policy/incentive over 67% agreed to implement the relevant measures within 2 years. In fact 80% stated that within one year they would convert to environmentally friendly products. No hotel is reaping benefits from such measures.

Other Issues

At the time of the survey 80% of the hotels in Tobago have already received some form of award for environmental effort. 67% have indicated that they are interested in a green certification programme.

Results Of Survey Of Tourists In St. Lucia And Tobago

General

46% of the survey population had a tertiary education of which 41% were male and 46% female. 35% had postgraduate education with the majority, 43% being male and 31% female. The most popular income class of both sex is the $30,000-$70,000 group. This holds for the individual sexes as well. 45% of tourists contribute to environmental activity of this 47% of male and 44% female.

Reasons for Visit

Souvenir shopping (63%), boat trips (50%) and water sport (52%) were the most popular reasons for visitation. This holds for both sexes as well with the addition of nature walks/hikes. Male favor souvenir shopping, water sport and boat trips and nature walk. Females on the other hand prefer in order of appearance souvenir shopping (66%), boat trips (52%), nature hikes (51%) and water sport.

Criteria for Choice of destination

In choosing a destination the climate/beach was the most important to both male (70%) and female (62%). Access to beaches and swimming were almost as important (59%). A pristine environment was next in order with 32% of tourists including this as a determining criterion, 31% male and 32% female. The least important to both sexes was sport/games.

Environmental Awareness

Only 22% of the survey population had heard of programmes for green certification of hotels: 26% male and 21% females. After explaining what it involved, 88% agreed that it is important with a relatively even distribution between the two sexes and 60% stated that, in future, they would require information on environmental practices from travel agents and others. More females (68%) than males (58%) said they would request a green hotel for their next vacation.

Willingness to Pay

Of the population willing to pay additional costs for a green accommodation, 19% were willing to pay an extra $5. 15% and 16% of females are willing to additional $10-$15. 15% of males are willing go as much as $30 extra. However, 9% of males are willing to pay an additional $100 compared to 2% females.

Tourist survey by Income

General

A greater number of males, 59% fall within the $40,000-$49,000 income bracket while the majority falls within the $30,000-$39,000 income bracket. For the highest income brackets (over $50,000) it is even (50%) between both sexes. Of the various age brackets the 20-29 and 30-39 age bracket have 50% of the tourists falling within the $50,000-$64,000 income bracket. It is within this same category that 100% of the tourists contribute to environmental activity. This is followed by 64% of the over $64,000 income earners.

Reasons for Visit

Climate beach is the most important deciding criterion for choosing destination for all income groups. This is followed by beach/water and accessibility. Sports/games seem to be the least considered criterion. Water sport is a popular activity during vacation, particularly for the $30,000-$39,000 income bracket. Boat trips and souvenir shopping are popular among all income categories alike, except for the $50,000-$59,000 income group. Golf and nature hikes/walks are important for this latter category, (50%). Community events seem to be the least important for all groups, and even more so for the higher income groups: $50,0000-$64,000 – 0% and over $64,000 – 7%.

Environmental Awareness

50% of tourists in the $50,000-$64,000 income group have heard of certification. This is followed by the $30,000-$39,000 group with 36%. Over 80% of all tourists however,

agree that it is important. The two highest income groups were the most responsive to making this a factor in choosing future accommodations.

Willingness to Pay

29% of the tourists in the over $64,000 income group are willing to pay an additional $100 pr night for green accommodation. 67% if the second highest income group are willing to pay only an additional $1 while 25%-27% of the next two highest income groups are willing to pay an additional $1-$5 per night.

Tourist Survey by Education

General

. 51% of those with tertiary education earn between $30,000-$39,000. For this same income group 39% are postgraduates. Those who earn over $150,000 either have tertiary or postgraduate educational backgrounds. 66% of postgraduates contribute to environmental activity.

Reasons for Visit

60% of postgraduates engage in water sports while 66% of tourists with tertiary education prefer souvenir shopping. Those with secondary education (59%) engage in nature walks/hikes. The most popular activity for those with vocational training is boat trips (64%) and those with no tertiary education prefer water sports.

Criteria for Choice of destination

Climate/beach, water and pristine environment are the most important criteria for deciding on a destination for postgraduates and those with tertiary education. In fact, climate/beaches is important in evaluating destinations for all categories. Contacts with locals and environmentally friendly accommodation are also important for those with vocational training while heritage/culture is important for those with no formal education.

Environmental Awareness

All categories, except those with vocational training, largely believe that certification is important .73% of postgraduates request environmental related information from travel agents, tour guides etc. However, those most committed to using this as a criterion for future accommodation belonged to the extremes of the educational spectrum, that is the postgraduate and none tertiary education categories.

Willingness to Pay

$5 is the mot popular choice of additional payment for a 'green' accommodation chosen by tertiary and postgraduate categories. 20% of those with secondary and vocational training are willing to pay $15 and $20, as compared to 33% of those with n formal education for the same price range.

Barbados Survey[32]

An exit survey of visitors to Barbados was performed at the Grantley Adams International Airport for one week. This survey was used to gain market information to derive the benefits that may accrue to a hotel that adopts environmentally sensitive practices. The majority of visitors during the survey period came to Barbados from the UK, USA and Canada. 68% of respondents were well educated, with 28% having a college education and 40% having post-graduate education. A total of 14% of the respondents had been educated up to secondary level or had vocational education.

Although visitors to the island may have come primarily because of the beaches they also have a strong interest in experiencing the nature related activities and places of interest on the island. The most popular activities were water sports in which 29% participated, boat trips (26%), nature walks/hikes (23%) and community events (20%).

Although only 13% had heard of environmental certification of hotels, an overwhelming 82% of respondents thought it was important for hotels to be certified.

[32] Survey by Susanne Shillingford- Brooks as a component of her research project for a graduate degree on natural resource management at UWI. Cave Hill

About one-third (30%) of the visitors contribute in some way to environmental activities in their home countries . These contributions range from recycling to financial contributions and/or membership of environmental organizations.

When asked how they felt about the degradation or destruction of the natural and cultural environment, 56% of respondents said that they were concerned and 16% said they were angry/upset about the degradation/destruction of the natural environment. On the degradation of the cultural environment, 56% of respondents were concerned and 10% were angry/upset. The majority of the respondents considered a pristine environment to be important in their choice of destination. 15% said it was very important, 18% thought it was important and 15% said it was somewhat important, while 9% thought a pristine environment was not important and 10% thought it was not so important. A third of respondents (33%), however, did not answer this question.

An expected large percentage (53%) of visitors viewed the climate/beaches as a very important factor in making the decision to visit Barbados. A further 10% thought the climate/beaches were important or somewhat important, making this factor the single most highly rated reason for coming to Barbados. The climate/beaches was rated not important or not so important by 23% of visitors, indicating that a large number of people come to Barbados for reasons other than the climate or beaches. This question was left unanswered by 14% of respondents. The other factors, which were rated highly as either important or very important by visitors in making a decision to visit Barbados or any region, were heritage/culture (30%), nature related attractions (39%). When asked about the importance of contact with locals, 31% of visitors felt that this was either important or very important, 17% thought it was somewhat important and 22% thought it was either not important or not so important. No response was received from 30% of visitors.

Environmentally friendly accommodation was thought to be an important or very important factor in coming to Barbados by 28% of visitors. Although a definition of "environmentally friendly" was not given, visitors placed value to the surrounding environment of their accommodation. This was further illustrated in the comments when

asked what they liked or disliked about Barbados. Many visitors commented on the quantity of garbage on the beaches and streets as something they disliked about the island.

When asked what factors they consider when deciding generally on a vacation destination, visitors surveyed rated, Nature Related Attractions and People/Culture highly along with the expected Beaches/Water factor. Nature Related Attractions were rated important or very important by 39% of respondents and People/Culture was rated important or very important by 47% of respondents. Cultural/Sports Activities received ratings of important or very important from a lower 28% of respondents but still represents a significant number of visitors

A very high percentage of visitors (59%) said that they would be willing to use certification of hotels as a criterion for choosing accommodation in the future. This implies that if certification was marketed, visitors would welcome a way to short-list properties to choose from. Given that the tour operators have invested in developing criteria for environmental certification of properties and destinations, it seems to be only a matter of time before these operators start marketing their certification programs aggressively. By doing so the operators will protect themselves from any legal liability and will ensure that their clients enjoy as pristine an environment as possible.

Visitors also expressed a strong interest in receiving information on the environmental practices of their prospective hotels. 46% said that they would like to receive information while only 11% did not respond. This strong willingness to receive information shows that once the data is available it will be used by visitors to make their choices. Furthermore, when asked if they would require their travel agent to locate a "green" hotel for their next vacation, almost half (47%) of the visitors said they would. A response was not received from 13% of the visitors surveyed. The results of the survey indicate that a high percentage of visitors would gladly welcome a means of distinguishing between a "green" and a non-green hotel and would be willing to proactively seek a green hotel if information was accessible or provided to them. Environmental sensitivity could become

a key criterion as visitors make decisions on where to spend their vacation dollars among the myriad of locations and hotels from which they can choose.

A large majority (74%) of visitors said they would choose a "green" hotel over another hotel with similar amenities, characteristics and price indicating a strong preference for "green" accommodation. Only 12% of visitors did not respond to this question.

When visitors were asked if they were willing to pay more for a "green" hotel, 29% said they would and 59% said they would not. No response was received by 12% of those surveyed. This relatively large number of people who say they are willing to pay more for green accommodation re-emphasizes the point that this is an important issue to many visitors. When this group was asked how much more they were willing to pay for a "green" hotel, responses ranged from US$1 to US$100 per night. The amount with the highest frequency was US$10 which 20%, of those who responded, were willing to pay. Most visitors who responded (80%) were willing to pay less than or equal to US$30 with the average willingness to pay being US$23.71. Responses were not received from 74% of those surveyed.

Summary

A large number of visitors are sensitized to environmental issues and actively participate in conservation efforts in their countries. Most of these visitors are concerned about the degradation of the natural and cultural environment and many feel angry or upset by this deterioration. They overwhelmingly agree that certification of hotels is important.

The majority of visitors who traveled to Barbados from the UK and Europe did so through a package. Tour operators therefore have a significant impact on a destination's success. European tour companies are now subject to new laws, which make them liable for incidents, which occurred during their client's vacations and are actively seeking to certify properties themselves or to use properties which have given by organizations like the International Hotel Environmental Initiative (IHEI), TUI, British Airways or Green Globe. Indications are that an environmentally certified hotel, which marketed itself as a "green" hotel, would enjoy significant favour with the markets in the US, UK, Canada, Europe and Caribbean. Furthermore, visitors have a strong preference for green accommodation and many are willing to pay more for it. If hoteliers can identify and

market to the environmentally sensitive, there are a significant number of people who would pay more for their rooms. These revenues could be applied to any increased capital costs which "green" design or retrofit may entail and also for ongoing environmental projects.

The profile of tourist visit to Barbados is assumed to be reflective- within a margin of error- to those visiting other Caribbean destinations. As a result, the conclusion drawn is that there is an existing and growing demand for greening of hotels, which owners and tourism policy-makers ignore at the peril of the region.

UWI-SEDU/IDB SURVEY ON THE VIEWS OF THE ACCOMMODATION SECTOR ON ENVIRONMENTAL POLICIES AND INCENTIVES

This survey forms part of an IDB/UWI Caribbean study on Environmental Issues Insertion in Tourism Sector Policies. The aim is to obtain the input of hoteliers on the applicability of existing tourism environmental policies and incentives for the hotel sector. All information is confidential.

A. GENERAL INFORMATION

1. **Hotel Name**
2. **Address**
3. **Telephone/Fax**
4. **email**

2. Beach Location:
1[ ] Beach Front Property 2[ ] Non-Beach Front Property

3. Number of Rooms: _____

4. Investment Description:
1[ ] Locally Owned 2[ ] Foreign Investment 3[ ] Local/Foreign Joint Venture

5. Hotel Chain Affiliation: This hotel forms part of (Tick the most appropriate description):
1[ ] An International Hotel Chain 3[ ] A Local Hotel Chain
2[ ] A Caribbean Hotel Chain 4[ ] A Single/Independent Hotel Property

6. How much land does this hotel property occupy? _____

7. Employees:
a. Total number employed_____

8. Since September 11 2001 this hotel took the following measures to cut cost: (Tick those that apply and X all others: 1[ ] Temporary Staff Lay Offs 2[ ] Permanent Staff Lay Offs 3[ ] Shorter Work Week for Staff
4[ ] Pay Cuts 5[ ] Other-
Describe:_____

B. ENERGY

1. Does this hotel monitor energy use? 1[ ] Yes 0[ ] No

2. Does this hotel currently implement any energy saving measures? 1[ ] Yes 0[ ] No
If "Yes" identify 2 key
measures:_____

3. Is Solar Energy used to assist in power production at this hotel?
0[ ] No 1[ ] Yes **(Go to Question 5)**

4. If "No" to Question 3, what are the reasons? (Tick those that apply and X those that do not)
1[ ] Management not interested 3[ ] Not needed at this hotel
2[ ] Investment Cost 4[ ]
Other:_____

5. Should government have an official policy or incentive that encourages use of the following Energy Saving Technologies by the hotel sector?

a. Solar Energy/Alternative Energy Sources 1[ ] Yes 0[ ] No 0[ ] Not Really

b. Energy Efficient Lighting Fixtures & Bulbs 1[ ] Yes 0[ ] No 0[ ] Not Really

c. Energy Efficient Equipment, Machinery, Appliances 1[ ] Yes 0[ ] No 0[ ] Not Really

d. Other Energy Efficient Technology 1[ ] Yes 0[ ] No 0[ ] Not Really

Indicate "d":_____

6. How would you rate existing government policy and incentive for the use of Energy Saving Technologies by the hotel sector? (Rate on a scale of 1 to 5 where 5 is the best rating that could be given. Circle 0 if there is an absence of policy or incentive.)

a. For New or Expanding Hotel Projects: 0 1 2 3 4 5

b. For Existing Hotels: 0 1 2 3 4 5

7. If government were to provide specific incentives for the following, when would you react?

	Already Fully In Place	**1 – 12 Mths.**	**1 – 2 Yrs.**	**3 – 5 Yrs.**	**Never**
a. Solar Energy/Alternative Energy Sources	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
b. Energy Efficient Lighting Fixtures & Bulbs	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
c. Energy Efficient Equipment, Machinery, Appliances	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
d. Other Energy Efficient Technology:	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]

Indicate "d":_____

8. Specify the types of policies and incentives you would like government to provide in this area.

_____

9. To what extent is energy efficiency a contributing factor to achieving your hotel's profitability? (Rate on a scale from 1 to 5 where 5 indicates a high extent): 1 2 3 4 5

C. WATER

1. Tick all source(s) of potable water used at your hotel?

1[ ] Own Well 2[ ] Rainwater 3[ ] Bottled Water 4[ ] Government Supply 5[ ] Other: state_____

2. Is water usage monitored? 0[…] No 1[ ] Yes

3. Does this hotel make use of any water saving measures? 1[ ] Yes 0[ ] No

If "Yes" identify 2 key measures:_____

4. If "No" to Question 3, which of the following have contributed to this:
1[ ] Not a necessity for this hotel 2[ ] Investment Cost
3[ ]
Other:_____
_

5. Should government have an official policy or incentive that encourages use of the following Water Saving Technologies by the hotel sector?

a. Low Flush Toilets	1[ ] Yes	0[ ] No	0[ ] Not Really
b. Sprinkler Timers	1[ ] Yes	0[ ] No	0[ ] Not Really
c. Rain Water Storage Tanks & Water Pumps	1[ ] Yes	0[ ] No	0[ ] Not Really
d. Other Water Saving Equipment/Machinery	1[ ] Yes	0[ ] No	0[ ] Not Really

Indicate "d":_____

6. How would you rate existing government policies and incentives for the use of Water Saving Technologies by the hotel sector? (Rate on a scale of 1 to 5 where 5 is the best rating that could be given. Circle 0 if no policy or incentive exists.)

a. For New or Expanding Hotel Projects:	0	1	2	3	4	5
b. For Existing Hotels:	0	1	2	3	4	5

7. If government were to provide specific incentives for the following, when would you react?

	1 – 12 Mths.	**1 – 2 Yrs.**	**3 – 5 Yrs.**	**Already In Place**	**Fully Never**
a. Low Flush Toilets/ Composting Toilets	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
b. Faucet Sensors/Timers	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
c. Shower/Flow Restrictors	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
d. Sprinkler Timers	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
e. Rain Water Storage Tanks & Water Pumps	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
f. Water Recycling Technology	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
g. Other Water Efficient Technology	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]

Elaborate on"g":_____
_

8. Specify the types of policies and incentives you would like government to provide in this area.

_____

9. To what extent is water use efficiency a contributing factor to achieving your hotel's profitability? (Rate on a scale from 1 to 5 where 5 indicates a high extent): 1 2 3 4 5

D. SOLID WASTE

1. Do you monitor the following:

a. The quantity of solid waste generated by your hotel? 1[ ] Yes 0[ ]No **(Go to Question 3)**

b. The type of solid waste generated by your hotel? 1[ ] Yes 0[ ]No **(Go to Question 3)**

2. If "Yes" to Question 1 a. or 1b. why is this done?_____

3. Are there measures in place for the reduction of solid waste at this hotel? 1[ ] Yes 0[ ]No

If "Yes" identify 2 key measures:_____

4. Rate the ability of facilities in the country to undertake the following generated by the hotel sector. (Rate on a scale of 1 to 5 where 5 is the best rating. Circle 0 if NO facility exists):

a. Collection & Safe Disposal of Hazardous Wastes 0 1 2 3 4 5

e.g. Batteries, Paint Cans, Pesticide Containers etc.

b. Recycling of Hazardous Wastes 0 1 2 3 4 5

c. Recycling of Glass Bottles 0 1 2 3 4 5

d. Recycling of Cardboard, Paper, Brochures etc. 0 1 2 3 4 5

5. Should government have an official policy or incentive that encourages the following by the hotels?

a. Recycling 1[ ] Yes 0[ ] No 0[ ] Not Really

b. Composting of Organic Waste 1[ ] Yes 0[ ] No 0[ ] Not Really

c. Use of Bulk Dispensers 1[ ] Yes 0[ ] No 0[ ] Not Really

d. Other Solid Waste Reduction/Reuse/Recycling Measure 1[ ] Yes 0[ ] No 0[ ] Not Really

Indicate "d":_____

6. How would you rate existing government policies and incentives for the reduction, reuse and recycling of solid wastes by hotels? (Rate on a scale of 1 to 5 where 5 is the best rating that could be given. Circle 0 if no policy or incentive exists.)

a. For New or Expanding Hotel Projects: 0 1 2 3 4 5

b. For Existing Hotels: 0 1 2 3 4 5

7. If government were to provide specific incentives for the following, when would you react?

	1 – 12 Mths.	**1 – 2 Yrs.**	**3 – 5 Yrs.**	**Already Fully In Place**	**Never**
a. Separate Solid Waste for Collection to Recycle	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
b. Compost Organic Waste	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
c. Use Bulk Dispensers for Detergent & Cleaners	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
d. Use Bulk Dispensers for Toiletry	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
e. Use more Reusable Items in F&B	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
f. Other Solid Waste RRR Practices	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]

Indicate Other

(h):_____

8. Specify the types of policies or incentives you would like government to have in this area.

_____

9. To what extent is Solid Waste Reduction, Reuse & Recycling, a contributing factor to achieving your hotel's profitability? (Rate on a scale from 1 to 5 where 5 indicates a high extent): 1 2 3 4 5

E. EFFLUENTS & EMISSIONS

1. Wastewater generated in this hotel is:

a[ ] Disposed to the public sewer system
b[ ] Discharged to the sea/land
c[ ] Connected to a soakaway/septic tank
d[ ] Connected to a treatment plant owned by your hotel
e[ ] Connected to a treatment plant not owned by your hotel
f[ ] Other: specify_____

2. Should government have an official policy or incentive that encourages the following by hotels?

a. Use of Environment Friendly Products 1[ ] Yes 0[ ] No 0[ ] Not Really
b. Use of Pump Sprays as opposed to Aerosol Cans 1[ ] Yes 0[ ] No 0[ ] Not Really
c. Use of Environment Friendly Equipment/Machinery 1[ ] Yes 0[ ] No 0[ ] Not Really
d. Use of Non-CFC based Refrigerants 1[ ] Yes 0[ ] No 0[ ] Not Really
e. Other Environmental Friendly Products/Equipment etc. 1[ ] Yes 0[ ] No 0[ ] Not Really

Indicate Other (e):_____

3. Rate government policies and incentives for the use of Environment Friendly Products and Equipment by the hotel sector. (Rate on a scale of 1 to 5 where 5 is the best rating. Circle 0 if no specific policy or incentive exists). 0 1 2 3 4 5

4. If government were to provide specific incentives for the following, when would you react?

	1 – 12 Mths.	**1 – 2 Yrs.**	**3 – 5 Yrs.**	**Already Fully In Place**	**Never**
a. Use Environment Friendly Cleaning Products	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
b. Use of Environment Friendly Detergents	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
b. Use Environment Friendly Equipment	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
c. Purchase Recyclable Paper & Other Products	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]
d. Other Environment Friendly Practices	1[ ]	2[ ]	3[ ]	4[ ]	5[ ]

Indicate "d":_____

5. Specify the types of incentives you would like government to provide in this area.

_____

6. To what extent is the use of Environment Friendly Products and Equipment a contributing factor to achieving your hotel's profitability? (Rate on a scale from 1 to 5 where 5 indicates a high extent):

1 2 3 4 5

F. OTHER

1. Has this hotel ever received any type of recognition or award for environmental efforts?

1[ ] Yes 2[ ] No 3[ ] Not Applicable

If "Yes" identify type and who gave it:_____

2. If government were to provide specific incentives for hotels to participate in a green certification programme, e.g. GREEN GLOBE, CHA/CAST etc., would this hotel participate?

1[ ] Yes 2[ ] No 3[ ] Already in such a programme

THANK YOU FOR YOUR KIND PARTICIPATION

UWI-SEDU/IDB STUDY ON ENVIRONMENTAL MANAGEMENT INSERTIONS IN TOURISM SECTOR POLICIES

Tourist Survey Questionnaire

1.Date of Interview __/__/__ Interviewer _____
Country _____

Interviewee Background Information

2.Sex: Male ? Female ?

3.Country of Residence: Country _____
State/Province _____

4.Age group:

a. Under 20 yrs ?
b.20 – 29 yrs ?
c.30 – 39 yrs ?
d. 40 – 49 yrs ?
e. 50 – 64 yrs ?
g. Over 64 yrs ?

5.Level of completed schooling:

a. No Formal Education ?
b. Primary (Grade 1 – 7) ?
c. Vocational ?
d. Secondary (Grade 8 – 13) ?
e. Tertiary/College ?
f. Post Graduate ?

6.Average annual household income in US$:

a. Under US$30,000 ?
b. US$30,000 – 70,000 ?
c. US$70,000 – 110,000 ?
d. US$110,000 – 150,000 ?
e. US$150,000 – 200,000 ?
f. Over US$200,000 ?

7.Do you contribute in any way (i.e. financially or otherwise) to environmental activities or concerns in your country of residence?

1 ?Yes 2 ?No
If yes, please specify _____
_____

==========

Visitation Activities

8.Which of the following activities did you engage in during your visit to……(name island) ?

a.Scuba Diving 1 ?Yes 2 ?No b.Fishing 1 ?Yes 2 ?No
c.Water Sports 1 ?Yes 2 ?No d.Boat Trips 1 ?Yes 2 ?No
e..Souvenirs Shopping 1 ?Yes 2 ?No f.Golf 1 ?Yes 2 ?No
g.Community Events 1 ?Yes 2 ?No h.Nature Walks/Hikes 1 ?Yes 2 ?No
i.Other (Please specify)_____
_____

==========

Destination Planning

Rank Questions 9 and 10 as follows:

Very Important	5
Important	4
Somewhat Important	3
Not so Important	2
Not Important	1

9.How important were the following factors in making your decision to visit …(name island) ?

a. Climate/Beaches ___
b. Heritage/Culture ___
c. Pristine Environment ___
d. Sports/Games ___
e. Contact with Locals ___
f. Environmentally Friendly Accommodation ___
g. Accessibility ___
h. Other (please specify and rank)_____
_____

10.When you decide on a vacation how important are the following factors?

a. Nature Related Attractions ___
b. Beaches/Water ___
c. Cultural/Sporting Activities ___
d. People/Culture ___
e. Other (please specify and rank) _____
_____

==========

Environment Awareness

11.Have you heard of the Environmental Certification of hotels under the Green Globe or other similar programs?

a. Green Globe 1 ?Yes 2 ?No
b. Other (Please specify)_____
_____

12.Do you think it is important for hotels to be environmentally certified under the Green Globe or similar programs?

1 ?Yes 2 ?No

13.Being familiar with, or having now heard of Environmental Certification, would you use it as a criterion in the future for choosing accommodation?

1 ?Yes 2 ?No

14.Would you like to receive information on the environmental practices of your hotel from your travel agent/tour operator?

1 ?Yes 2 ?No

15.Would you ask your Travel Agent/Tour Operator to locate a "Green Hotel" in the destination you choose for your next vacation?

1 ?Yes 2 ?No

16.Would you choose a "Green Hotel" over another property if the quality of amenities, characteristics and price were similar?

1 ?Yes 2 ?No

==========

Willingness to Pay

17.Are you willing to pay more for a "Green Hotel" than another with similar amenities and characteristics?

1 ?Yes 2 ?No

18.If Yes, How much **more** would you be willing to pay per night in US$?

1. US$1 ?	2. US$5 ?	3 .US$10 ?
4. US$15 ?	5. US$20 ?	6. US$25 ?
7. US$30 ?	8. US$35 ?	9. US$40 ?
10.US$45 ?	11.US$50 ?	12.US$55 ?
13.US$60 ?	14.US$65 ?	15.US$70 ?
16.US$75 ?	17.US$80 ?	18.US$85 ?
19.US$90 ?	20.US$95 ?	21.US$100?

Thank you for your cooperation