

Managing Sustainable Tourism in the Small Island Caribbean*

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Abstract

Recent research suggests the practice of mass tourism in small Caribbean islands has sacrificed environmental stability for rapid growth and prompted a call for more sustainable alternatives. This paper reviews three types of small-island planning problems: (1) general limitations -- trade dependence and export concentration, declining aid and currency volatility, internal factionalism and policy impotence; (2)

special natural resource management problems -- fragility, propensity for natural disasters, colonial history of invasive monoculture; and (3) the peculiar difficulties of controlling tourism -- mass scale, sun-lust coastal character, resort cycle dynamics, and measurement problems. By way of response, the paper develops and applies an early impact warning signal, the Tourism Penetration Index, to 30 Caribbean countries. Results allow policy makers to assess roughly where their destinations lie along the tourist-environment continuum. The paper also discusses the key planning challenges at each stage of the resort cycle and how they can best be addressed to improve sustainability. Key Words: Caribbean, islands, planning, tourism penetration index.

Introduction

Three forces have shaped the postwar history of the insular Caribbean: decolonization, economic modernization and the globalization of tourism. Since 1960 a dozen Caribbean countries have achieved political independence. They include: Antigua, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts/Nevis, St Lucia, St. Vincent, Suriname, and Trinidad/Tobago. On the other hand, 16 separate island microstates continue to exhibit a propensity for dependence. These include Aruba and the Dutch Antilles (Bonaire, Curacao, Saba, St. Eustatuis, St Maarten/St. Martin), six British Overseas Territories (Anguilla, Bermuda, British Virgins, Cayman Islands, Montserrat, Turks/Caicos), the two American Territories (Puerto Rico, U.S. Virgins) and the two French Overseas Departments (Guadeloupe and Martinique). Such dependent territories (DT's) define much of the small island Caribbean.

With the gradual dismantling of colonial preferences, both island groups have restructured their economies but along distinctly different paths. The larger, more resource-rich independent island nations have diversified the colonial base with some emphasis on manufacturing and import substitution, and tourism to a lesser extent. The smaller, more vulnerable dependent microstates have opted primarily for a strategy of export substitution, i.e. replacing traditional staples with mass tourism, related services and

construction. Both have benefitted from the buoyant growth of international tourism. Since 1950, the visitor industry has grown five percent a year into the largest global industry accounting for a quarter of all international trade in services, ten percent of world GDP and employment and over seven percent of capital expenditures (Vellas and Becherel, 1995).

The Setting

Tourism developed across the Caribbean in three waves. First, in the late 19th and early 20th century, a few steamship lines carried a small stream of wealthy North Americans to Bermuda, Jamaica and Cuba. The real take-off took place, however, during the 1950's and 1960's with the fortuitous confluence of a favorable set of factors that produced a threshold of sustained growth. These included the advent of jet travel, the U.S. embargo of Cuba, rising affluence in North America and Europe, aid-financed air and sea transport infrastructure, and the expansion of foreign hotel investment lured by tax incentives. Within two decades, the Bahamas, Puerto Rico and Virgin Islands in the north, and Aruba and Barbados in the south became established popular international resort destinations. After the 1973-1975 OPEC crisis, growth resumed including expanded cruise traffic and engulfed the rest of the Lesser Antilles as well as the Cayman Islands and Turks/Caicos (Wilkinson, 1997).

As a result, within the space of a generation, the landscapes, coastlines, economies and social structures of the small-island Caribbean have been transformed. In these microstates with less than a million population, tourism represents a third of all foreign exchange, a fourth of employment and a fifth of GDP (Holder, 1988). According to Mather and Todd (1993, p.11): 'There is probably no other region in the world in which tourism as a source of income, employment, hard currency earnings and economic growth has greater importance than in the Caribbean.' This archipelago, along with the Mediterranean and the more developed Pacific destinations (Hawaii, Guam, Marianas, Polynesia), has become an integral part of the so-called 'Pleasure Periphery' of North America, Europe and Japan respectively (Turner and Ash, 1976).

The Problem

However, recent research suggests that the practice of mass tourism development in small islands has sacrificed environmental stability and disrupted the native genius of place and natural pace of island life (Briguglio *et al.*, 1996). Construction of condominium clusters and road networks on steep mountain

slopes has damaged upland forests and watersheds and silted over streams and wetlands. Resulting erosion has polluted lagoons and damaged reefs already weakened by sand mining, dredging and cruise ship and yacht anchoring (McElroy and de Albuquerque, 1998). The placement of large-scale beach resorts, marinas and infrastructure along delicate coastlines has altered shorelines and depleted endemic species and archeological artifacts. As a result, nearly 30 percent of the reefs across the Caribbean are at high risk because of runoff and untreated hotel and municipal sewage (UNEP, 1999a). The worst threats to endemic birds and fisheries appear to be in the Lesser Antilles, islands most dependent on mass tourism (UNEP, 1999b).

These tourism-induced intrusions have prompted calls for a more sustainable tourism in the region and stimulated the search for alternatives to mass tourism (Edwards, 1988; Smith and Eadington, 1992; Conlin and Baum, 1995; Pattullo, 1996; Briguglio *et al.* 1996; and Wilkinson, 1997). A variety of writers have attempted to define the key components of sustainability (Innskeep, 1994; and Stabler, 1997). To borrow loosely from this growing literature, a sustainable tourism style embraces two core elements. The first is a relatively permanent income stream sufficient: (1) to satisfy the profit criteria of travel interests, (2) to improve host quality of life, and (3) to manage and protect the insular bio-cultural assets. The second is a relatively permanent flow of satisfied visitors, the size and timing of which is largely controlled by the local community. In short, sustainability means satisfying the demands of tourism's four major stakeholders: hosts, guests, entrepreneurs, and future generations.

This paper focuses on the problems of satisfying these demands in the Caribbean context. It contains three major sections. The first outlines the general problems of planning in small island systems. The second reviews the special difficulties of natural resource management in fragile island terrestrial and marine ecosystems. It further examines the peculiar control and measurement constraints imposed by a pervasive and dynamic tourism industry. By way of response, the third section develops and applies an early tourism impact warning signal to 30 Caribbean countries to allow policy makers to gauge in broad brush where their destinations lie along the tourist-environment continuum. The paper concludes with some brief contours of a comprehensive, integrated planning approach to address the constraints outlined.

Planning Problems

Small island economies are characterized by resource scarcity, thin domestic markets and intense openness. Because the engine of growth is propelled by a small range of exports, island economic performance can be seriously disrupted by income and taste changes in major overseas markets as well as by actions of competitors. The conversion to artificial sweeteners in the US soft drink industry in the

1980's caused severe unemployment in some Caribbean sugar producers dependent on the North American market. Small islands also suffer from export market concentration and become hostages to policies of their major trading partners. NAFTA has caused a steady loss of textile manufacturing investment from the region to Mexico. The consolidation of the European Union is severely limiting preferential banana exports from Windward Island producers.

Local "room to maneuver" is further constrained by heavy dependence on basic and intermediate imports (liquor, luxury gifts). Because they are often at the end of the shipping chain and suffer expensive break-bulk charges, islands experience magnified oil-price and transport shocks. All essential imports carry a high freight premium. As a result, sometimes the cost of living and the destination's competitiveness are largely determined by external forces. Because islands usually tie their currencies to their major trading partners, the insular price level is vulnerable to the vagaries of metropolitan foreign exchange policy. The U.S. dollar's fall in the late 1970's sharply curtailed the profitability of some Caribbean textile and watch exporters dependent of European inputs (McElroy *et al.*, 1990). The dollar's rise in the early 1980's blunted plans by Caribbean destinations attempting to attract long-staying Europeans.

To exacerbate matters, policy makers have few effective stabilization defenses against these external trade and exchange shocks. Keynesian fiscal and monetary policies are relatively inoperable. Compensatory fiscal stimulation to counteract export reversals is undermined by regressive tax codes/compliance, thin capital markets, the balanced budget mandate for dependent territories, and off-setting cutbacks by large-scale multinational hotels and enterprises. Even where deficit spending is implemented through external borrowing in the larger island nations (Guyana, Jamaica, Trinidad), the results are usually rising debt and trade imbalances and slower growth (Looney, 1989). Since the money supply in very open economies is largely determined by the trade balance, counter cyclical monetary policy is weakened. The supply of credit tends to rise during booms and fall during recessions. Moreover, in the post cold war era, traditional sources of aid have become uncertain. Since 1989 U.S. aid to the Caribbean has declined over 80 percent (McElroy, 2000), especially difficult for those DT's reliant on external funding to upgrade transport and communication infrastructure. Because of these policy constraints, small island economies are among the world's most vulnerable (Crowards and Coulter, 1998).

In addition to these external constraints, planning for sustainability is also hindered by several internal limitations. Many microstates are dualistic with a large technologically progressive export sector alongside a small-scale, fragmented domestic sector. Such imbalances promote monopoly and welfare

losses particularly in archipelagic states, weaken the formation of consistent national economic policy, and stimulate the migration of resources away from renewable uses. Rapid tourism growth, for example, has displaced much of traditional agriculture, fishing, and handicrafts across the small-island world (Beller *et al.*, 1990). Planning is also made difficult in emigrant-prone microstates by the human resource constraints of a small labor pool and limited expertise as well as by bureaucratic shortcomings. Tourism planning specifically is problematic because of overlapping jurisdictions (natural resource, wildlife and coastal zone management, cultural affairs, zoning legislation, tax incentives, etc.) in combination with the general lack of interagency coordination. Moreover, all these problems are intensified by the subjective personalism, kinship ties and multiple conflicts of interest that characterize small-island decision-making (Benedict, 1967).

Planning is also complicated by demographic and labor force shifts associated with the longer period boom-bust cycles common in island economies. Establishing infrastructure and social service needs with these parameters in transition is difficult, and the self-reinforcing dynamic of these fluctuations threatens sustainability. In stagnant emigrant islands, the decline in skills, saving, entrepreneurship, population growth and social participation reduce the ability to restructure, diversify and resume growth (McElroy and de Albuquerque, 1988). In booming immigrant islands the reverse is true. Rapid population and labor force growth and rising rates of family formation, housing and social service demands multiply resource use conflicts and reduce community capacity to achieve more moderate, sustainable development. These dynamics are further aggravated by the difficulty of gaining consensus in island societies plagued by racial cleavages since the colonial era and by center-periphery factionalism in archipelagic states.

Ecosystem and Tourism Challenges

The history of natural resource degradation and neglect, a propensity for natural disasters, and the fragility of interlocking terrestrial and marine ecosystems circumscribe environmental planning in small Caribbean islands. Since the 17th century, the region has experienced rapid deforestation, intrusive sugar culture, erosive agricultural practices and general resource neglect (Watts, 1973). The post emancipation era has been marked by over grazing of hillsides, habitat destruction and species loss, and depletion of near shore fisheries (McElroy *et al.*, 1990). Since the tourism take-off, hotel developments have defaced mountains, damaged watersheds, caused erosion and lagoon pollution. Beach resort construction has destroyed mangroves and shoreline vegetation and filled in salt ponds (Pattullo, 1996). In addition, the large number of pleasure yachts and cruise ships that ply the Caribbean directly inject waste into the sea because of inadequate port reception facilities (UNEP, 1999b).

This poor record of resource management is aggravated by periodic hurricanes, droughts and other natural disasters (Barker and McGregor, 1995). For example, a fungoid in 1938 destroyed the Bahamian sponge beds. Hurricanes in 1955 wiped out the nutmeg industry in Grenada. In 1979 storms destroyed most of Dominica's housing stock; in 1980 they ruined most agricultural production in St. Lucia. Volcanic activity in Guadeloupe (1976) and St. Vincent (1979) caused widespread temporary population evacuations. Eruptions in Montserrat beginning in 1995 rendered roughly half the island uninhabitable and virtually destroyed the North American retirement tourism industry established there in the 1960's. Such disasters involve costly infrastructure repair and slow recovery and divert resources away from strategic tourism planning.

Planning is also constrained by the fragility of island biota (high endemisms and sensitivity to introduced species, and low diversity) as well as by the delicate linkage between terrestrial and marine ecosystems. In volcanic islands, the natural operation of the fresh and salt water buffer systems stabilizes the ecology (OTA, 1987). In the former, upland forests and lowland marshes slow runoff and erosion and protect marine life and reefs. In the latter, reefs buffer coastlines against waves and storm surges and produce habitats and food. Such closely coupled relationships must be internalized in the siting and design of infrastructure and facilities to avoid degradation. Hillside resort and road construction accelerates runoff and erosion and can pollute lagoons and stunt coral growth. Reef blasting and dredging can erode beaches, destabilize coastlines and choke coral growth. These interdependencies limit planning options and suggest a more integrated comprehensive approach that respects the protective action of these stabilizing buffers.

Tourism itself presents a handful of major planning challenges. First, the mass-market character of island tourism in practice imposes a large-scale, consumption-biased international throughput economy on top of a tiny, delicate closed insular ecology. This almost guarantees that insular natural and social carrying capacities will be overrun over time (McElroy, 1975). This scale discrepancy is partly due to the high-volume profit imperatives of heavily capitalized airline, cruise ship, and hotel interests that create mounting waste and crowding from on-site visitation and the loss of traditional sustainable resource activities associated with rapid mass tourism growth. Small-island tourism exemplifies the scale discontinuity often emphasized in the writings of Herman Daly and Robert Costanza.

A second and related problem is the sun-lust nature of tropical tourism because of the large-scale and transformational character of resort enclaves and transport infrastructure concentrated along fragile, amenity-intensive shorelines (Cohen, 1978). In many cases siting such facilities has permanently altered the environment, damaged wildlife habitats, and displaced or disrupted other coastal activities

(agriculture, fishing, shipping, etc.). The most delicate island assets are under pressure from the highest concentration of visitors, activities, and facilities. In addition, large scale usually demands foreign ownership and links with transnational travel and tour suppliers who favor price discounting and extending the season (Baum and Hagen, 1999), strategies that tend to increase stress and reduce capacity for renewal.

A third problem is the peculiar high-growth political economy of many tourist-dependent microstates. Policy makers with short electoral time horizons are often preoccupied with increasing visitor volume and preserving market share instead of maximizing net expenditure. In the dependent overseas territories, belief in the untrammelled free market is bolstered by the package of incentives associated with political affiliation that are conducive to rapid mass tourism growth (McElroy and Mahoney, 2000). These include aid-financed transport infrastructure, ease of entry for metropolitan capital and entrepreneurship, and a host of concessions that facilitate the expansion of center-to-periphery tourist traffic: common currency and language, familiar customs and regulatory regimes, duty-free allowances and so on.

In addition to the above challenges, tourism demand is particularly volatile because of a variety of factors. First, international currency fluctuations can noticeably impact visitor flows since transport cost is the major expense of long-haul travel to the island periphery. Second, tourism demand is highly sensitive to recessionary episodes in the major origin markets. Third, visitor demand is also especially influenced by political and civil unrest and real or perceived threats to tourist safety. Finally, natural disasters can deflect visitor demand as well as reduce access and the supply of hotel capacity. These periods of instability breed uncertainty, focus decision-makers on the short-run scramble to regain markets, and deflect their attention from long-run considerations of sustainability.

Finally, tourism is a dynamic moving target, clearly the result of the scale discontinuity mentioned above. Destinations tend to pass through successive stages of increasing visitor density, scale, external control and bio-cultural damage until their appeal declines (Butler, 1980). As a result, specific planning challenges change as destinations move up the resort cycle. For emerging islands, establishing infrastructure to access attractions is paramount. Managing growth is imperative for expanding destinations while preserving assets and vacation quality is necessary for mature resort areas. New markets, attractions and activities must be sought to avoid the decline stage.

The implications of tourism's dynamics is that planners require some idea of their destination's position in the resort cycle to design effective strategies. However, this location may not be obvious because tourism's impacts are difficult to measure for at least three reasons. First, they include

hard-to-quantify cultural and ecological externalities. Second, they tend to occur asymmetrically with linear economic benefits accumulating quickly and visibly while non-linear socio-environmental impacts surface later and often after sustainable thresholds have been violated. This benefit-cost discrepancy partly explains why sustainable tourism is problematic since the needs of visitors and travel interests take precedence early on while host priorities and asset protection are postponed until “business as usual” threatens profitability (Lawrence, 1990). A related problem is that until recently there have been no commonly accepted comprehensive measures of overall tourism socio-economic and environmental impact to help assess where destinations lie along the resort cycle.

New Approaches

As a partial response to these planning constraints, two new directions are suggested. The first is to apply the recently developed Tourism Penetration Index (TPI) to a sample of Caribbean countries to better determine where destinations lie along the resort cycle and, indirectly, along the tourism-environment continuum. The second is to sketch out the broad outlines of a comprehensive integrated planning framework that addresses some of the problems island planners face in designing a more sustainable tourism.

The TPI was developed because of the absence of an overall impact measure of mass tourism on the economy, social structure and environment of small islands. It is a simple three-variable index that was first applied with 1993 data to 20 small Caribbean islands (McElroy and de Albuquerque, 1998) and later extended to a more heterogeneous group of 35 islands (McElroy and de Albuquerque, 1999) and to a world sample of 47 islands (McElroy, 2002). This study employs the same three variables using 1997 data: visitor spending per capita to measure economic impact, average daily visitor density per 1,000 population to measure socio-cultural penetration, and the number of hotel rooms per km² of land area as a proxy for environmental pressure. A sample of 30 Caribbean countries was selected based on two criteria: (1) tourism data availability, and (2), for comparative purposes, a broad definition of the region including Bermuda and the traditional mainland countries (Belize, Guyana, Suriname).

Because of its simplicity and aggregative nature, the TPI suffers from a number of weaknesses. It does not account for the spatial concentration of visitors, an important omission in island destinations since most tourism infrastructure and activity occur around delicate coastal amenities. Similarly, the TPI does not account for temporal crowding, important in the Caribbean since most tourists vacation during the high season winter months (Nov. 15-Apr. 15). In addition, the index is based on one-point-in-time cross sectional data and fails to measure the duration of a destination’s experience with and adaptation to tourism. Finally, it tends to perform better with countries roughly of similar size and tourism style.

Results

Table 1 provides 1997 background indicators for the 30 countries. Table 2 presents calculations of the three impact variables, their respective standardized indices, and the resulting TPI rankings from most to least penetrated. Despite its rudimentary nature, the TPI does yield the expected results. The small, highly tourist-dependent and popular resort destinations in the Lesser Antilles populate the top of the scale while the much larger, more diversified economies in the Greater Antilles and on the mainland populate the bottom. Based roughly on the TPI scores, historical observation and past research (McElroy and de Albuquerque, 1992), the 30 countries fall loosely into three impact groupings: (1) the most penetrated, (2) the least penetrated, and (3) intermediate destinations further clustered into high and low subgroups.

Country	Land Area (km ²)	Population (000)	Tourists (000)	Day (000)	Avg. Stay (nights)	Rooms	Total Spending (US \$ mil)
Anguilla	91	11	43	71	9.5	915	57
Antigua	440	64	232	309	7.0	3,185	269
Aruba	193	69	646	297	7.5	7,233	666
Bahamas	10,070	284	1,618	1,782	6.0	13,288	1,416
Barbados	430	259	472	518	10.5	6,069	717
Belize	22,963	230	146	159	7.0	3,905	87
Bermuda	50	62	380	182	6.1	4,135	478
Bonaire	311	11	63	18	8.3	1,120	44
British Virgins	150	19	244	105	8.0	1,587	210
Cayman Islands	260	39	381	867	6.9	4,501	493
Cuba	110,860	11,120	1,153	19	11.3	31,837	1,354
Curacao	544	144	209	218	8.3	2601(1)	202
Dominica	750	65	65	234	11.2(1)	623	40
Dominican Republic	48,520	8,230	2,211	271	10.4	38,585	2,107
Grenada	340	97	111	257	7.4	1,775	59
Guadeloupe	1,706	421	660	470	5.7	8,530	372
Guyana	214,969	850	76	-	19.0	730	60
Haiti	27,750	7,950	149	-	9.6(1)	1,758	57
Jamaica	11,425	2,540	1,192	712	10.8	19,359	1,131
Martinique	1,060	412	513	387	13.0	5,690	400
Montserrat	100	5	5	1	10.0	100(2)	5

Puerto Rico	8,900	3,810	3,249	1,101	2.7(3)	10,869	2,046
St. Kitts	269	43	88	106	8.3	1,759	72
St. Lucia	610	154	248	315	8.8	3,701	282
St. Maarten	41	33	439	886	4.8	4,049	375
St. Vincent	340	121	65	135	10.3	1,272	70
Suriname	163,265	410	61	17	10(2)	1,276	43
Trinidad	5,103	1,102	324	32	10(2)	3,652	193
Turks/Caicos	430	17	93	-	8.0	1,482	118
U.S. Virgins	349	120	411	1,717	4.2	4,406	601

Sources: [Compendium of Tourism Statistics 1993-1997](#) (WTO, 1999) and [The World Factbook](#) (CIA,1999).

Notes: (1) 1995

(2) Author's estimate

(3) In accommodation only

Table 2: Rankings on the Tourism Penetration Index

Country	Indices(2)						
MOST PENETRATED	Spend/ Pop (US\$)	Density/ 1,000(1)	Rooms/ (Km ²)	Spend	Density	Rooms	TPI(3)
St. Maarten	11,364	249	98.8	0.899	0.838	1.000	0.912
Caymans	12,641	246	17.3	1.000	0.828	0.174	0.667
British Virgins	11,053	297	10.6	0.874	1.000	0.106	0.660
Aruba	9,652	204	37.5	0.763	0.686	0.379	0.609
Bermuda	7,710	110	82.7	0.610	0.368	0.837	0.605
INTERMEDIATE HIGH							
Turks/Caicos	6,941	120	3.5	0.549	0.402	0.034	0.033
Auguilla	5,182	119	10.1	0.410	0.399	0.101	0.303
U.S. Virgins	5,008	79	17.6	0.396	0.264	0.177	0.279
Bonaire	4,000	135	3.6	0.316	0.453	0.035	0.268
Bahamas	4,986	111	1.3	0.394	0.372	0.012	0.259
Antigua	4,203	83	7.2	0.332	0.277	0.072	0.227
Barbados	2,768	58	14.1	0.219	0.193	0.142	0.185
INTERMEDIATE LOW							
St. Kitts	1,674	53	6.5	0.132	0.176	0.065	0.124
St. Lucia	1,831	44	6.1	0.144	0.145	0.061	0.117
Martinique	971	47	5.3	0.076	0.155	0.053	0.095
Curacao	1,403	37	4.8	0.110	0.123	0.048	0.094
Guadeloupe	884	28	5.0	0.069	0.091	0.050	0.070
Grenada	608	30	5.2	0.048	0.098	0.052	0.066
Dominica	615	41	0.8	0.048	0.135	0.007	0.063
Montserrat	1,000	28	1.0	0.079	0.091	0.009	0.060
St. Vincent	579	18	3.7	0.055	0.067	0.046	0.056
LEAST PENETRATED							
Jamaica	445	15	1.7	0.035	0.044	0.016	0.032
Belize	378	14	0.2	0.029	0.044	0.001	0.025
Puerto Rico	537	7	1.2	0.042	0.020	0.011	0.024

Dominican Republic	256	8	0.8	0.020	0.024	0.007	0.017
Trinidad	175	8	0.7	0.013	0.024	0.007	0.015
Cuba	122	3	0.3	0.009	0.007	0.002	0.006
Guyana	71	5	0.1	0.005	0.014	0.000	0.006
Suriname	105	4	0.1	0.008	0.010	0.000	0.006
Haiti	7	1	0.1	0.000	0.000	0.000	0.000

Sources: See Table 1

Notes: (1) $[(\text{Tourists} * \text{Stay}) + \text{Day Visitors}] / (\text{Population} * 365) \times 1,000$

(2) $(\text{Indicator Value} - \text{Minimum}) / (\text{Maximum} - \text{Minimum})$

(3) Unweighted average of the three indices

The most penetrated islands include five very developed destinations that average roughly \$10,500 in per capita visitor spending, 50 rooms per km² of land area, and 220 daily visitors per 1,000 population.

Visitors therefore represent the equivalent of a 22 percent increase in the daily population. They include Aruba, Bermuda, British Virgins, Caymans and St. Maarten. At the top of the resort cycle, these mature destinations exhibit a unique tourism profile. They are characterized by short visitor stays, large-scale hotels, high occupancy, promotional spending and cruise passenger traffic, and low seasonality (honeymoon packages, conventions, regattas, etc.). Along with the intermediate high islands, they display a propensity for man-made attractions and are among those destinations often cited for tourism-induced crowding, ecosystem damage and declining vacation quality (Jenner and Smith, 1992).

The least penetrated comprise nine of the largest Caribbean countries with relatively small tourism sectors. As a group, they average less than \$300 in per capita visitor spending, and only seven daily visitors per 1,000 population and one room per km². However, these average values clearly mask the heterogeneity of these destinations because the TPI tends to down-rank islands that are large in area and population but boast heavily developed tourist zones. In reality there are three subgroups: four with considerable tourism experience (Cuba, Dominican Republic, Jamaica, and Puerto Rico), two with tourism regions likely at the intermediate level (Belize and Trinidad-Tobago), and three in the early stages (Guyana, Haiti and Suriname). In fact, a study of the Dominican Republic using regional TPI indicators found Punta Cana on the east coast resembling the most penetrated small islands, Puerto Plata/Semana in the north comparable to intermediate development, and the southeast Santo Domingo and La Romana/San Pedro regions similar to least penetrated destinations (McElroy, 2004: 51). In other oceanic basins like the Pacific and Indian Ocean, these least penetrated islands are characterized by relatively less disturbed natural and cultural assets, small-scale facilities, long visitor stays and a rural ambience. They share with these large Caribbean islands a great deal of planning room to maneuver and the best resource potential for developing ecotourism and other low-density alternatives to mass tourism.

The sixteen intermediate impact destinations comprise primarily Leeward and Windward islands. The seven high-impact islands exhibit average per capita visitor spending and density levels roughly half that of the most penetrated islands. They include three destinations which might be considered high-density by other criteria: the US Virgins and Antigua which suffered major room losses in recent hurricanes, and the Bahamas with its Freeport-Nassau complex, down-ranked by the TPI because of its large archipelagic land area. They also include Turks/Caicos and Auguilla, destinations on the way to high density status, the internationally popular diving spot of Bonaire, and Barbados, a mature tourism area with a relatively balanced agro-industrial economy.

The low-impact intermediate group of nine islands includes many of the larger, more diversified Windward Island economies that export sugar, bananas and spices. They also include recent graduates from the least penetrated group (Dominica, Grenada, St. Vincent) and Montserrat, a tiny North American retirement haven severely damaged by a devastating volcanic eruption in 1995. Many intermediate destinations are experiencing rapid visitor and hotel room growth, and the migration of land, capital and labor from traditional agriculture and fishing toward tourism. Because such shifts give rise to multiple resource use conflicts, these islands need a strong planning and legislative apparatus to resolve growth dilemmas and protect bio-cultural assets.

A Comprehensive Integrated Approach

Recent ecotourism case study research indicates that planning at any stage of the resort cycle improves vacation quality, market niche, asset preservation and long-term viability (Innskeep, 1994; Singh and Singh, 1999). Several critics have argued that the surest way to break the structural disequilibrium between the large international tourism economy and the small fragile island environment is through comprehensive, integrated planning that is continuously adaptive to changing circumstances and customized to the appropriate stage of the resort cycle and the geomorphology of the island (Wilson, 1997; Williams and Gill, 1999). This holistic framework is specially important given the increased pressure on insular bio-cultural diversity expected from rising globalization, world affluence and the search for authenticity.

To illustrate the broad contours of such a strategy, for many of the least penetrated islands, the top priority is to establish profitability. This demands determining destination identity, the unique natural and cultural assets that express it, and the infrastructure needed to access them and attract visitors. Addressing these fundamental issues requires a multi-year planning program under a lead tourism agency with island-wide jurisdictional authority. To this major task of inter-agency coordination must be added a public environmental and cultural education initiative with financial and technical support from local and

international organizations. Given the common history of resource neglect and the lack of regulation and enforcement, this overall planning strategy is a tall order. However, there are a number of successful blueprints available among the more advanced destinations: Bermuda (de Albuquerque and McElroy, 1995), Caymans (Ewing and Wilkinson, 1999), Maldives and Prince Edward Island (Manning and Dougherty, 1999).

For many intermediate destinations, the key challenge is controlling rapid growth. This involves two broad goals: (1) preventing expansion of facility scale and the rate of development beyond local labor force and resource capacity, and (2) reducing encroachment on prime agricultural, fisheries and watershed resources. To accomplish these specific goals requires a three-fold government commitment: (1) to enforce existing land-use and zoning plans, (2) to prefer smaller-scale facilities and/or the sequential phasing of larger resorts, and (3) to attempt to engage the resident community in resolving the many resource-use conflicts that normally surface during the rapid transition from traditional activities to tourism. Likewise it is important to expand the host population's economic stake in tourism by designing incentives that favor small-scale enterprises that hire and purchase locally. Even marginal increases in local expenditures translate into similar increases in the tourist income multiplier as an alternative to higher density and lower value-added visitation (McElroy and de Albuquerque, 1992).

For most penetrated islands the priority is to sustain vacation quality. Three broad directions are recommended. The first is to restore damaged assets and reassess the place of culture in tourism. The second is to design ways to more efficiently manage visitor flows in time and space to reduce crowding and improve host life quality. The third is to emphasize alternatives to mass marketing through expanding visitor stay and expenditure. Visitor stay can be lengthened by developing lower-density tourism styles (heritage, scientific, retirement, village) like ecotourism sites and intra/inter island packages. Successful examples include the baboon sanctuary in Belize (Horwich and Lyon, 1999) and the practice of multiple cruise ship port calls in Bermuda. Per capita visitor expenditure can be raised by the expansion of these attractions plus access user fees which secure funding for asset management and protection.

Conclusions

The special ecological and cultural diversity of Caribbean islands is a rare legacy. However, the integrity of this patrimony is under threat after a generation of rapid and intrusive mass tourism development. Reversing past trends will require comprehensive planning and forceful policy intervention and monitoring in the policy context of a commitment to long-term viability over short-term growth. The TPI provides an early warning signal to allow decision-makers to assess indirectly tourism's overall pressure on insular bio-cultural assets. The TPI further identifies the major planning and sustainability

challenges facing destinations at different development stages of Butler's (1980) resort cycle.

The central outcome of all sustainable tourism planning initiatives is (1) to enhance awareness among tourism's four major stakeholders of the long-term value of the island legacy, and (2) to encourage their commitment to conservation in their own self-interests. Specifically this means that residents cherish their patrimony and develop a propensity to protect it for their grandchildren; that visitors tread lightly and develop an ethos of return; that governments commit to long-term tourism stability and controlling growth and visitor activity wherever and whenever they endanger that legacy; and that developers and travel interests come to respect the native genius of the island's natural and cultural milieu, and take necessary steps to conserve and not degrade integrated terrestrial and marine processes that stabilize ecology, maintain landscapes and preserve biodiversity.

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