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# **URBAN MANAGEMENT: UNDERSTANDING THE ECONOMIC AND ENVIRONMENTAL LINKAGES**

**Proceedings**

**Sponsored by the USAID  
Regional Housing and Urban Development Office  
for the Caribbean**

**Bridgetown, Barbados**

**September 5 - 7, 1990**

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U.S.A.**

Dear Reader:

This document presents the proceedings of the Regional Housing & Urban Development Office of the Caribbean (RHUDO/CAR) Third Annual Conference held in Barbados, September 5-7, 1990. The Conference focused on the linkages between urbanization and economic development, with particular emphasis on impacts on environmental degradation and public health.

In the Caribbean, economic and demographic transformation is occurring rapidly. Approximately half of the 20 million people in the region live in urban areas. This is projected to increase to seventy percent over the next twenty years. These trends will raise a number of issues related to squatter settlements, urban services, environmental degradation, land management and local autonomy.

As a result of the economic shift to service, manufacturing and tourism activities in most countries of the region, the process of economic development and urbanization is rapidly changing the region's character. Rapid urbanization, especially, will impact directly on the ability to achieve sustainable economic development. A key development issue that should be placed on most national agendas is land and how it is used. It represents the most significant national asset for nations with limited land masses. In order to mitigate the impacts of environmental degradation, better management of urban services such as water, sanitation and solid waste disposal are important.

Given finite natural resources, major land use decisions need to be subjected to intensive evaluation. Finally, decentralization of authority should be viewed as a way to improve service delivery. Local governments need to be strengthened and environmental concerns must be given a higher priority on the national agenda.

In summary, the conference succeeded in providing a better understanding of the relationship between economic and environmental issues, and stimulated debate on impacts of physical development decisions. We hope this package provides useful information and should heighten awareness of the urbanization process and its impacts as they are manifested throughout the region.

Most sincerely,

William Gelman  
Director, Regional Housing  
& Urban Development Office

## EXECUTIVE SUMMARY

RHUDO/CAR held its Third Annual Conference on the Linkages between Urbanization, Economic Development and the Environment in Bridgetown, Barbados from Sept. 5 to 7. The conference was attended by over sixty high level participants from eleven countries including representatives of urban development agencies, NGO's and the private sector.

While most recent conferences on the environment have focused on natural resource relationships with human activity, this conference was one of the first to examine environmental issues in urban settings. The importance of the issues was made clear in the opening technical paper by Tom Kingsley of the Urban Institute.

In the Caribbean, The urban population is the fastest growing segment of the total population, 7 million or 72% of the total growth since 1960 has taken place in urban areas. Forty-six percent of the Caribbean population now lives in urban areas, and according to UN projections, this will rise to 65 percent in the next thirty years.

Economic trends underpin and reinforce these demographic changes, suggesting increased importance of urban areas. Overall economic growth has been strong in the late 1980's, particularly in the Eastern Caribbean countries, reversing economic difficulties of the early 80's. In terms of export growth, tourism has been the strongest sector (30 percent of total growth) followed by manufacturing (20 percent of growth). Agriculture and mining, the traditional mainstays of the Caribbean economy, have declined.

Coping with urban growth has been difficult for most countries. Inadequate land management systems (cumbersome land titling and transfer procedures, high standards, poor enforcement) have resulted in growing numbers of illegal and unplanned informal settlements located frequently on environmentally unsuitable land. The provision of infrastructure has severely lagged behind growth and lack of adequate sanitation in most areas poses a serious threat. Even in sewerred areas, existing large scale treatment systems are generally operating well over design capacity. The emphasis in the Conference was not on the hardware needed but rather the analytic, policy and institutional framework that Caribbean countries need to consider as these issues emerge.

In a second paper, Ivor Jackson indicated that environmental impacts of urbanization are of growing concern to human and general ecosystem health because of limited land resources and the fragility of land/marine relationships in the Caribbean. Urban uses are generally more intensive within the immediate coastal zone in the Caribbean: population centers, tourism facilities, industrial installations and transport air and water nodes are located in coastal areas.

Tourism has been a driving force to recent urban expansion in terms of hotel facilities and supporting infrastructure and port expansion. Yet the long term prospect for continued tourism development depend on the maintenance of high environmental quality in coastal areas.

Problems associated with urbanization include:

1. Population from domestic and industrial wastes and marine chemicals;
2. Beach erosion, degradation or loss associated with sand extraction for construction, dredging and improper building practices;
3. Coastal habitat degradation and loss from landfilling, draining or dredging, waste disposal and anchorage damage;
4. Loss of agricultural land;
5. Soil erosion from use of marginal land and building construction;
6. Impairment of fresh water supply.

Strengthening policies to provide physical infrastructure and institutional capacity to deal with environmental problems is critical. While solutions will have to be tailored to each country, Mr. Jackson identified a variety of approaches to deal with the problems noted above. Appropriate policies could be instituted to protect the environment while allowing for continued growth in tourism and commercial development. Specific initiatives could include tax incentives to channel some income from tourism to mitigate its adverse impacts on the environment, to consider incineration as an alternative to landfill, to enhance the capacity of waste management agencies, manage land more effectively and to plan for urban services and shelter.

In the final technical paper, Eleanor Jones described the integration of environmental factors into cost benefit analysis. While "public goods" have traditionally not had monetary values placed on them, their degradation, we now realize, imposes public costs such as increased health expenditures, degraded resource base for other economic activities and reduced ecosystem health in general. Economists are now beginning to quantify environmental costs and include them in the analysis of development projects to obtain a truer assessment of the overall cost and benefit of a project.

Following the technical presentations, the principal part of the conference consisted of the analysis of four case studies by the participants working in small groups. The case studies presented a range of environmental linkages in the Caribbean.

**Twin pitons, St. Lucia:** The conflict between tourism development and the preservation of a unique natural resource, overlaid with weak institutional capacity to deal with large scale development.

**Montego Bay, Jamaica:** Historically the focal point of Jamaica's tourist industry, Montego Bay is now confronted with environmental degradation and social disarray caused by uncontrolled and unserved urban growth. Growth is occurring on marginal land and contributing to the degradation to the resource on which the town's economy is built.

**Free zones, Dominican republic:** The free zones policy has been highly successful in creating jobs and foreign exchange. Lack of institutional coordination and lack of planning for the service and infrastructure needs around the free zones including the population attracted by the employment prospects is creating environmental problems that may be costly to resolve.

**Southeast Peninsula, St. Kitts:** Another case of conflicts between economic development and the management of a unique resource, but where the government has attempted to create an institutional basis for dealing with large scale development. Strengthening policy and regulatory systems and use of environmental impact assessments has helped in balancing tradeoffs between creating employment, managing large scale tourism growth and protecting significant environmental resources.

In recommending measures to better integrate environmental concerns into economic development and urban planning in situations such as those presented in the case studies, the participants noted a variety of possible actions.. -

1. Project impact beyond a project itself and hence the scope of analysis must be broadened. In terms of urbanization, one must look at what services, infrastructure and housing will be required by the local population attracted to the project area by the possibility of employment. The impacts of this growth may cause significant environmental damage if it is not planned. Government policy must be proactive to open up land markets and provide adequate environmental services.
2. Environmentally responsive policies and measures to incorporate environmental concerns into decision making must be given a higher priority. Beyond policy formulation, countries must move to translate policy into action by providing a statutory basis for guiding and monitoring development. At the same time, cumbersome regulations that are part of the problem must be streamlined.
3. Part of improving environmental responsiveness includes providing an interdisciplinary framework to review development proposals and coordinate public actions. Institutions created or strengthened to this end must have adequate capacity in terms of clear authority and sufficient resources to carry out their mission.
4. Information will play an important role in integrating environmental concerns into development planning and in improving public awareness. Beyond general information about natural resource capacity and environmental threats, environmental impact assessments and thorough cost/benefit analysis are useful tools in establishing project specific information.
5. Unwise or narrowly made decisions with severe environmental consequences can be avoided if the decision making process can be opened up in terms of how decisions are made and who participates in the process. This could be accomplished by strengthening local institutions, decentralizing decision making authority and involving the private sector early on in the process.

Following the case study discussions, country delegations were asked to formulate country strategies for improving the integration of environmental concerns into development planning in their respective countries. The strategies varied considerably depending on the level of urbanization, economic base and the status of public environmental awareness. Delegations identified rapid urbanization, inadequate services and development on unsuitable land as the principal causes of environmental degradation. Most agreed that weak institutions and the lack of coordination in development planning also contributed to declining environmental quality. They recommended strengthening institutions in terms of their statutory basis and human resources, providing for better coordination, and conducting public awareness programs were important at this juncture.



The Opening Ceremonies  
Mr. William Gelman, Mr. Winston Cox, Ms. Maureen Webber

## WELCOMING COMMENTS

William Gelman  
Director, RHUDO/CAR

Charles Dickens began his famous novel "Tale of Two Cities" with the observation "It was the best of times, it was the worst of times". Though not a student of literature, I believe one could look at any social and economic change that way. It is a necessary evil, because, while change is intrinsic for all forms of life to survive, change is fraught with uncertainty and the need to adapt.

The report, "Urbanization in the Developing Countries", an interim report to the US Congress, illustrated four major trends in urbanization which will continue into the early 20th century.

- ◆ First, the growth rate of urban populations will be high. Since the 1950's it has been highest in the poorest regions. In Africa, for example, it is projected to grow by an average of 4.8% annually until the end of the century.
- ◆ Second, the absolute number of people added to urban populations will be enormous. The total population living in urban areas in developing countries is expected to double between 1980 and 2000 to about 1.9 billion. By early in the next century, the size of the population living in urban places in developing countries will exceed that of rural places for the first time in history.
- ◆ Third, the labor force will grow at high rates and be dominated by relatively young workers. The urban labor force will double from about 409 million in 1980 to more than 825 million in 2000. It will double again by 2025. In most developing countries the labor force will be dominated by young people.
- ◆ Fourth, the number of households living in absolute poverty will increase rapidly in urban areas. By the end of the century, more than half the households in absolute poverty - that is, at or near subsistence levels of income - will be concentrated in urban places.

For the Caribbean, the data is equally compelling. In the study "Urbanization in the Caribbean: Prospects and Management Priorities", a study our office designed and sponsored, numerous projections and observations illustrate my contention.

From 1960 to 1990, of the 9.7 million people added to the Caribbean population, 7.0 million (72%) occurred in urban areas. Approximately half of the people in the Caribbean live in cities and towns.

Projections for 1990 and 2020 indicate that over 1<sup>4</sup> of the 16 million people who will be added to the region's population will live in urban areas. By 2020, close to 70% of the population will be urban dwellers.

Jamaica, the Dominican Republic, Trinidad and Tobago and Haiti will be the countries most affected by these trends, but independent OECS countries and other island nations will be similarly affected, although on a smaller but no less significant scale.

The case studies selected for this seminar will be helpful in analyzing what to expect.

Cities and towns in the region will face massive urban growth now and into the next century. These urban areas will have to accommodate 470,600 new inhabitants annually over the next 30 years compared to 234,000 for the last 30 years, a 50% increase. So why is AID's Regional Housing and Urban Development Office sponsoring this seminar.

1. Urbanization and the environment are among the most fundamental development issues facing this region. This is so because, unlike most other parts of the world, the island nations of the Caribbean tend to be water-locked with relatively limited land masses. Therefore, the impacts of urbanization, I believe, are more significant in the Caribbean than in countries with larger land masses. In this regard, issues such as solid waste disposal would seem to be of greater importance than in other regions. Addressing urban problems in this setting, then, may be more important than one might assume in the first instance.
2. Most of the impacts of urbanization are resulting in environmental degradation, particularly in the coastal zones and threaten to undermine an economic sector that contributes enormously to growth and development - tourism. A lot of the problem is related to policies or lack thereof to address where low cost housing should be located and minimum standards to address environmental degradation. Moreover, if such issues are not addressed, water supply and quality issues could translate into major public health problems in the future, as well as in the degradation of the environment. Perhaps land availability in desirable locations and essential infrastructure require a higher priority in the Caribbean.
3. Urbanization and economic development are mutually interdependent and the nations of the region need to search for ways to enhance the linkage; one way to do so is to look at infrastructure investments as fundamental to sustaining growth as well as mitigating the impacts of environmental degradation. Moreover, infrastructure investment can be a major stimulus to directing urbanization. The case study on Kingston is an example.
4. Unlike many countries, the countries of the Caribbean have a limited base of natural resources. One of the principal assets they own is the land that they control. It is a valuable resource that needs to be managed well, both economically and environmentally. It is an economic resource that should be managed as cautiously as the Saudi Arabians manage their petroleum. Ministries of finance and economic development need to take a more active role in how these assets are used to foster economic development. Generally, most countries have not had the luxury of a national cadastral system. In the case of island nations, however, it might be more

necessary. We have an example in St. Lucia and we perhaps should look to how the system is being used as well as what its potential is. Major land use decisions need to be subjected to more rigorous analysis and debate.

5. Although most countries are small, the towns and cities will continue to grow and become more complex. Many problems need to be addressed in a local context. Various responsibilities for solving environmental and planning problems as well as urban services are more effectively carried out by local governments which need to be strengthened to fulfill these important functions.

These are some of the issues that I believe are important for the region. I believe that physical development, planning and shelter, because of their impact on the island nations of the region, need perhaps greater attention than they have had in the past. Land use, planning and management are likewise important. Establishing new ministries, stronger legislation and other public and regulatory measures may, however, not achieve the results we want to accomplish. Rigid land regulations and planning are one of the causes contributing to massive squatting in most cities. Experience in the 1970's in the U.S. bears out that legislation can backfire. The environmental movement in the U.S. produced legislation requiring environmental impact statements for virtually every publicly-financed activity. Most observers feel that the requirements slowed development, added substantially to costs and did not add much to the quality of the environment. The legislation produced a lot of studies but not much tangible.

We need to re-examine how we are approaching change, urbanization and environmental degradation. We must explore how public and private sector institutions can be knit together more effectively to address a public/private issue that threatens the future of the Caribbean region. As an example it might be important for the universities of the region to develop curriculum and extension courses to provide architects, engineers and builders with the latest data on environmentally sound design and building practices. It might be important to look at development proposals more analytically with emphasis on weighing costs and benefits of the proposals to be vetted. My suggestions are not terribly enlightened. Hopefully, as we gain more knowledge about how to address the issues we will develop the institutional framework, coordination and action necessary to meet the challenge. AID has developed a program which the RDO/C Director will mention which, hopefully, will begin this process and awareness.

Unlike the ending of Mr. Dickens novel where the hero accepts his fate of the gallows, I don't think we can afford to accept the trends and conditions that are emerging. Rather, we must do what we can to improve upon the conditions that threaten one of the most beautiful regions of the world.

Thank you.

## ADDRESS TO THE OPENING CEREMONY

Winston Cox  
Director of Economic Affairs, Barbados

Madame Chairman,  
Mr. Aaron Williams, USAID RDO/c Mission Director  
Mr. William Gelman, Chief Regional Housing and Urban Development Office,  
Participants,  
Ladies and Gentlemen:

I am delighted and honoured to share in the opening ceremony of this Third Annual Shelter Conference sponsored by the USAID Regional Housing and Urban Development Office in the Caribbean. I congratulate your Agency on its initiative in organizing this forum in which top level environmentalists, physical planners and economic planners will review the implications of economic development on the environment.

With great pleasure I welcome to Barbados all our visitors who are here for this conference. I note that your time-table is rather packed, but I am sure that you will find adequate opportunities to enjoy the hospitality and sights which make Barbados attractive to so many visitors. I am also confident that the knowledge and insights which all participants will take away from this conference will be of inestimable benefit to the region as we seek to provide a better standard of living for our citizens.

Economic planners, whether in market economies with indicative plans or in what used to be called centrally planned economies with command plans or in mixed economies with a combination of both types of plan, concentrated most of their efforts on creating the appropriate institutional environment for achieving their targets. The importance of an appropriate regulatory framework with its hierarchy - or more often anarchy - of laws, rules, regulations and permissions, and the importance of incentives and rewards were deemed to be sufficient to attract the right mix of economic activities required to achieve a sustainable rate of growth. Success was measured by whether or not the targets in the plan were achieved and little or no attention was paid to the environmental impact of the economic plans.

Fortunately for mankind, this is changing. In the last decade or so the evidence of localized ecological disasters and the fear of an impending global disaster has heightened awareness of the relationship between economic development and the physical environment. We have at last learned that economic growth and development are not sustainable in the presence of environmental degradation. Of course, like most other things in economics, the relationship is not a simple one, as causation does not run in a single direction. Environmental degradation also is a result of failure to grow and can often be addressed and possibly reversed by application of the resources made available through economic growth. Wealthier nations are better able to afford appropriate sewage treatment plants or handle hazardous industrial waste, or bear the cost of a clean up operation after an oil spill. But it is equally true that they also generate more hazardous industrial waste than poorer nations.

We are all familiar with anecdotes about the destruction of the sturgeon fisheries, the source of Russian caviar, by the pollution of the Volga with industrial waste; and we know too about the destruction of the sardine fisheries and, paradoxically, the salination of irrigated land as a result of the construction of the Aswau High Dam on the Nile.

Closer to home an obvious case in point is the threat to tourism from beach erosion due to destruction of coral reefs and deterioration of the sea water quality. Most of the countries attending this conference depend on tourism as a major source of employment and foreign exchange earnings; therefore the trends in beach erosion and sea water quality must be halted and reversed. But therein is a dilemma for one of the causes of the beach erosion and deterioration in sea water quality is the rapid growth of the tourist industry which has pushed buildings too near the high watermark and which has outstripped capacity to handle human waste. The regenerative capacity of the sea is a treasured myth which misleads many into believing that a longer marine outfall will solve the problem. The movements of the tides usually see to it that one man's outfall is another's landfall. To deal effectively with these problems, however, we need the additional income from an expanding tourist industry!

Of course there are other causes of beach erosion and deterioration of sea water quality throughout the region. Inadequate management of industrial and household waste, the widespread use of agricultural chemicals, harvesting of coral for the souvenir trade and improper practices by oil tankers using the shipping lanes in the region all contribute to the problem. While some of these causes can be addressed by national action, others require international action. All threaten the environment vital to the tourist industry which in turn is vital to the economy of the region.

While we emphasize commercial and industrial projects as prime factors in creating environmental problems this conference should be conscious too that human settlement also ranks high on the list of factors that have an adverse impact on the environment. The demand for housing, directly or indirectly often creates long term environmental problems among which are:

- ◆ the alienation of agricultural lands;
- ◆ the unregulated use of restricted or zones areas or the overcrowding in unzoned or unrestricted areas;
- ◆ the destruction of natural habitats by draining wetlands or felling of forest either for timber or for expansion of agriculture;
- ◆ flooding due to concentrated run off, blocked watercourses and improper drainage;
- ◆ settlement in areas prone to natural disasters; and
- ◆ environmental degradation due to inadequate facilities for disposal of waste.

In Barbados for some time we have recognized the need to pay attention to protection and conservation of the environment. This is stressed in the Development Plan 1988-93 which incorporates the environmental dimension of policy into development planning. It is important for us because Barbados has a limited and fragile resource base and because of the importance of the climate, the beaches and arable land to our economy.

The priority areas for attention in our environmental protection efforts are coastal conservation; the prevention of ground water and marine pollution; soil erosion; the preservation of important natural habitats, especially coral reefs, wetlands and woodlands, to prevent the dwindling of rare flora and fauna; and the storage handling and disposal of toxic substances, solid waste and sewage; and the mitigation of natural or man-made disasters.

In order to respond immediately and effectively to the environmental issues facing the country, a new institutional framework for managing the environment is being developed in the Ministry of Employment, Labour Relations and Community Development which has overall responsibility for environmental matters. The main focus will be on environmental research and training, environmental legislation, introduction of an environmental impact assessment component in all projects and programs of environmental education for the public in order to respond immediately and effectively to the environmental challenges facing the country.

The Government also intends to strengthen linkages with local non-governmental organizations, other Caribbean countries as well as regional and international institutions in order to fully utilize the opportunities for cooperation and technical and financial assistance.

It is a moral responsibility for us that, in our efforts to achieve a sustainable level of economic development, we work in harmony with the environment. If we fail to do so we will betray the trust which we are holding for future generations and will erode our economic gains. We must balance the pressure for housing and recreation against the need to maintain open spaces, to observe zoning regulations and to preserve natural habitats. Or we can ignore the forces of nature at our peril.

From your time-table I note that you will immediately be addressing the issue of Urbanization in the Caribbean: Prospects, Management and Priorities. I had the benefit of reading this paper and I commend it to you, especially that section on the guidelines for policy. Since governments are discovering the impossibility of reversing or even slowing down urbanization they must plan for it much better than they have in the past. Failure to plan adequately for urbanization in developing countries will lead to the unaffordable destruction of human capital which is guaranteed to retard development efforts.

The Human Development Report 1990 issued by UNDP provides some startling revelations on urbanization and human development. In 1960 seven of the ten largest cities were in industrial countries; by the year 2000 it is estimated that eight of the ten largest cities will be in developing countries. What is distressing about that is that every condition of the poor is magnified in the cities of developing countries. Poverty has been urbanized; by the year 2000 the number of urban households will increase by 76 percent while the number of poor rural households will rise by 56 percent. Malnutrition and disease have been urbanized. Environmental degradation has been urbanized as none of these cities in the developing world can afford the infrastructure of developed mega-cities. They all contend with poor drainage, inadequate water and sewerage systems, unreliable electricity and telephone connections, congested and badly maintained roads and grossly inadequate public transport. Inadequate housing too has been urbanized as the formal housing sector rarely produces more than 20 percent of the new housing stock in third world cities.

We can no longer rejoice in our description as a pastoral people since almost half of the region's population lives in cities and the rate of growth in the urban population lives in cities and the rate of growth in the urban population is four times as fast as that of the rural areas. If we fail to plan adequately for urbanization in the decade ahead we will condemn more than half of our population to urban poverty, to malnutrition and disease, to inadequate and unreliable utilities and to poor housing. I am confident that the experiences gained from this conference will help us chart the correct course to avoid a woeful loss of human capital.

Thank you.

## **TECHNICAL PAPERS**

**"THE URBAN ECONOMIC NEXUS IN CARIBBEAN DEVELOPMENT"**  
by G. Thomas Kingsley, The Urban Institute.

**"ENVIRONMENTAL PROBLEMS RELATED TO URBANIZATION IN THE CARIBBEAN"**  
by Ivor L. Jackson, Ivor Jackson and Associates, Inc.

**"URBAN LAND MANAGEMENT: A CASE FOR ENVIRONMENTAL  
COST BENEFIT ANALYSIS"**  
by Eleanor Jones, Caritech Associates, Ltd.

# THE URBAN-ECONOMIC NEXUS IN CARIBBEAN DEVELOPMENT

by

G. Thomas Kingsley  
The Urban Institute

## INTRODUCTION

This paper reviews the main findings and conclusions of a recent study of urbanization in the Caribbean region (Kingsley, Telgarsky, Jackson, and Kennett, August 1990). The work examined demographic, economic, and urban trends region-wide and then looked in more detail at urban development issues in five countries: the Dominican Republic, Haiti, Jamaica, St. Lucia, and St. Vincent and the Grenadines.

The study found that, to a surprising extent, cities and towns are dominating both the population and economic growth of all Caribbean nations. And, they are likely to continue to do so. Even with forceful and effective rural development, enough jobs are not likely to be produced in the countryside to markedly alter the trend. Also, there is a greater recognition now that urban growth is a natural accompaniment of the structural change needed to produce significant economic advancement and that it can offer important societal opportunities, if it is properly managed.

The evidence to date, however, suggests that the public institutions of the region have been caught off guard by the acceleration of urban growth. Generally, they do not appear to be managing it effectively and this is leading to environmental degradation as well as constraints on expanding economic opportunity. Yet, there are some changes in attitudes and innovations in urban policies and management techniques in the region that offer hope of a more effective urban development process in the near term.

## THE REGION

The Caribbean region as defined in this analysis includes all of the 14 independent nations of the Caribbean Group for Economic Development (GCED) - five larger island nations (Barbados, the Dominican Republic, Haiti, Jamaica, and Trinidad and Tobago), six smaller independent countries in the OECS (Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines), and three non-island countries (Belize, Guyana, and Suriname). (See Table 1 and Figure 1.)

It is a region of great contrasts. Haiti is the poorest country in the Western hemisphere. In 1988, its Gross Domestic Product (GDP) per capita (US\$211) was only 7 percent of that of the region's richest countries (Barbados and Trinidad and Tobago). Populations in 1990 range from 50,000 (St. Kitts) to 7.5 million (Haiti). Land areas range from 269 square kilometers (St. Kitts) to 214,970 (Guyana).

## URBAN GROWTH AND STRUCTURE

*The level of urbanization.* The United Nations (1987) estimates that, in 1990, 9.9 million people (47 percent of the Caribbean's 20.7 million population) live in urban areas. The urban share is highest in Trinidad and Tobago (69 percent) and exceeds 50 percent in three other countries (Belize, the Dominican Republic, and Jamaica). It is lowest in Haiti (30 percent) and falls in the 30-40 percent range in two other countries (Antigua-Barbuda and Guyana).

**Table 1**

**Caribbean Region Population, Land Area, and GDP per Capita**

	Population ('000s) 1990	Area (square kilometers)	Population (per square kilometer)	GDP Per Capita 1988
Barbados	261	430	607.0	3,226
Belize	182	22,965	7.9	1,276
Dominican Republic	6,971	48,400	144.0	1,074
Guyana	1,040	214,970	4.8	589
Haiti	7,509	27,750	270.6	211
Jamaica	2,521	10,991	229.4	1,205
Suriname	403	163,820	2.5	1,679
Trinidad & Tobago	1,283	5,128	250.2	3,189
Subtotal	20,170	494,454	40.8	970
Independent OECS Countries				
Antigua & Barbuda	86	442	194.6	1,924
Dominica	81	750	108.0	1,022
Grenada	120	344	348.8	940
St. Kitts & Nevis	50	269	185.9	1,458
St. Lucia	139	617	225.3	1,016
St. Vincent-Grenadines	111	389	285.3	761
Subtotal	587	2,811	208.8	1,124
Total	20,757	497,265	41.7	974

Source: 1990 population estimate from United Nations, 1987, GDP per Capita (in 1980 US\$) from World Bank, 1988a.

In almost all countries, the urban pattern has been dominated by one large city with other settlements much smaller in size. By far the largest cities in the Caribbean (with rough estimates of their populations in the early to mid-1980s) are Port au Prince, Haiti (1.5 million), Santo Domingo, Dominican Republic (1.3 million), and Kingston, Jamaica (680,000). Only 12 other cities in the region had populations in excess of 50,000 (6 of these are in the Dominican Republic).

**Urban growth.** Most startling is the importance of urbanization in total growth. The region's population almost doubled from 1960 to 1990. Of the total 9.7 million increase, 7.0 million (72 percent) occurred in urban areas. The average urban growth rate was 4.2 percent per annum compared with only 1.0 percent for rural areas. Annual urban growth rates were higher in some countries than others (exceeding 4.5 percent in the Dominican Republic, Haiti, and Trinidad), but urban settlements have been growing much more rapidly than rural areas virtually everywhere.

With this growth, there are indications that the dominance of the primate cities is slipping somewhat, at least in those countries large enough to have secondary cities. In Jamaica, for example, metropolitan Kingston's annual population growth rate from 1970 to 1982 was only 2.3 percent compared with an average of 5.3 percent for the next five largest cities.

## ECONOMIC TRANSFORMATION

What accounts for the focus of so much of all growth in the urban areas and is it likely to continue? Since the location of income earning opportunities is the most basic determinant of where people live, the answers must be sought by examining the changing structure and performance of the region's economies.

### Trends in the 1980s

**Past economic policies and problems.** From the 1950s to the late 1970s, Caribbean economic policies can generally be characterized as: (1) reliance on growth in traditional sectors (sugar, other agricultural products, and some minerals) for most income generation and labor absorption; (2) focusing industrial development on import substitution with substantial protection against competition and the targeting of outputs to domestic and regional markets; (3) active public sector intervention in the economy through regulation and the use of state enterprises in productive sectors; and (4) regional economic integration through common external tariffs and the removal of intra-regional trade barriers.

At the end of this period, this approach was already being questioned. There had been substantial declines in prices and markets for the region's basic export commodities, serious inefficiencies were evident in many industries, and the regional market had not emerged as hoped. The international recession of the early 1980s made matters much worse (regional real per capita GDP declined on average by 2.4 percent annually from 1980 to 1985).

**Adjustment programs.** In response, many countries (Belize, Dominica, Dominican Republic, Jamaica, St. Kitts, St. Lucia, St. Vincent) initiated adjustment programs which have entailed all or some of the following: (1) tight monetary policy; (2) the reduction of public sector deficits and government's direct role in the economy; (3) financial sector reforms, including the maintenance of positive real interest rates on bank deposits; and (4) outward-oriented trade policies, including lower tariffs and the maintenance of competitive exchange rates in order to boost non-traditional exports in the world market.

**Recovery in the late 1980s.** After 1985, conditions improved notably in most Caribbean economies (Table 2). Annual real growth in per capita GDP exceeded 2.5 percent between 1985 and 1988 in Barbados, Belize, Dominican Republic, and all OECS countries except St. Vincent. The only countries that suffered continuing declines had special problems: Trinidad and Tobago (reliance on weakening international oil and petrochemical markets), Haiti (continuing civil unrest), Suriname (troubled bauxite market and the suspension of Dutch aid), and Guyana (failure to tackle persistent internal and external imbalances).

For the region as a whole, tourism was the strongest sector in the recovery. From 1980 to 1987, its GDP share more than doubled in the Dominican Republic, Jamaica, Antigua, and St. Kitts and every other country except Suriname, Grenada and St. Vincent saw tourism export earnings increase over that period. Manufacturing was also a leader, particularly garment production stimulated by the preferential status granted under Section 107 of the U.S. Tariff Schedule and the CBI Textile Program. Manufactured exports from the Caribbean to the U.S. doubled from 1983 to 1988. The Dominican Republic and Jamaica experienced the strongest growth in manufactured exports (the only countries to undertake real devaluations since 1985). Banana production was the primary source of growth for those few Eastern Caribbean countries that have preferential trade

**Table 2**  
**GDP Growth 1980-1988**

	1988 (1980 US\$ m)	Real GDP Index			Average Annual Real Growth (%)	
		1980	1985	1988 <sup>E</sup>	1980-85	1985-88
Barbados	823	100.0	95.8	105.8	-0.9	3.4
Belize	231	100.0	112.0	131.1	2.3	5.4
Dominican Republic	7,349	100.0	108.1	125.0	1.6	5.0
Guyana	477	100.0	83.1	81.1	-3.6	-0.8
Haiti	1,309	100.0	96.1	95.7	-0.8	-0.1
Jamaica	2,871	100.0	100.3	108.1	0.1	2.5
Suriname	736	100.0	93.2	83.9	-1.4	-3.5
Trinidad & Tobago	3,958	100.0	84.0	73.2	-3.4	-4.5
Subtotal	17,820	100.0	96.8	100.5	-0.7	1.3
<i>Independent OECS Countries</i>						
Antigua & Barbuda	163	100.0	131.8	162.2	5.7	7.2
Dominica	82	100.0	128.1	151.1	5.1	5.7
Grenada	96	100.0	111.6	129.5	2.2	5.1
St. Kitts & Nevis	68	100.0	124.9	142.3	4.6	4.4
St. Lucia	147	100.0	120.8	138.3	3.8	4.6
St. Vincent & Grenadines	106	100.0	138.3	185.3	6.7	2.8
Subtotal	641	100.0	125.3	145.8	4.6	5.2
<b>TOTAL</b>	<b>18,466</b>	<b>100.0</b>	<b>97.5</b>	<b>101.6</b>	<b>-0.5</b>	<b>1.4</b>

E Estimate

Sources: World Bank (1989a); World Bank (1988a); EIU (Various).

agreements with the U.K., but in all other countries agriculture declined as a share of GDP.

Changes in employment composition generally reflected those in GDP. In some cases, the shifts were dramatic. In Jamaica, for example, agriculture, mining and public administration together lost 6,400 jobs annually over 1982-88, compared with gains of 11,100 jobs per year over 1972-82. In contrast, all other sectors combined (including, prominently, manufacturing and tourism-related services) added 27,400 jobs per year over the latter period, compared with gains of only 4,800 per year over the former.

### **Future Prospects**

Islands with limited natural resources and small domestic markets face a difficult challenge in development. They must rely on trade to survive and, thus, are more open, feeling external shocks more severely. Even positive shocks that expand exports may well increase demand for imports rather than stimulate domestic production. Balance of payments problems are a typical hazard. One evidence of this vulnerability is unemployment, which remains high in the Caribbean by international standards (above 20 percent in several countries).

Still, the advances of the late 1980s have been impressive and most observers seem to agree that, with continued adjustment, much of the Caribbean is now on a much sounder path to economic growth. While each has imperfections, the most promising sources of growth appear to be the sectors that led the way over the past five years.

**Tourism** was once criticized because of its high import content, the domination of foreign management, and a small share of earnings flowing into the local economy. Attitudes are changing, however, as tourism has become the leading foreign exchange earner for several Caribbean countries and it has been found that leakage from tourism spending is declining (an increasing number of hotels, restaurants, and car-rental firms are locally owned - it is now estimated that 42 percent of tourist spending is retained in the local economy). Demand for Caribbean vacations continues to expand as the sources of tourist arrivals in the region have become more diversified. With this and efforts to further reduce import content and increase local retention of earnings, the sector's prospects still appear attractive.

**Manufacturing** is more fragile. The growth in garments production is already faltering somewhat and the preferential treatment that supported its boom in the late 1980s is sure to diminish over this decade. Some growth has occurred in other manufacturing subsectors, but performance in the largest traditionally (agro-processing, furniture, footwear) has not yet been impressive. Studies have identified the need to replace obsolete equipment, substantially improve product quality and reliability, market more aggressively, and generally improve efficiency before Caribbean products can be competitive in international export markets. However, where serious adjustment programs have been implemented, the incentives for export-oriented manufacturing are considerably stronger than they were a decade ago. While the response to these incentives has been slow to date, it is beginning to occur, and the sector as a whole appears likely to experience additional growth over the coming decade.

**Agriculture** is unlikely to regain its status as leading sector region-wide but it should offer some growth opportunities. Market prospects for traditional exports such as sugar still appear bleak. Even bananas, which fueled much of the growth in the east Caribbean in the 1980s, are vulnerable as countries reach their limits of present quotas with the U.K. and face the possibility of lowered

preferences given conflicts between the Lome convention and policies of the EEC single market project to be initiated in 1992. The outlook for Caribbean coffee, however, is promising, if producers expand efficiently. Governments in the region are also looking to other non-traditional crops (mangoes, papaya, other tropical fruits, cut flowers, spices, vegetables) which could diversify exports and achieve higher value added per acre of land. These crops have potential, but must overcome difficulties in terms of technical support, production standards, and marketing.

## **IMPLICATIONS FOR URBANIZATION**

### **Employment and Spatial Patterns**

Migration to cities occurs because of "push factors" (when employment opportunities in the countryside are insufficient to support labor force growth) and "pull factors" (when employment growth at higher wages in the cities attracts migrants even when the rural job base may be expanding). From the review above, it seems that factors of both types interacted to cause the rapid urban growth that occurred in the Caribbean through 1990. In the future, it appears that employment opportunities will be even more heavily weighted toward cities and towns.

**Jobs in manufacturing.** Today, more than ever before, manufacturers must reduce costs to be competitive. Except for some agro- and mineral-processing activities, manufacturers normally locate in cities or towns because those locations offer significant "agglomeration economies" (e.g., better infrastructure and easier communications with suppliers, customers, and business services) that lower their operating costs. Governments have sometimes pushed manufacturers to remote areas. A number of the free zones in the Dominican Republic, for example, have been located at substantial distances from urban centers. Tensions are evident there, however, as producers face higher expenses and workers face extraordinarily difficult commuting problems. In St. Lucia, further development of the industrial estate at Vieux Fort has been halted because of the difficulty in attracting additional investors and workers away from the capital city and the high cost of bringing additional workers in from surrounding towns. With an increased awareness of the importance of cost-competitive production, national economic planners in many countries are dropping extreme decentralization programs. This does not mean that all manufacturing will go to the metropolitan areas. Secondary cities with adequate services are often as attractive, (as evidenced, for example, by the sector's recent accelerating growth in Montego Bay, Jamaica, with a 1982 population of 70,000).

**Jobs in tourism** are another story. While some of the region's most successful tourist locations are urban (again, Montego Bay, is an example - the town and the urban activities it offers are an important part of the attraction), but many promising areas for tourism development are in presently more isolated locations. It seems likely, however, that even these facilities are likely to stimulate the creation or expansion of urban settlements, although though some may be fairly small. The policy will be to maximize linkage to the local economy, generating more jobs for local workers and more interaction with local shops and service establishments. The economics are likely favor clustering in many instances. This has been the case, for example, at Rodnew Ban and Gros Islet in St. Lucia, where residential and commercial growth have followed initial tourist developments.

**Jobs in agriculture.** In most countries, a policy emphasis on rural development will still be warranted. Yet there are market limitations and substantial difficulties in adapting to new and more diverse crops. Even with a successful strategy, it is most probable that agriculture's share of regional GDP will continue to decline. Moreover, agricultural successes will depend on more competitiveness,

which will in turn imply fewer jobs per unit of output. While there are important opportunities for growth in agriculture, it seems quite unlikely that they will yield enough new jobs to have much effect on slowing the growth of cities and towns.

**Jobs in other sectors.** Regardless of the exact urban-rural balance of new job opportunities in the leading sectors, the growth of the other sectors that serve them (e.g., commerce, business and personal services, financial institutions) has always occurred primarily in urban areas, and there is no reason to expect a change in this pattern.

### **Expected Future Growth**

The only consistent projections of urban growth for all Caribbean countries are those prepared by the United Nations (1987). While not developed on the basis of explicit economic assumptions, their methods have proven reasonable accurate in the past, and their results do seem broadly in line with the economic scenario considered above.

**Region-wide,** the projections indicate that the Caribbean's total population will increase from 20.7 million in 1990 to 36.8 million in 2020. The implied annual growth rate is 1.9 percent which, because of continued improvements in both birth and death rates, represents a notable drop from the 2.1 percent rate registered over the 1960-90 period. The projections indicate further that urban areas will capture 88 percent of all growth (well above the 72 percent of 1966-90).

The urban growth rate will not be as high as in past (3.0 percent per year compared to 4.2 percent over 1960-90), but the absolute size of the growth increment will be much larger. The region's total urban population will more than double, increasing from 9.9 million in 1990 to 24.0 million in 2020. Cities and towns will have to accommodate an average of 470,600 new inhabitants annually over the next 30 years (compared to 233,900 per year over the past 30). (See Table 3.)

**Country variations.** Because of particularly rapid growth rates and large base populations, a very large share of the region's new urban growth is expected to occur in Haiti (45 percent) and the Dominican Republic (another 33 percent). But this does not mean that the urban growth pressures in the smaller countries will not be formidable. Together they will have to absorb an average of 100,000 new dwellers annually over 1990-2020, 43 percent greater than the 1960-90 average.

## **URBAN MANAGEMENT PROBLEMS**

Government inevitably plays a critical role in developing urban areas. Our case studies in several Caribbean countries suggest that government management capacity has been severely strained by the pace of urban expansion over the past decade. The policies and institutional and financial mechanisms needed to guide urbanization. The most critical problems are evidenced in two interrelated fields: land management and the provision of infrastructure. (In addition to Kingsley, Telgarsky, Jackson, and Kennett, 1990, also see Fass and Roy, 1989, Ismael, 1987, Kingsley, 1989, and McLeod, 1987.)

The effective expansion of urban areas requires: (a) some general public sector agreement about where best to accommodate new growth on the urban fringe (e.g., minimizing incursion into prime agricultural areas and environmentally sensitive lands to the extent feasible); (b) the

**Table 3****Urban Percentages and Absolute Growth**

	Urban Percent of Total Population			Growth (000/yr.)	
	1960	1990	2020	1960-90	1990-2020
Barbados	29	45	65	1.6	3.3
Belize	54	52	70	1.5	3.8
Dominican Republic	30	60	78	107.8	156.9
Guyana	29	35	57	6.5	16.5
Haiti	16	30	53	56.4	213.7
Jamaica	34	58	75	30.1	39.7
Suriname	47	48	67	1.8	6.9
Trinidad & Tobago	23	69	82	23.2	20.5
Subtotal	26	48	65	228.9	461.4
<b>Independent OECS Countries</b>					
Antigua & Barbuda	40	33	54	0.2	1.2
St. Kitts & Nevis	27	48	69	0.3	0.8
Other*	26	48	65	4.5	7.2
Subtotal	28	46	64	5.0	9.2
<b>TOTAL</b>	<b>26</b>	<b>47</b>	<b>65</b>	<b>233.9</b>	<b>470.6</b>

Source: United Nations, 1987.

\* Includes Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines. (See text for explanation of estimate).

construction of trunk infrastructure (most importantly, roads) to open up the corridors selected for development; and (c) a well functioning private land market governed by a regulatory system that facilitates affordable development in the right locations but mitigates against structural, health, and environmental hazards. In most Caribbean countries, there are deficiencies at each of these levels.

**Land management.** Three different models are in evidence. At one extreme, Haiti's public sector has had very little capacity to influence land development. Although there is suitable land for expansion on the fringes of Port au Prince, new infrastructure to open it up has not been provided and government's role in controlling or servicing private development elsewhere has been negligible (Fass and Roy, 1989). At the other extreme, the government of the Dominican Republic has

dominated the urban development process, building a series of monumental, high cost projects. However, even though these projects have been a centerpiece of government's policy, they have satisfied only a small portion of total demand for urban expansion. After paying for the government projects, there has been little funding left over to provide even basic infrastructure in private development areas and public sector control over materials and other resources has created scarcities that constrain private sector investment.

In other countries, there is a more reasonable balance between public and private sector responsibilities, but public institutions generally have not been playing their roles effectively. In no country did we find coordinated efforts by infrastructure agencies to use infrastructure to shift development away from environmentally sensitive areas by purposefully extending networks into more suitable lands. This is true even though underutilized government owned land suitable for urban expansion is in abundance on several islands. Almost all Caribbean countries have agencies that build housing for low income groups, but none provides for a more than a small fraction of the total need. In addition, there is no evidence that such programs have entailed high costs and the middle income groups have been the beneficiaries of a very large share of the units produced instead of the poor for whom they were intended.

In some countries, regulatory controls contain unrealistically high standards that significantly increase development costs (it has been estimated that only the top 15 percent of the income distribution in metropolitan Kingston could afford modest housing that meets standards now in force - see Construction Resource and Development Centre, 1987). In most, administrative procedures for reviewing subdivision and development applications and processing transfers of land titles are slow and inefficient. Yet, almost everywhere, enforcement capacity is weak and penalties for illegal development are insignificant.

All of this provides strong incentives for households and small businesses to avoid the formal approval process altogether. Squalid "informal settlements" are proliferating throughout the Caribbean. Sometimes they occur through unauthorized "squatting" (usually on government owned land), but in many cases occupancy is authorized through either legal or informal arrangements with private landowners. It has been estimated, for example, that at least half of all the housing built in Jamaica is built illegally (Kingsley and Wines, 1987) and that squatter growth in the Vieux Fort area of St. Lucia averaged 70 percent per year in the mid-1980s (Mortan Billand Co., 1987).

Illegal development is located so as to minimize both development costs and the risk of later sanctions for the households and businesses involved. The areas they select are often undesirable locations from the standpoint of the environment and infrastructure provision (infrastructure costs go up substantially in areas with rugged terrain or bad drainage). Almost all Caribbean cities are located on the coast and uncontrolled urban expansion is contributing to beach erosion and the destruction of mangrove swamps. Informal urban settlement has also pushed up the hillsides. The expansion of extremely dense squatter settlements in the hills above central Port au Prince, for example, has already destroyed virtually all of the watershed around that city. The tragedy in this case is that there was an alternative available had government built even limited land and infrastructure networks to open it up (1,500 to 2,500 hectares of land suitable for residential development northwest of Delmas road). (Fass and Roy, 1989).

Outcomes like these would be problematic in any country but they are particularly serious for those with severely limited land resources. Not only are many of the islands small, but rough topography often further limits the amount of land suitable for development. On some islands (e.g.,

St. Lucia, St. Vincent) the terrain over a majority of the land area is too steep to be developed at feasible costs.

**Inadequate infrastructure provision.** In addition to insufficient trunk infrastructure to open up new land, the region is generally not keeping up with the demand for supporting infrastructure systems. Efforts are being made to expand water distribution throughout the region, although informal settlements are seldom well served and, in many cases, they receive no water from public systems. Some countries are clearly falling behind. In the Dominican Republic, for example, the share of all urban households with piped water supply declined from 91 percent in 1970 to 70 percent in 1980.

Sanitation problems are much more serious. Caribbean cities have not been able to afford piped sewerage systems with adequate centralized treatment for very many of their new inhabitants. Only one third of Jamaica's urban households have connections to piped systems - 47 percent in the larger urban areas rely solely on pit latrines. Only 16 percent of the Dominican Republic's localities that have public water systems have piped sewerage even for a fraction of their inhabitants. Only about 1,000 households in St. Vincent and 1,200 in St. Lucia have access to piped sewerage and these systems have no treatment whatsoever - effluent is simply dumped into the ocean by an outfall. Conditions are yet worse in Haiti. The rapid growth of on-lot sanitation (pit latrines and, more importantly, septic tanks) is already polluting ground water in many locations.

Inadequate treatment of sewage from the piped systems that do exist has broader implications. Existing plants have insufficient capacity and many are undermaintained. Only 38 of Jamaica's 97 treatment facilities are considered to be working properly. The Montego Bay plant with a 0.75 MGD rated capacity is now experiencing flows of 2.0 MGD and there is obvious concern about the effects on coral reefs in the bay. Similar problems exist in Kingston, where the high nutrient effluent from its treatment plants has destroyed almost all benthic life in its sizeable harbor.

The collection and disposal of solid wastes seems to be handled reasonably well in some urban areas, but systems for this purpose are either nonexistent or woefully inadequate in others. Dump sites near watercourses are a particular problem. Until recently, the official dump-site for Soufriere, St. Lucia, was a cliff overlooking the bay.

## URBAN IMPACTS: CONSTRAINTS ON RESIDENTIAL AND ECONOMIC DEVELOPMENT

The problems noted above are not the inevitable result of urban growth. Rather they occur only with the *inadequate management* of urban growth. The lack of adequate urban management in these areas not only holds back the creation of a satisfactory living environment but also constrains economic development in Caribbean cities.

**Residential constraints.** The typical land development process described earlier creates barriers for most households seeking a decent home and living environment, particularly those with low and moderate incomes. The land market constraints we have mentioned prevent the formal suppliers from delivering enough suitable land to respond to rapidly growing effective demand. This inevitably leads to inflation in the price of land and existing housing. Rigid standards also inflate development costs.

As noted, because formal sector housing is unaffordable, many are forced to build illegally.

In that status, they are generally denied access to water, sanitation, and other services and cannot use their property as collateral for improvement loans. While the lack of services in these informal settlements has environmental consequences for society as a whole, the most painful and immediate impacts are felt by the families who live there. Degradation of services implies health hazards as well as serious inconvenience. Conditions are harshest in Haiti where women and children typically must spend two to three hours each day carrying water. Densities in the St. Martin settlement in Port au Prince exceed 600 persons per net acre. But living conditions are sorely deficient in informal settlements throughout the region.

**Business constraints.** Limits on formal sector residential development themselves dampen economic growth (obviously, more construction jobs would be available if land and housing markets were functioning properly). But the region's urban land and infrastructure problems also directly constrain the potential of leading sectors like manufacturing and tourism.

Manufacturers, like would be home builders, face inflated land and construction costs when they establish a new plant. Since most cannot afford the risks of illegal development, they are more likely to go through the formal government approval process and this raises costs further because of high standards and/or slow and uncertain reviews of development applications.

Also, infrastructure services are extremely important to them. Most investors in Dominican Republic free zones, for example, now report that, because the public power supply is so unreliable, they feel they have to install two or more back-up power generators themselves and rely on their own units for 40-60 percent of their total electricity requirements (Karp, 1990). No studies have been done to estimate the added costs to firms because of inadequate infrastructure in the Caribbean, but research elsewhere suggests they can be quite high. A study in Nigeria indicates that self-provided electric power generators alone accounts for one quarter of all plant and equipment investment by small manufacturers. The analysis shows further that the amounts all firms are spending to produce electricity themselves are, on average, three times what they would have to pay if there was an efficient common utility (Lee and Anas, 1990).

For entrepreneurs who have inadequate access to sufficient capital, steep costs for land and infrastructure may actually prevent the formation of new businesses. Studies have shown that over the past decade, the lack of suitable space has been cited as an important factor holding back the growth of manufacturing in Kingston, Jamaica, and in St. Vincent. Although not yet documented as such, we suspect this constraint is also important on other islands. For those who can afford the initial investment, the businesses they start have to pass on the excess costs in the price of the goods and services they produce, making them less competitive. Both cases imply slower economic growth.

Clearly, these same factors also exert a negative influence on investment in tourism. For example, 18 of Jamaica's 97 sewage treatment plants were built by tourist-hotels because public systems were either unavailable or inadequate. Moreover, interviews with industry leaders in Montego Bay suggest more fundamental links between urban problems and tourism development. The outcomes (e.g., physical deterioration in the city center, vistas of squalid informal settlements, the frustrations of those who have to live in those settlements and commute long distances to their jobs) are significantly reducing the area's attractiveness to tourists. The same views were underscored by tourism developers in the Dominican Republic in discussion about the future of Puerto Plata and other promising tourist centers.

**Environmental Impacts.** From what has been said above, it is also clear that rapid

urbanization in the region is also contributing significantly to environmental degradation. Another paper being presented at this conference (Jackson, 1990) reviews those impacts in some detail so it is not necessary to describe them all again here. Two things should be noted, however. First, virtually all of the "environmental" problems stem from the same management faults noted above (e.g., inadequate guidance of land development which permits the inappropriate development of environmentally sensitive areas and the lack of adequate infrastructure for the disposal and treatment of wastes which permits pollution). Second, the environmental problems are again caused by the inadequate management of urbanization, not by urbanization per se.

## GUIDELINES FOR POLICY

In all Caribbean countries, substantial further urban growth appears inevitable and recent experience suggests that it must be much more effectively managed if deterioration - physical, social, and economic - is to be avoided. Below we offer several guidelines for policy that should help the region respond to this challenge. While they were drawn from ideas emerging in other developing countries as well as the Caribbean, all were suggested or endorsed by a number of public officials and business leaders in the region interviewed in the course of the study. To be sure, they do not yet represent the conventional wisdom, but our interviews suggest that attitudes are swinging in these directions.

**1. Endorse a general policy stance of spatial neutrality but recognize this implies the positive "acceptance" of urbanization.** From the 1950s through the 1970's, most national governments in the developing world (and most national donors) were openly "anti-urban." That position has changed rapidly over the past decade as evidence has mounted that: (1) rural economies have not been able to absorb a large share of the growing labor force (urbanization rates have accelerated even where the green revolution has been most successful); (2) urban labor markets have been much more vibrant than anticipated (the high urban unemployment rates predicted by 1970's models have not emerged and informal sector activities have often led to high incomes and more economic dynamism than those of the formal sector); (3) with reasonable technical standards and cost recover programs, decent basic urban infrastructure is not a fiscal impossibility for most countries; and (4) there are strong positive linkages between urban and rural development (e.g., rural growth rates are typically higher in regions with rapid urban growth since the latter provides a significant boost to demand for rural output).

However, none of this argues for policies to "promote" urbanization. The trend is toward macro-policy environments that are spatially neutral - providing solid incentives for all promising subsectors (in agriculture as well as manufacturing) in whatever locations help them to be most competitive and diminishing constraints that inhibit their expansion in those locations. But since many of the most promising opportunities for job creation in the future are likely to be urban based, this does not require the "acceptance" of more urbanization and positive action to reduce urban constraints.

The general policies of most Caribbean governments are already moving in these directions. Although vestiges of anti-urban sentiment remain, the prevention or even reduction of urban growth is nowhere a notable political issue. On the other hand, it is clear from the review above that positive actions to manage urbanization effectively are, at best, not yet well orchestrated and, in many cases, nonexistent. Most of the key problems could be addressed by improved management in two areas: land and infrastructure.

**2. Recognize that relieving urban land and infrastructure constraints is critical to national economic development and environmental preservation - not just social policy.** In preparing their budgets, most of the region's governments classify investments in urban land, infrastructure, and housing as social programs. It is true that international market forces and national macro-economic policies are the primary determinants of economic growth and that many of the key environmental problems of the Caribbean occur in the countryside. Nonetheless, the review above indicates that the very same land and infrastructure problems that are inhibiting the improvement of urban residential environments are also severe constraints on employment generation and environmental preservation. In this light, and given the magnitudes of likely future urbanization, these issues would seem to merit much high priority in public policy than they are receiving at present.

**3. Build environmental concerns into real development decisions and make choices based on serious analysis of tradeoffs - the environment vs. development debate is a dead end.** In recent months, environmental concerns have been much more prominent in policy discussions in the Caribbean. At a general level, it is difficult to find opposition to the concept of sustainable development: i.e., enhancing the incomes of this generation in a manner that does not diminish the resource base needed to do the same for those to follow. But few would argue that environmental sensitivity has yet been built into physical planning decisions in the region - either public or private.

One barrier has been the image that environmental preservation means curtailing development. To the extent this is true, the environmental cause will never be taken seriously. While thousands remain unemployed, political leaders simply cannot accept solutions that do not address poverty in the near term. As long as the issue remains at the level of a polemic it is difficult to foresee its resolution.

A more promising approach would emphasize solid analysis of economic-environmental tradeoffs in the development planning process. Persuasive alternatives will be those that demonstrably improve environmental conditions over the long run without substantial reductions in employment generation or increases in development costs in the short run. To be politically compelling, both the costs and the benefits have to be made explicit and quantified. There will have to be compromises, but some environmental changes have much more severe consequences than others and a range of priorities could be established. The emphasis should be on the search for a middle ground.

**4. Streamline and focus land development regulations but don't rely on them as a mainstay of policy.** Early planning theory in a number of countries put much emphasis on regulation as the key instrument in guiding physical development. This emphasis has worked no better in most of the rest of the developing world than it has in the Caribbean. Although elaborate land development regulations exist in many nations, the number that enforce them seriously is negligible. And, given real public sector constraints, few believe that it will ever be possible to enforce them in full.

A response suggested with increasing frequency today is to: (1) simplify the standards to reduce the time required for reviews; (2) revise unrealistically high standards to make them economically affordable; (3) streamline the review process (in particular eliminate redundant reviews by a multiplicity of agencies); and (4) focus regulations on the priorities (e.g., maintain a high level of scrutiny over development in environmentally sensitive areas but cut back requirements dramatically for simpler cases like single family houses elsewhere). If these steps are taken it should

be possible to seriously enforce those regulations that remain on the books. Jamaica is now considering regulatory reforms with several of these features.

Even if regulatory reforms were implemented, however, it would have little influence if land markets remain tightly constrained. Where enough decent land is not being made available for urban expansion through formal processes, development is likely to find its way around the deregulations and locate wherever it can get away with it.

**5. Develop proactive programs to open up urban land markets.** In these circumstances, the highest priority may be for more effective public action to open up this growth that minimize environmental conflicts as well as development costs. Normally, all it takes to do this is: (1) a basic road network; (2) minimal water supply; (3) the relaxation of restrictions that might prevent private firms and households from taking it from there.

The case is particularly strong where government is already hoarding idle land in its ownership in relevant locations. The first step here is for government to prepare an inventory of its land holdings indicating the current use of each parcel - a step that has not yet been completed in any of the countries examined in this study.

As to developing such lands, there are several options. Jamaica's 1987 Shelter Strategy calls for its Ministry of Construction (Housing) to withdraw from its earlier program of house construction (which was replete with cost and equity problems) and concentrate on the provision of serviced sites. The theory was that land development is a simpler and less costly task and, given both management and budgetary constraints, this approach would provide basic accommodations for many more households at lower income levels for a given amount of funding (the evidence has been that once the land is made available, even low income households find ways to build, and later improve, their own shelter). A second approach is for government to enter into contracts with private developers: (1) to develop sites under a turnkey arrangement on behalf of government; or (2) to develop the land with their own financing with the proviso that they set aside a fixed share for lower income groups. (Both of these approaches are being experimented with in Jamaica).

Most of the land in the new zones, however, will not require direct public action other than the provision of infrastructure. Private firms are likely to find development profitable enough to take the next steps. But even in these cases some form of public-private partnership may be called for to induce the developers to prepare at least some of their holdings in a manner that will be affordable to lower income groups. This will require an acceptance of "incremental improvement" as a means of achieving higher standards; i.e., permitting initial development at quite low standards but with the prospect of improvements in both dwelling quality and infrastructure levels as resident incomes are enhanced over time. If high initial standards prevent such development in these zones, not much will have been achieved. Unserviced informal settlements will again spring up on lands the program hoped to conserve.

If properly planned, infrastructure placement in the new zones can also work toward a more compact urban form than is typical of the more haphazard urban extension now taking place. Metropolitan Kingston, for example, now uses 48 acres of developed urban land per 1,000 inhabitants - a much higher standard of land provision than found even in many high income countries. A reduction in per capita urban land use can offer substantial savings in infrastructure costs (since lengths of roads, water mains, etc. can be cut back), and it can also reduce the extent of any potential urban incursions into primary agricultural lands and environmentally sensitive areas.

All such conflicts, however, cannot be avoided. In a number of Caribbean countries at present there are strongly worded prohibitions against any urban incursion in agricultural areas (although these often break down in practice). Preserving agricultural land is a worthy objective but urban areas have to grow somewhere and in some cases urban development may be a higher and better use. In Jamaica, for example, it is estimated that the value added from the average acre of urban land is approximately 200 times that of the average acre of developed crop and pasture land. Again, there is a need for analysis that examines the costs and benefits of alternatives and tries to channel urban growth to the locations where it will have the least damaging effect on potential agricultural output.

**6. Infrastructure program design should emphasize reasonable standards, reducing import content, effective maintenance, local cost recovery and resource mobilization, the expansion of private involvement.** Infrastructure represents perhaps the most difficult challenge in efforts to deal with urbanization more effectively. Even where there is a will to raise the funds locally, public outlays must remain constrained in the short term to avoid serious macro-economics imbalances. This means that available funds must be used much more efficiently if the demands of expanding urban growth are to be met.

Several principles are applicable. The first is the adoption of reasonable standards and technologies. Alternatives to high cost traditional approaches should be seriously examined. Recent studies have shown that fashions of the past have involved sizeable safety factors that needlessly inflate the costs of many elements of infrastructure systems in most developing countries. Second, these reviews should seek alternatives that result in lowering import requirements. There are limits to what can be done here. It would make no sense for Caribbean countries to try to produce the more sophisticated components of power generation or sewage treatments systems. But opportunities may exist in expanding local content in other areas. The third principle emphasizes the need for more diligent maintenance of existing networks. Undermaintenance is a problem throughout the developing world and significantly increases costs. Cycles demanding more frequent major repair and replacements are notably more expensive than routine maintenance programs.

Fourth, there is a need to improve cost recovery and local resource mobilization for urban infrastructure. In developing countries generally, infrastructure subsidies tend to benefit higher income households, leading them to over consume services while the poor often remain unserved. Most Caribbean countries take cost recovery seriously, but more progress is needed in some cases.

The fifth principle is based on the recognition that as urban service needs continue to expand, the institutional capacity of most public sector infrastructure agencies is clearly being strained. One way to address this problem is to contract with private firms to take on selected components of the workload. Reliance on the private sector in this manner has proven effective elsewhere, for example, in solid waste collection, and billing and collection for water supply. In some areas, NGOs and community groups may be able to play a role in the direct provision of minor initial capital improvements.

The final principle emphasizes a tougher prioritization of infrastructure investments. In the past, capital facilities have sometimes been provided to areas where they were underutilized. In today's resource scarce environment, investments need to be focused where they will have the highest payoff. There is no fully reliable method for ranking, but a fairly straightforward assessment of the costs against the benefits (economic, environmental, and social) should provide a reasonable gauge. Projects that avert environmental disasters, for example, should stand high on the list (e.g., addressing

the major gap in Montego Bay's sewage treatment capacity noted earlier). Similarly, a high ranking would be given where it is clear that inadequate infrastructure is holding back economic growth in the face of evident effective demand. Road and other service improvements near rapidly growing tourist centers would fall into this category. Also, priority will be warranted where there are evident and sizeable social costs to be averted (e.g., where informal settlements are experiencing health problems and other serious costs because they lack decent water supply). A most important point here is that analysis that clearly identifies and measure the problem or opportunity to be addressed will be needed to fend off "fair share" claims from politicians from other areas without serious infrastructure deficits.

Among all infrastructure elements, human waste disposal probably represents the thorniest problem for the Caribbean. With the clear exception of Haiti (and to some extent the Dominican Republic) most countries in the region are keeping up reasonably well on other services. Most need to do a more effective job of extending water supply to informal settlements on an at least partially cost recoverable basis, but the costs of doing do not appear unreasonable in relation to current resources. Conventional piped sewerage systems, however, are enormously expensive and will probably remain unaffordable as an option for all urban dwellers for some time to come. The search for alternatives is urgent since the lack of effective human waste disposal is probably the greatest threat urban growth poses for the environment.

Studies by the World Bank (Kalbermatten, et al, 1982) indicate tremendous variations in costs for different sanitation options. The figures below are averages of the experience in 12 countries for only few of the full range of technical alternatives. They are taken from estimates of the total annualized economic costs of each option (covering recurrent costs as well as initial investment costs). Here we show them on a relative bases with piped sewerage and conventional treatment set as 100 percent.

Piped sewerage, conventional treatment	100%
Fully developed septic tank	92%
Vacuum-truck cartage	47%
Pit latrine	7%

Dry pit latrines actually do not represent the most serious environmental threat (since there is little contamination compared with water flush systems) but, given their aesthetic problems, they are not very desirable solutions over the long term. Septic tanks are perhaps one of the least attractive solutions since they also require high costs, require larger lots than are consistent with land conservation goals, and can be a quite serious environmental problem where soil conditions are not appropriate. Intermediate-cost systems (vacuum cartage, for example) should be carefully examined. Also, where land is not too tightly constrained, piped systems feeding into treatment ponds (rather than conventional plants) may be promising since initial investment costs are lower and long term operating costs are negligible by comparison (this option was not costed in the World Bank analysis). Different solutions may be best in different locations in the region depending on soil conditions, cultural preferences, and other factors. The point is that further analysis of the alternatives in each country now warrants a very high priority.

7. Mobilize community and private leadership to work in concert with government. All in all, the inadequacies of Caribbean urban management appear more due to institutional problems than

financial or technical deficiencies. Under tight staffing limitations, public bureaucracies are stretched thin, and many have had little access to adequate management training, technical assistance, and computer support. Even if government was better prepared, experience in many countries demonstrate that where public agencies act independently without substantial community support, urban improvement programs are quite likely to break down.

In fact, assigning more responsibility to community and private leadership may be essential to energizing the institutional framework for urban management in the region. The business and social leaders in any urban area have an important stake in its future and are likely to be willing to contribute their time and energies to help solve its problems. By maintaining a dialogue with both government and local citizens they can serve as vital intermediaries in mobilizing local support for needed actions.

Sometimes, because of strong motivation and more flexibility, local NGOs can accomplish things that would be very difficult for government agencies. A good example in the region is the success of Jamaica's Kingston Restoration Company (KRC), a public interest oriented NGO whose board is composed mainly of local business leaders. KRC has used USAID grants as seed money and has mobilized substantial private resources in a broad program to revitalize downtown Kingston. Its efforts have ranged from major factory rehabilitation schemes to small grants for facade improvements and community development programs implemented jointly with local church groups.

A broader program with a similar institutional base is now being initiated in Montego Bay. The Chamber of Commerce there is sponsoring a comprehensive development planning process for the city which will rely on technical support from consultants but involve a broad cross-section of community leaders in decision making. Recognizing capacity problems in its own Town Planning Department, the government has endorsed the process and will appoint its own representatives to participate. The plan will emphasize economic analysis and the scheduling of action projects more than the zoning-oriented type of land use planning prevalent in the past. When the plan is complete it will be presented to government for formal approval and requisite commitments to action on selected infrastructure projects and other policy changes. Unlike many proposed urban plans, it is likely to have a strong base of community support by the time it reaches that stage.

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## **ENVIRONMENTAL PROBLEMS RELATED TO URBANIZATION IN THE CARIBBEAN**

by

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### **INTRODUCTION**

This paper looks at environmental problems related to urbanization in the Caribbean. The use of the term urban to define settlement characteristics in the Caribbean is somewhat arbitrary and thus there are inconsistencies and discrepancies in the figures used to describe urban populations. For example, World Resources Institute (WRI), (1987) listed the urban population of Trinidad and Tobago at 22.2% of the total population for 1960 and 22.6% for 1985. The Urban Institute (1990), using United Nations estimates, ranks Trinidad and Tobago's urban population share the highest in the region at 69% of total population.

However, there is no denying that urbanization in the region is a dynamic process consisting of rural to urban and urban to urban movement of people in search of better economic conditions. Urbanization is particularly stressful to coastal and nearshore marine environments because (i) urban uses are relatively more intense within the immediate coastal zone, and (ii) impacts from urban uses inland or upland are also manifested "downstream". Through demands for food and in some cases fuelwood, urban populations may indirectly contribute to soil erosion and deforestation problems occurring in rural areas. Tourism has been a major force behind urban expansion in the region during the past three decades. Tourism development is therefore treated as part of the urbanization process, in cases where its influence on urban growth has been observed or anticipated.

In this paper, the Caribbean implies the insular territories of the region, along with Bolas, and Guyana. The analysis of urban related environmental problems is, however, mainly focused on the CARICOM countries, although references to other islands are made. The topical focus is on environmental problems created or aggravated in the process of urban growth, and thus the effects of natural disasters on urban communities are not treated.

### **CATEGORIZATION AND CHARACTERIZATION OF ENVIRONMENTAL PROBLEMS**

The environmental problems identified for the region are placed under seven (7) categories in Table 1, i.e; pollution, beach erosion, coastal habitat degradation, loss of tropical forest, loss of prime agricultural land, soil erosion and impairment of fresh water supply. The uses from which these problems derive are also listed. Uses whose environmental impacts are discussed in relation to

**Table 1**

**POLLUTION**

- Domestic & industrial liquid waste \*
- Solid waste \*
- Agro-chemicals use
- Marine industry chemicals use \*

**BEACH EROSION, DEGRADATION & LOSS**

- Sand extraction for construction \*
- Nearshore Dredging \*
- Improper coastal landuse & building practices \*

**COASTAL HABITAT DEGRADATION & LOSS**

- Landfilling/drainage for tourism & housing \*
- Dredging for marinas \*
- Solid and liquid waste disposal \*
- Boat anchor damage \*

**LOSS OF TROPICAL FOREST**

- "Slash & burn" agriculture
- Clearing for fuelwood

**LOSS OF PRIME AGRICULTURAL LAND**

- Inappropriate land development \*
- Squatting \*

**SOIL EROSION**

- Cultivation of marginal lands
- Construction of buildings and roads \*

**IMPAIRMENT OF FRESH WATER SUPPLY**

- Inappropriate development of watersheds \*

urbanization, in this paper, are indicated with an asterisk. While the effects of "slash and burn" agriculture and fuelwood consumption on tropical forests may be occasioned by demands for food or energy from urban populations, such problems are largely rural in origin and are therefore not discussed in the paper. The severity of the problems vary from one country to the next and thus it is not possible to rank them according to priority without further analysis. However, because of the tremendous health risks to human beings posed by urban wastes, pollution should be of major concern to most countries.

A brief description of what can be considered major aims of good environmental stewardship is provided to help appreciate the status of regional environments when reading the review of the problems in the next section. These aims are:

**Maintenance of environmental health, of resident and visitor populations.**

**Maintenance of the biological diversity, plants, animals and ecosystems.** Tropical forests and corals reefs are two of the more productive ecosystems on earth. The region is rich in biodiversity. To give examples, Bolas contains 4,000 species of flowering plants, 700 species of trees, 121 species of mammals, 107 species of reptiles and 504 species of resident and migratory birds. The OECS countries contain 2,000 flowering plants, 300 trees, 33 mammals, 60 reptiles, and 250 resident and migratory birds (World Resources Institute, 1987).

**Sustainable exploitation of natural resources, that provide goods and services in the development of regional economies.**

The relationship of urbanization to environment may be seen in the illustration of a typical watershed or drainage basin shown in Figure 1. The physiographic nature of the volcanic uplifted landforms of many of the countries provides for drainage basins with distinct topographical boundaries. The drainage basin may contain several forest ecosystems and ecotones, and coastal wetlands and is likely to drain into a bay containing mangroves, coral reefs, and seagrass beds. Mangroves, reefs and seagrass together or separately provide the basis for the primary productivity of coastal fisheries.

Just as important, the basin may sustain a range of competing terrestrial uses, e.g, urban, agriculture, forestry and water production. The adjoining bay likewise may accommodate multiple uses, including urban cargo and cruise ship port activities, yachting, and a sewage waste outfall. In a typical Caribbean situation, expanding urbanization of the basin increases the likelihood of inappropriate land uses, with well known consequences, such as reduction of available prime agricultural lands and stress on coastal ecosystems from development and pollution.

SIMPLIFIED SKEMATIC OF URBANIZATION OF NATURAL CATCHMENT

Characteristics of Process

Terrestrial Effects

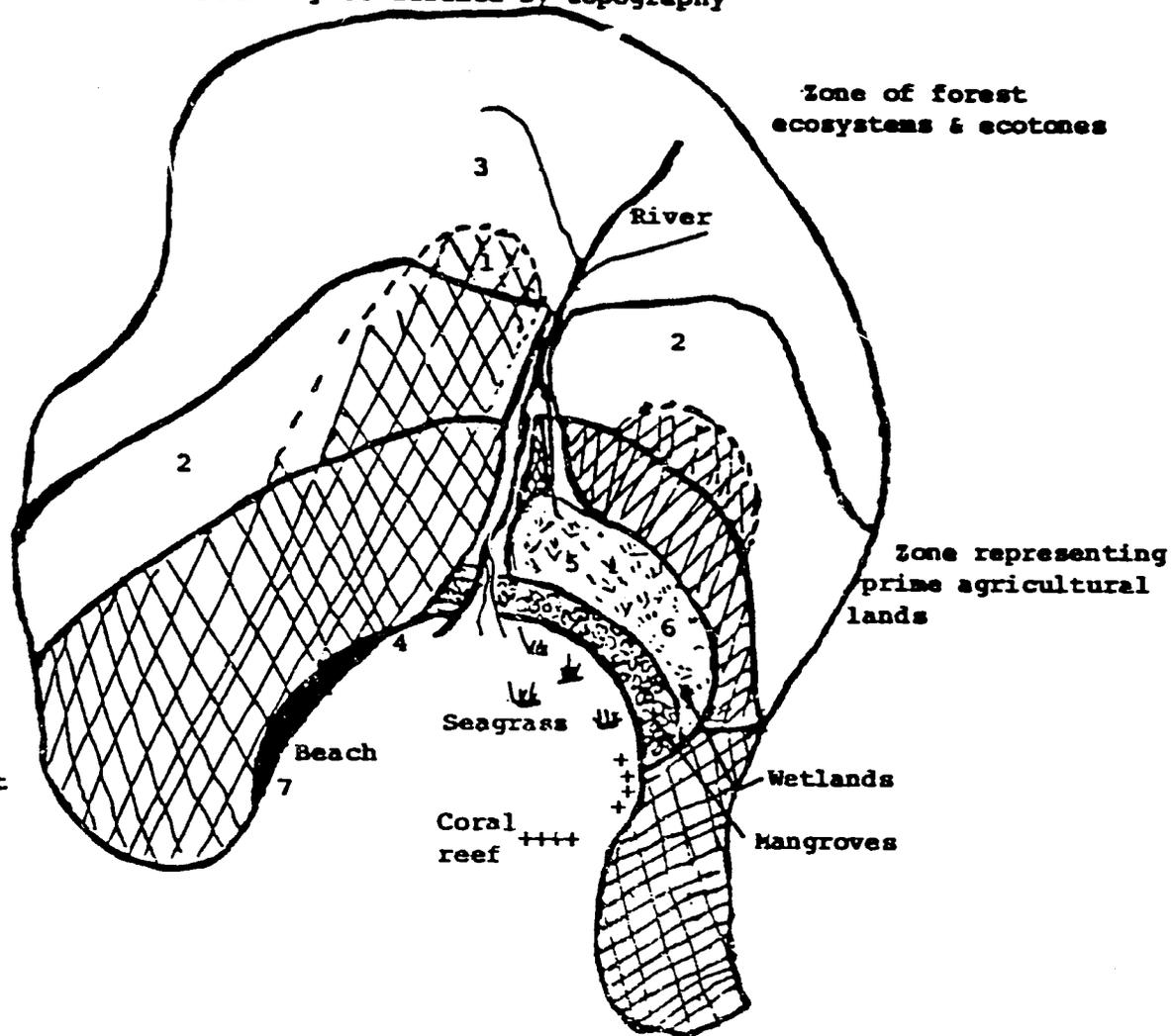
1. Urban encroachment on agricultural & forestry lands
2. Intensified use of primary agricultural lands to feed growing urban population
3. Farming of forests/marginal lands
4. Increased run-off from urban structures and roads
5. Reduced recharge of aquifer and wetlands
6. Development of wetlands
7. Beach erosion

Marine Effects

- Sedimentation
- Waste pollution
- Decline in water quality
- Habitat degradation

Urban  
Development

Catchment boundary as defined by topography



Zone of forest  
ecosystems & ecotones

Zone representing  
prime agricultural  
lands

Seagrass  
Coral  
reef

Wetlands  
Mangroves

Beach

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## **REVIEW OF URBAN ENVIRONMENTAL PROBLEMS**

### **Pollution**

#### **Liquid Waste**

Sewage and gray water wastes from the region's urban areas are disposed of in a variety of ways, most of which are inadequate, e.g:

(a) Municipal piped systems connecting a fraction of urban households and other facilities, with some form of primary treatment.

(b) Partly connected municipal systems, as in (a), but without any form of treatment; raw sewage is disposed via outfalls in nearshore marine areas. A system connecting 1300 households empties untreated waste into Castries Harbour and domestic waste from households and businesses in most of Road Town, Tortola is collected and discharged nearshore.

(c) Package treatment plants of various treatment methods and capacity, some of which reuse the treated effluent, serving individual or a group of businesses. Package plants are commonly used in urban tourist resort areas and frequently breakdown because of poor maintenance.

(d) Conventional household systems, such as concrete septic tanks connected to drainfields, cesspools, and "night-soil" utilities; the latter are collected for disposal offsite. Conventional systems are used for the majority of urban households in the region, often in conditions that are unsuitable. In very dense slums, sufficient land space is not available for effective use of on-site disposal systems. Subterranean conditions may frequently retard their functions, e.g, high water table and poorly drained soils in sections of St. John's, Antigua; slope and bedrock in Dennery, St. Lucia. Both lead to the flow of untreated sewage above ground.

(e) Discharge of domestic waste water (kitchen and bathroom) direct to street drains.

Such unsanitary conditions may lead to water/sewage related communicable diseases, such as typhoid, gastro-enteritis and viral hepatitis. The high incidence of gastro-enteritis reported for the densely populated Grays Farm community of St John's, Antigua in 1987 (32% of all cases for the country) was linked to poor excreta disposal methods (Archer, 1988).

Urban industrial waste is also poorly managed in the region. Few, if any, manufacturing plants are connected to municipal pipe borne systems and waste treatment is negligible. Wade (1985) stated that wet industries discharge almost 2.1 million gals of industrial waste daily in Kingston Harbour. The waste derive from sources that can be found in other urban centres of the region, namely, soft drink bottling, vegetable and fruit canning, slaughterhouse activity, dairy products, brewery, tannery, oil refinery, detergents, oils and soaps.

The industrial waste, and about 4 mgd of sewage effluent from fifteen (15) sewage treatment plants are two of the principal sources contributing to organic pollution of Kingston Harbour. Stated consequences are health problems to persons engaging in recreational activity in certain parts of the harbour, occasional fish kills from nutrient enrichment, decline of coral, clam and other animal populations, disappearance of "soft bottom communities", and aesthetic decline of water quality in the harbour (Wade, 1985).

Another account of the impact of urban liquid wastes on coastal resources was given by Archer (1985) for Barbados. He claims that destruction and death to coral reefs on the island's south and west coasts were due to sewage and other wastes. Barbados is implementing a municipal system to improve waste management in the country. Grenada is constructing a similar system for the Grand Anse area and it is understood that upgrading of sewage infrastructure in the urban resorts of Jamaica is a longterm goal for the Urban Development Corporation. Other countries have conducted sewage related pre-feasibility or feasibility studies. However, the region as a whole is yet to fully grasp the severity of the urban waste management problem, preferring to blame the lack of initiative on financial constraints.

### **Solid Waste**

Solid waste from urban households, businesses, construction activities, vehicles, sludge, etc., is well in excess of half of the total regional waste stream. Many countries still use landfill as the primary method for disposing solid waste, without any appreciable attempt to separate and reclaim waste material. As waste volume grows, space for disposal becomes a problem, and landfilling is seen as a competitive and highly conflicting land use, particularly in urban settings.

Where waste management problems exist, they result from organizational and technological constraints, both of which can be overcome. In Dennery, St. Lucia, the institutional and physical infrastructure to manage waste is lacking and the landscape remains littered. Litter is recognized as an aesthetic thorn to tourism in many parts of the Caribbean. Environmental problems associated with dumps in Antigua, are due to poor selection of sites. The major dump for urban solid waste is a salt marsh, while another is located next to a watercourse, which feeds a surface reservoir. Landfilling of wetlands with municipal waste is a fairly common practice in the region. Wetlands, it will be seen later in this paper, serve a number of critical functions, which suggest the need for a more sensitive and sensible approach to their use.

Jamaica, according to Lee (Circa 1978), recycled organic material from urban waste to produce "super soil" for application in agriculture. It shows that with the proper resolve, appropriate recycling can be applied with appreciable cost-benefit, while reducing the volume of waste to be ultimately landfilled or incinerated.

### **Marine Industry Pollutants**

Marinas and boatyards are very much a part of the urban fabric of the Caribbean. The new section of Roadtown, Tortola, Wickhams Cay, was reclaimed, planned and developed to facilitate the country's thriving marine industry. Two significant sources of pollution are associated with the industry. The first stems from sewage and bilge water discharged untreated from boats into bays or artificial lagoons with low flushing action. Ward and Singh (1987) cite marine wastes as some of the sources of pollution in Castries Harbour. Tidal currents help to dilute and flush out pollutants introduced into coastal embayments but work less effectively in partly enclosed embayments with very little tidal action. Thus the pollutants may have adverse effects on marine life, human health and the aesthetic quality of the water.

The second source of pollution stems from the use of paints with ingredients used to prevent the growth of "fouling" organisms, such as seaweeds, barnacles, tube worms and mussels, on boat bottoms. A widely used ingredient is an organic tin compound called tributyltin (TBT), effective as an anti-foulant but dangerous to marine plants and animals.

Studies of the effects of TBT indicate lethal effects on plant plankton, shell malformations in oysters, equivalent toxicity to mammals as DDT, and mutagenic effects on molluscs (Simmonds, 1986). TBT's effects come from both sandings of old paint washed to the sea and applied new paint, which slowly releases the toxin to the water. Marine communities in the region adjacent to boatyards may be at considerable risk. The danger to marine life was considered grave enough to cause France to ban the use of anti-fouling paints with TBT on vessels up to 20.

### **Beach Erosion, Degradation and Loss**

Beaches are perhaps the region's primary natural recreational resource. They are a major asset to tourism promotion and marketing, and exert a major influence in regional land markets. Beaches also support the nesting habits of turtles, various traditional uses and small beach vending enterprises, such as locally made clothes and crafts. The aesthetic and monetary value that beaches provide to these uses are being undermined by the removal of beach sand for construction of urban and tourism facilities. Beaches are also adversely affected by nearshore dredging and improper coastal land use.

### **Sand Extraction**

Estimates of sand used for construction in the OECS countries, based on cement importation records kept by the OECS Economic Affairs Secretariat (EAS), is about 1/2 million tons per year. Sand is the primary source of fine construction aggregate used in these countries and attempts to regulate the removal of sand from beaches have not been very successful. Beach erosion, linked to the use of beach sand, is cited by Williams (1985) for St. Lucia. Sand removal was responsible for the loss of sections of the resort beach of Dickenson Bay, Antigua (Deane, 1975 and Jackson, 1985).

The demand for fine building aggregate by urban housing and hotels, many of which are being constructed in urban resort areas, continues to grow. To relieve the stress on beaches, sources other than beach sand must be found. Edmunds and Deane (1972) identified landbased coastal deposits in Antigua, which they thought could meet projected demands for construction sand for about 30 years, up to the year 2000. Their recommendations were not followed.

Many of the countries have rocks that could be crushed and screen-sized to produce substitute construction material. The rocks include basalt, andesite, diorite and granite. Crushed rocks, alluvial deposits, "terrace" deposits and offshore dredging were recommended as alternatives to be explored in the British Virgin Islands (Foose and Belt, 1984). St. Lucia has used limited amounts of its deposits of pumice, which is considered suitable for construction. Barbados is fortunate to have considerable dune deposits, which can be extracted for construction without major environmental consequences. It is estimated that 10 million cubic yards of sand could safely be removed from the Walkers sand dune, to meet demands for close to 100 years (Barker and Poole, 1982).

Each of the alternatives to beach sand that have been recommended or implemented in the region comes with its own environmental problem. Therefore research, planning, impact assessment and monitoring are all necessary components of the correct approach to the management of fine aggregate use. This is particularly important if concrete is to remain the predominant form of construction in most countries of the region.

### **Nearshore Dredging**

Dredging nearshore areas or wetlands to facilitate urban uses can affect beaches, even when such activities do not occur within the immediate beach environments. It is alleged but not documented that the dredging of the St. John's Deep Water harbour and channel precipitated severe erosion of Fort James beach, which is heavily used by the area's urban population. Major boulders had to be emplaced to protect the beach and adjacent coastal road.

In the early stages of the development of the Rodney Bay tourism and residential community, St. Lucia, major dredging projects were done to build a causeway linking Gros Islet to Pigeon Island and to create an artificial marina. Williams and Towle in two separate papers (1985) linked these projects with the erosion of Reduit beach. The causeway, in particular, induced littoral changes that limited sediment transport to the beach.

### **Improper Coastal Landuse**

Urban expansion in coastal areas quickened in the past three decades, mainly at the influence of tourism. In a fairly short time, the fishing village of Ochos Rios, Jamaica, was transformed into a "vibrant resort town". When beach tourism is the driving force behind urbanization, development tends to be concentrated initially at the shoreline, thereafter expanding outwards. Effective landuse regulations are rarely in place to ensure that normal littoral processes are not inhibited by improper siting of structures.

Damage to beaches occur when (a) jetties and other solid structures are placed across the face of the beach, creating erosion on the side of the structure robbed of normal replenishment by longshore sediment transport, (b) buildings are constructed in the active beach zone or backshore dune zone; in the case of the former, the shape and profile of the beach may be modified, and in the latter, high-energy high amplitude waves may move the beach-zone boundary towards or beyond the buildings. When this happens, the structures prevent the beach from achieving a new stable profile and shape.

The region is full of examples where urban structures have significantly altered beaches and must now themselves be protected from advancing seas. Sections of Barbados' southern coastline have receded to the point where costly measures must be adopted to protect property and rebuild beaches. In general, the use of groins and other structures to restore beaches or to defend property has met with limited success. Realizing the problems associated with building too close to the beach zone, Grenada is implementing a 50 metre building setback policy in the Grand Anse resort area.

### **Coastal Habitat Degradation and Loss**

Coastal habitats are being degraded or lost at alarming rates. Urban sources of impacts are:

**Landfilling and/or drainage of wetlands**, for housing and hotel construction. The mangroves of Kingston Harbour continue to be replaced by housing and urban development is a major threat to wetlands in Barbados (Scott and Carbonelle, 1986). A wetland on Antigua's west coast is being developed into a major tourism project, which is expected to have 1860 two-bedroom villas (F. Biegler, pers. comm.).

**Dredging of wetlands for marinas**, which are in many islands integral components of the built urban environment. The case of Rodney Bay has already been cited. A marina basin, to accommodate seventy large yachts, has been dredged as part of the Antigua project mentioned above.

**Disposal of urban solid and liquid wastes and dredge spoils**, the latter from the dredging of urban deep water ports, in wetlands.

**Boat anchor damage**, to coral reefs and seagrass beds in urbanized coastal embayments.

### **Functions of Wetlands**

For years wetlands were considered resources of little value, except in the islands where salt was mined from so called salt ponds. Lack of appreciation of their value lead to institutional neglect, so that in some countries responsibilities for their management are not clearly defined. The international wetlands convention (RAMSAR), together with a number of international and national wetlands programs are helping to improve understanding of their functions. Table 2 list the generally known functions of wetlands and indicates those relevant to the region.

It is said that two-thirds of the fish consumed in the world depend on wetlands at some stage of their life cycle. In the Caribbean coastal wetlands play a vital role in trapping sediments (some of which derive from urban uses), which would otherwise adversely affect coastal waters and organisms. These, together with the other functions of wetlands, suggest the need to halt their degradation and loss from urban uses.

### **Loss of Prime Agricultural Lands**

Urban encroachment on prime agricultural lands occurs in several countries for various reasons, namely: lack of legal zoning mechanisms; inadequate development control; tenure, meaning that prime lands are held by persons who prefer to use them for non-agricultural purposes; illegal squatting on publicly owned lands; and competition agriculture gets from other uses, because of the workings of the land market. Without zoning or effective development control regulations, the land market becomes a primary mechanism in deciding land use. As land values increase with the demand for space for urban housing and tourism, agriculture becomes less able to compete and prime land is lost to other uses.

**Table 2**

**Functions Provided by Wetlands**

<b>General</b>	<b>Relevant to Caribbean</b>
Ground water recharge	*
Ground water discharge	*
Shoreline anchoring & dissipation of erosive forces	*
Energy & carbon dioxide storage (peatlands)	*
Sediment trapping	*
Nutrient Retention & removal	*
Food chain support	*
Habitat for fisheries	*
Habitat for wildlife	*
Active recreation	*
Passive recreation & heritage values	*
Genetic conservation	*
Waste water treatment	*
Flood mitigation	*

Source: Wetland functions are listed from Hollis (1989), after Adams and Stockwell (1983); and Hollis, Holland, Maltby and Larson (1988).

Often this leads to the inappropriate farming of marginal lands with highly erodible soils. Soil erosion has well known downstream effects due to sediment transport. When sediments are contaminated by agro-chemicals used for fertilization or weed and pest control, impacts on the marine environment may be quite severe.

**Soil Erosion from Construction of Buildings and Roads**

Because of topography, urban growth occurs on fairly steep slopes, notably in the Windward Islands and the US and British Virgin Islands. Slope development requires major cut and fill activity for roads and building foundation. In the absence of mitigation devices, the amount of soil leaving construction sites can be considerable. Deep cuts to create a road on a steep hillside may require displacing thousands of tons of soil. Depending on the location, a significant portion of the displaced soils may eventually reach the sea. The impact of sediment on corals have been documented in a number of cases in the region. Smith (1990) for example, said that scuba divers stopped using a dive site in the Soufriere region of St. Lucia, after corals died from sediment pollution.

Not many countries have the legal or institutional capacity for effective application of soil conservation practices in slope development. Much too often, roads are poorly sited against contours and ground cover is indiscriminately cleared for new subdivisions, leaving the earth bare to the erosional forces of wind and rain.

### **Impairment of Fresh Water Supplies**

Fresh water supply depends on a hydrological cycle, in which catchments are integrally involved. Generally, the catchments of the Caribbean are small, compared to countries with larger land masses. Many are fairly urbanized, with relatively high population densities. For example, with a total land area of only 43,000 hectares, Barbados has a population density of 5,953 persons per 1000 hectares. The density of some of its catchments would be even higher.

Fresh water running off the land picks up natural detritus and human generated wastes from rural and urban areas. When the population density is low, waste matter in the water is broken down by microbes in a self-purifying process. If the density is too high, excess waste matter are carried as harmful pollutants to rivers and the sea. Due to the small size of regional catchments, waste matter would be more concentrated and natural self-purification would work less well in countries where topographic conditions encourage quick run-off.

### **Concern for Water Quality**

Countries of the region should become more concerned about the ways in which urban and other uses, directly and indirectly, impact the quality of water. One reason has to do with economics, i.e., it is more costly to treat severely contaminated water. Another is of course, the concern for environmental health. The direct and indirect urban impacts on the quality of fresh water are as described below. To a large extent, the problems exist because most countries lack a comprehensive approach for the development and use of water resources; there is a notable lack of coordination between water supply and water sanitation functions. The problems include:

- (a) Contamination of rivers, streams, surface reservoirs and sources of ground water by solid waste. A public garbage dump located near a water course leading to an important surface reservoir in Antigua was recently identified as a contaminant of the water source.
- (b) Contamination of rivers by industrial wastes. Known cases however occur downstream of intakes.
- (c) Contamination of rivers, above intakes, by chemicals used in agriculture to meet both urban and rural demands for food.
- (d) Contamination of ground water sources from household sewage discharged via conventional underground systems.

### **Concern for Reduced Water Supply**

Of equal significance is the impact of urbanization on the flow, storage and availability of fresh water. Forests and other natural ground covers in catchments help to regulate the flow of water to rivers during and after precipitation. With the ground cover intact, appreciable flow to rivers is

maintained in dry periods of reasonable length. This is important not only for supplying the intakes, but also for persons drawing water downstream for various uses. As urbanization increases in the catchment, houses, roads and other structures act to speed up surface run-off, while reducing sub-surface flow to rivers. The result is a net loss of water that can be harnessed for consumption.

Inappropriate urban land use may also restrict the recharge of underground reservoirs. This happens when development occurs in critical recharge areas or in sections of the catchment that function as conduits to the recharge zones. One reason this occurs is due to the lack of communication between agencies responsible for water supply and those with development control functions. Also, in many cases, relevant data on the hydrological characteristics of the catchment is not available.

## **POLICY CONSIDERATIONS**

### **Pollution Control**

Relevant policy statements indicate that safe health is an important consideration for regional Governments. Actions, however, show only marginal attempts at pollution control. Both the physical and institutional infrastructure to abate pollution from urban waste are inadequate in most countries. Arguments that cost prohibits provision of suitable physical infrastructure are mindless of the very solid reasons why investment in this area should be made. Safeguarding the health of urban dwellers and the rest of the resident population should be a primary consideration. Making the environment safe for the 15 million tourists visiting the region yearly is vital for ethical and economic reasons.

The problems cannot be solved overnight and major investments will be required in some cases. Solutions must be tailored to the specific needs of each country but generally, waste management policy reform should seek to:

- (a) Remove unhealthy, odorous, and aesthetically offensive waste water from urban streets, where this exists. Countries wishing to promote urban tourism should view tourist income as a tangible justification for investing in relevant infrastructure.
- (b) Devise incentives (tax concessions or other means) to make hotels and other tourist facilities share the investment and operational costs of municipal waste infrastructure in large tourism resort areas.
- (c) Review the environmental and economic soundness of incinerating solid waste, as an alternative to landfilling. Finding suitable space for sanitary landfill operations is becoming increasingly difficult for most countries. Irrespective of the choice made between landfill and incineration, countries will find that waste recycling makes both economic and environmental sense.
- (d) Clarify and streamline institutional responsibilities for regulatory functions in waste management. Relevant agencies would require improved staff and budgets. Major institutional initiatives should include the adoption and enforcement of water quality and effluent discharge standards, and the monitoring of package treatment plants, dump sites and incinerators. In a number of countries clear cut responsibilities for regulating industrial and

other forms of toxic wastes is lacking. The experience of the region indicates that incentives are often more effective than the threat of penalties in achieving environmental management objectives. Regulatory agencies should therefore be guided accordingly.

(e) Monitor the extent and impact of TBT use as an anti-fouling agent and be guided by the findings.

### **Beach Management**

Longterm beach protection requires organized management in which relevant institutional and technical initiatives are taken. At the institutional level, the responsibility for beach management should be placed in the hands of agencies with the legal and administrative capacity to prohibit sand mining from selected beaches and to maintain their aesthetic qualities. It has been proven that Public Works Departments (PWDs), which are legally assigned the responsibility for issuing sand mining permits in some countries, are blatantly inefficient in this respect.

On the technical side, policy should provide direction to two sets of actions. One involves forecasting aggregate demands and conducting geophysical investigations, impact assessment and monitoring in relation to the use of sand and alternative sources of fine aggregate. Long term opportunities for using sand in construction may be identified for some countries, as was done for Barbados. In others, future urban demand for fine aggregate would, from an environmental point of view, be best met by other sources. If the latter applies, negative public attitudes to the use of crushed rock and other fine aggregate as substitutes for sand must be addressed.

The other action would include physical planning exercises aimed at minimizing land use impacts, from future urbanization, on beaches. Physical planning, in this case, should be informed by relevant oceanographic and coastal engineering studies, as a guide to building setback and construction practices that should be adopted for beach lands. These measures assume greater relevance when the probable impact from impending sea-level rise is considered. Adequate building-setback will allow beaches to adapt much more readily to the increase in natural erosion rates that sea-level rise is expected to produce. It will also significantly reduce the longterm cost of defending urban property against a gradually encroaching sea.

### **Protection of Wetlands**

Wetlands are particularly vulnerable to urbanization. An extremely valuable wetland can be destroyed, in fact disappear, in a matter of days. Assigning relative values to wetlands in cases where choices must be made between development and preservation, require good understanding of the specific functions of each system. Wetlands have not been extensively researched in the region. The Negril and Black River Lower Morasses, of Jamaica, were studied partly in response to the potential for mining peat for fuel. Where studies have been performed, they were done with limited focus, omitting in most cases, for example, an assessment of hydrological characteristics.

Practical thinking advocates of wetland conservation would realize that all wetlands cannot be saved. The strategic approach is therefore to seek protection of the most valuable systems through the development of a realistic program for wetlands management. The framework of the program could be a wetlands protection system, representing the ecology, biological diversity, and hydrological processes of the country's wetland ecosystems. Wetlands would be systematically

identified, assessed and valued to qualify for protected area status under relevant laws. Institutional responsibilities for their management would be clearly defined. Protection against urban expansion and related impacts would be automatic for areas selected. Proposals to develop wetlands not included in the protection system would be subject to environmental impact assessment, as part of the development control process.

### **Management of Prime Agricultural Land**

Policies of several countries state that prime lands should be preserved for agricultural uses. Urban demands, market forces and negligence in the development control process, have lead to fairly widespread compromise of this principle. This is more of a problem in small countries with steep terrain that limits the acreage of arable lands. St Lucia and Montserrat, for example, have such conditions, thus concerns about urban encroachment on agricultural lands would be justified. It is not yet viewed as a major issue in Antigua, where the ratio of arable land to total land is much higher.

Complacency in Antigua could be sowing the seeds for future land management problems. Housing development occurs randomly across the island and authorities are unable to prevent squatting on some of the historically more productive lands, while crown lands marginal to agriculture remains undeveloped. This is an inefficient and wasteful use of land, whose significance to longterm food security will become more obvious when the country's population becomes much larger.

In Barbados, it would appear that inefficiency, waste and conflicts in land use have been avoided for the most part. Urban land use is better supervised than in most other countries and the protection of sugar lands has been effective. This has been attained while having the highest population density in the region. Barbados' experience in land management may provide some useful lessons to other countries.

### **Soil Conservation**

Housing development on slopes is unavoidable in the region. In fact, it should be encouraged in cases where it is necessary to set aside productive flat lands for agriculture. To minimize the soil erosion that usually accompanies development on slopes, soil conservation should be practiced based on guidelines outlined by relevant development control and/or soil management authorities. Moderately prepared soil conservation handbooks, made available to architects and developers, would help ensure that the guidelines are followed.

### **Water Resources Management**

Fresh water can quickly become scarce if water resources are poorly managed. As populations and urban areas expand, water problems in the region could become acute. On the demand side, water consumption will increase. On the supply side, the amount of water harnessed from available sources will be reduced if flow and storage are impaired by expanding urbanization and other uses in key water catchments. Increased contamination could result in higher costs for treating water.

Serious problems can be avoided by creating policies that provide the framework for comprehensive water resources development and conservation programs. St. Lucia, for example, is spending several million dollars to dam one of its valleys and the project is expected to meet water demands well into the next century. The island will not need to resort to the relatively more costly treatment of sea water, which some countries in the region have been forced to do.

Proper institutional structures for water resources management are needed. In some countries, a water resources management agency may be required. In others, improved coordination between agencies responsible for water supply, sanitation, land use planning and development control, and natural resources could be what is needed.

## CONCLUSION

Managing the urban environment is a complex and challenging task. It is particularly difficult for many of the region's countries, where manpower and institutional structures are inadequate and where there are not many cases of strong commitments to finance critical sewage infrastructure. Population movement and tourism growth, two of the key factors influencing urban expansion, are expected to continue. Thus, urban related environmental problems could get much worse unless relevant policy reforms or adjustments for better management of urban environments are put in place.

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**URBAN LAND MANAGEMENT:  
A CASE FOR ENVIRONMENTAL COST BENEFIT ANALYSIS**

by

Eleanor Jones  
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## **INTRODUCTION**

This conference seeks to continue a process of search for approaches to effective management of land in the urban setting of the Caribbean. It is important that the concept of continuing search be emphasized, for planners, economists, geographers, and urban specialists have been studying the phenomenon of urbanization in the Caribbean from several perspectives, but as urban growth continues to accelerate, the attendant problems of environmental degradation and constraints on economic opportunity require rethinking of some old approaches and adoption of new management techniques.

Land is a scarce resource in the Caribbean and continued abuse and inadequately managed urban use will give rise to rapidly mounting economic and social costs (Girvan, 1990). It is significant to recognize that the environment is the fundamental ingredient in any development exercise, and because the impact of change is predictable, environmental impact analysis ought to be the fulcrum on which economic considerations are balanced. Furthermore, local, regional and global experience has taught us that the sustainability of a project is determined by environmental considerations, because deliberate modification of the environment will affect health, socio cultural systems, ecological systems, as well as aspects of the already built environment.

Recognizing that negative environmental consequences ultimately increase the real cost of development, it is the purpose of this paper to explore approaches towards integrating environmental factors into the design and appraisal process for urban development initiatives in a Caribbean context. It is more costly to implement remedial action if indeed remedial action is possible in the particular circumstance, and furthermore enhancing the value of both the natural and the built environment is a desirable objective.

Urbanization as a way of life is the growing trend among Caribbean peoples and managing the competing and conflicting uses of land is a challenge.

## **URBAN REALITIES OF THE CARIBBEAN**

Tom Kingsley et al (1990) in an analysis of urbanization in the Caribbean have shown that the region's growth and economic development over the last two decades have been dominated by the urban element. In 1990, the United Nations estimated that 47% of the 20 million people in the Caribbean were urban dwellers. Of the 9.7 million increase in population between 1960 and 1990,

7.0 million, (72%) occurred in the urban areas.

This urban phenomenon evolved in the post - 1945 period as 'growth' was an objective taken to be synonymous with 'development'. Development initiatives focused on industrialization as the panacea for job creation and economic well-being. These industrial incentive programmes which were characteristic of some territories made provisions for buildings or factory space and scant attention was paid to housing or social facility development. Provision for infrastructure was not commensurate with the needs of the burgeoning centres and urban sprawl became difficult to control. Further, as the economic system has been unable to absorb the growing labour force the informal sector has expanded and shanty towns continue to spring up adjacent to areas of economic activity. Examples abound.

During the expansion of Kingston's population in the 1960's and early 1970's, for example, several new housing developments were implemented to help cope with this critical need. One area of focus was that area through which the Washington Boulevard passes. (Washington Boulevard was intended as a clear artery leading out of Kingston towards the western perimeter). Housing schemes mushroomed and subdivisions were approved for sale of land to potential home builders. Several thousand houses were built - Duhaney Park, Patrick City, Cooreville Gardens, Washington Gardens, without the necessary expansion/improvement in infrastructure and employment generating activities and as a consequence the lack of jobs stimulated a wide range of uncontrolled activity which violated zoning ordinances - garages, clubs, commercial activities and informal services of all types line sections of the highway. Perceived opportunity aggravated migrant inflows and shanty towns grew. Illegal connections to power supply and tapping of water mains is as common in the Shanty towns which have evolved along the Boulevard as they are in the many similar settlements throughout the region. Traffic congestion has also resulted and the area today is a far cry from the perception of the planner's drawing board.

The Riverton City area of Kingston is yet another example of captured use in that the area was zoned for industrial use, but is today occupied by a large squatter settlement and a major urban refuse dump. This dump has expanded in tandem with the need for solid waste disposal for the Kingston Metropolitan Area, and this site poses health and safety hazards as it is not managed. The river passing through this area picks up garbage and other deleterious substances which are transported to the Kingston Harbour to aggravate the high levels of pollution and ecological destruction in that body of water.

Employment generation and high economic return have also been the motives for tourism development projects. There has been little consideration for project sustainability and consequently in several urban centres of the Caribbean inadequate waste disposal, reef destruction and beach erosion are destroying the resource base of tourism. Of great significance in tourism areas is the rapid escalation of land values often to the point where workers are unable to live within close proximity to their place of employment. The implications for housing, transportation and other social services have been amply demonstrated in Ocho Rios (George, 1988).

In summary, the major contentious issues with which urban land managers and economists in the Caribbean must grapple relate to allocation and/or availability of land, population growth, employment and social class. Because migration occurs into areas close to employment opportunities, demand outstrips supply and spontaneous development occurs. Informal housing and informal employment opportunities result and social, cultural and environmental considerations become integral parts of the urban web.

Economic and environmental analysis can use the same tools, but the assumptions made will be different. There is a greater degree of interdisciplinary inferences in environmental assessments and whereas information needs are greater, data are generally not available. Further, environmental data are not as generalizable as economic indices and it is therefore difficult to write and/or monitor environmental policy. Local standards for trade-off acceptance will be as varied as the urban populations and it is therefore difficult to generalize about variations over space and population expectations. Where then do we go?

## **THE WAY FORWARD**

### **The Project Approach**

Projects have been described as the cutting edge of development (Gittinger, 1984), and they are used as a mechanism through which new investments are initiated in urban areas of the Caribbean as elsewhere. The employment generated is expected to improve living standards and by extension socioeconomic conditions. However, implementation is often difficult because of poor project preparation. Where urban projects are not comprehensively prepared inefficient or even wasteful expenditure as well as short-term gain and negative social and environmental outcomes are almost sure to result - a tragic loss in a Caribbean short of capital, land and options.

Of significance to us in the Caribbean is the fact that the multiplicity of problems result in a number of projects which are proposed as possible solutions. Resource and time constraints necessitate selection and the selection criteria adopted by implementing agencies as illustrated in Table I are instructive to the urban land management process. The categories of agencies are: public sector; quasi - government viz, development banks, and private sector viz, commercial banks. Public sector agencies focus on socioeconomic and organization criteria; development bank gives equal weighting to financial and socioeconomic aspects; and the commercial banks focus only on the financial aspects. Environmental impact is listed as a consideration by the public sector and the development bank, but is not yet part of the private sector assessment.

The desirability of any investment has traditionally been determined by four factors:

They are the:

- ◆ stream of benefits generated
- ◆ stream of costs incurred
- ◆ time period over which these benefits and costs occur
- ◆ discount rate applied to the above

Accuracy in estimating the above is of vital importance. In the past, economists and decision makers in both public and private sector have concentrated on, and therefore over emphasized the role of the discount rate (the opportunity costs of capital) in the project selection process.

**TABLE 1****Project Selection Criteria****PUBLIC SECTOR**

1. **Government Approval**
2. **Socioeconomic Aspects,**  
Employment, foreign  
Exchange earnings
3. **Organization and Management**  
Aspects of the implementing  
agency
4. **Financial Aspects**  
- Economic Rate of Return  
- Internal Rate of Return(IRR)
5. **Environmental Impact**

**DEVELOPMENT BANK**

1. **Socioeconomic Aspects**  
Employment, import substitution  
foreign earnings etc.
2. **Financial Aspects**  
- Debt/Equity Ratio  
- Internal Rate of Return (IRR)  
- Debt Service Coverage Ratio
3. **Organization and Management**  
Aspects of the project
4. **Environmental Impact**

**COMMERCIAL BANK**

1. **Financial Aspects**  
- Rate of Return  
- Cash Flow  
- Collateral/Security

This rate influences the number and type of projects undertaken, in that the higher the rate the less likely it is that projects with a long gestation period or with substantial implementation costs will be chosen. For example, many investment projects that are potentially damaging to the environment need a low discount rate to be acceptable.

However, heightened environmental awareness has begun to stimulate among economists (elsewhere) - the growing realization that there are close links between the economic system, economic policies and levels of natural resource utilization and management. Micro-level individual project analysis and macro-level national policies are being jointly considered and there is compelling

need for Caribbean economists and financiers to join ranks with their international colleagues. Integrating environmental considerations into proper measurement of costs and benefits is more important to sustainable development than mere consideration of the discount rate.

The goal as expressed by Dixon (1989) is to include at both the Micro and Macro levels a wider range of social, environmental and resource impacts in the economic analysis. The likely environmental impacts of the proposed project is the first step and the effects of these impacts on social welfare constitutes the second dimension. How are these effects integrated?

## **COST BENEFIT ANALYSIS**

Cost benefit assessment which has traditionally been a purely economic exercise is a meaningful and appropriate vehicle for incorporating environmental considerations into project planning. Costs have included construction and operating costs e.g. materials, equipment, labour, energy, utilities, interest on borrowed capital, land and other quantifiable items. Benefits include all the projected earnings or revenue from a project. However, CBA's require quantitative input and where specific values cannot be ascertained, or where the value is not considered to be a direct input or output of the project the items are assessed and incorporated in the CBA as externalities. This has been a serious constraints for environmental indices as the methodology for providing quantitative measurements is only recently evolving.

Many environmental effects are considered 'commons' or 'public goods' that traditionally have not been assigned market values. Changes in water and air quality for example can affect public health but these costs have not yet been captured from, for example, physician's records or other sources of health statistics.

The concept of time is also important in that economics methodology cannot now account for 'future' costs and benefits beyond a relatively short time span. Because environmental management (or costs from mismanagement) provides future benefits or the results often accrue after the defined project period has been completed they are therefore not taken into the economic consideration. It has been noted (Lee, 1985) that high discount rates currently (and arbitrarily) employed in CBA's discourage investments with long-term benefits while promoting projects with long-term costs, a situation which is inimical to environmental management as the basis for sustained economic development. Yet another constraint to environmental measurement in terms of CBA is the inability to evaluate the cost of irreversible environmental damage and closing future options.(Lee, 1985) The need is particularly acute in our island environments.

Qualitative analysis is necessary where environmental effects are significant, but cannot be quantified, and it has been suggested that even where monetary values can be attached a clear description of the problem is a necessary complement to assist consideration of project acceptability. The concept of "Safe Minimum Standards" (SMS) long used by engineers is also recommended as part of project analysis and as an addition to the cost-benefit analysis. SMS is described as a non-economic criterion which a project must meet in order to be environmentally and socially acceptable. Of significance is the fact that the costs of modifying a project to meet SMS criteria are considered to be normal project costs.

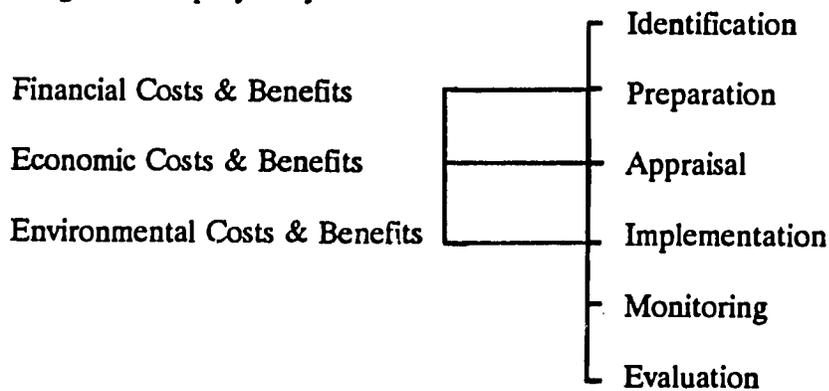
Finally it is useful to note that project analysis tries to identify and value the costs and benefits that will arise with the proposed project and to compare them with the situation as it would exist without the project. What are the benefits which accrue from intervention? The difference is the incremental net benefit arising from the project investment. This approach is not the same as

comparing 'before' and after the project. The before - and after comparisons fail to account for changes in conditions that would occur without the project and thus leads to an erroneous statement of the benefit attributable to the project investment. For example, a change in output without the project can take place in two kinds of situations. The most common is when production in the area is already growing, if only slowly, and will probably continue to grow during the life of the project. A change in output can also occur without the project if production could actually fall in the absence of new investment.

Guyana's Sea Defence project is applicable here in that the project was implemented to stem erosion of productive agricultural coastal lands. The benefit of the project was not increased production but avoiding the loss of agricultural output and sites for housing, a benefit which a simple before and after analysis would have failed to identify.

### SOME APPLICATIONS

There are three categories of information which should direct decisions and should be applied at all stages of the project cycle:



Financial and Economic Cost-Benefit Analysis are generally well-known, but a word on the environmental input at each stage may be instructive.

- Identification: highlight key environmental issues and assess natural resources
- Preparation: Identify major environmental impacts and resettlement issues. Compare costs and benefits of mitigation measures for negative project effects.
- Appraisal: Analyse impact on physical and social environment. Recommend alternative approaches or mitigation measures which are consistent with available technological resources. Conduct cost-benefit analysis on environmental measures and mitigation technologies
- Implementation: Incorporate environmental provisions to help achieve development objectives.
- Monitoring: Ensure that provisions are to the required standard.
- Evaluation: Ecological, health and socio-cultural impacts are evaluated against predictions.

This post evaluative procedure can be a useful source of information to guide predictions on future projects. Furthermore this is a useful form of data collection to establish bench marks where urban projects are operating and for which no data exist.

Recent attitudes towards mitigation measures indicate that these measures may in some instances be considered economic benefits rather than costs particularly where the impact of construction or installation is positive on the community in terms of employment, infrastructure or health improvement, or more specifically where the value of human capital has been enhanced. A look at two urban projects typical of the Caribbean may be illustrative.

#### **PROJECT A - IDLERS HOTEL - NEGRIL**

The project involves the construction and furnishing of a one hundred and thirty (130) room hotel complex, administrative block and restaurant along with a recreational facility which will consist of tennis courts, squash courts, gymnasium, a basket ball court and a jogging trail and vida course.(Type of jogging course)

The hotel complex will consist of:

- 8 one bedroom cottages
- 4 two bedroom cottages
- 20 four bedroom units
- 1 eight-bedroom unit
- 2 ten-bedroom units and
- 1 six-bedroom unit.

**TABLE II**

	<b>COSTS</b>	<b>US\$</b>	<b>BENEFITS US\$</b>
<b>Financial</b>	Furniture & Fixtures	- 4.155m	Revenue - 25.2m
	Construction	- 37.303m	local -
	Equipment	-	foreign - 4.0m
	Installation	-	Increased land value
	Duties & other	- 0.533m	
	Operating Costs	- 0.014m	Taxes - 2.4m
	Working Capital	- 2.120m	
	Land	- 2.250m	
<b>Economic</b>	Increased imports (food, furniture, fixtures)	- Costs to be generated	Increased demand for local food especially fruit & vegetable
	Increased use of utilities	-	
	Increased fuel consumption (a/c units, stoves, fans, hot water etc.)	-	
	Increased costs for maintaining public health	-	
	Increased land values which affect housing availability	-	
<b>Environmental</b>	Solid Waste disposal	- Costs to be generated	Maintenance of beach
	Loss of wet lands and associated Ecosystems due to reclamation for sewage plant and car park	-	No other identifiable benefits
	Destruction of marine life due to pollution and water sports	-	
	Damage to fishing	-	
	Increased cost of water treatment for drinking	-	
	Reduction in water quality due to inadequate sewage disposal	-	
	Noise pollution during construction stage	-	
	Aesthetic losses(loss of view of sea by hotel construction)	-	
	Loss of beach frontage	-	

**PROJECT B - MANUFACTURING - MORJAM LIMITED (BAG JUICE PROJECT)**

The project involved the purchase and installation of machinery and equipment for a Company involved in the production and distribution of artificial fruit drinks in plastic pouches. This project is located in the heart of the Kingston's Central Business District.

<b>TABLE III</b>			
	<b>COSTS</b>	<b>U\$</b>	<b>BENEFITS U\$</b>
<b>Financial</b>	Machinery & Equipment	- .265m	Revenue - 4.587m
	Installation	- .020m	Employment - 0.035m
	Duties & other charges	- .135m	Taxes -
	Operating Costs	-	
<b>Economic</b>	Increased imports	-	Improved income and standard of living for vendors & salesmen
	Sugar	- 1.372m	
	Citric acid	- 0.0109m	
	Flavour	- 0.202 m	
	Fuel (1) Packaging Material(2)		Reduction in unemployment & its associated effects e.g. crime etc.
<b>Environmental</b>	-	Cost disposal of non-biodegradable plastic bags	
	-	Cost disposal of production waste(liquid & solid)	
	-	Cost increase demand of water, decrease in available surface and ground water supplies	
	-	Reduction in fisheries and species diversity in the Kingston Harbour(3)	
	-	Reduction in value of water related recreational areas of the Kingston Harbour	

Note: 1 & 2 Both fuel and packaging material produced locally, but highly dependent on raw material imports.

3 Liquid wastes undergo little treatment and they as a result pollute the Kingston Harbour

## COMMENT

Using the project selection criteria of the development bank, the projects show the following:

<b>Financial Aspects</b>	<b>Criteria</b>	<b>Idlers Hotel</b>	<b>Morjam Ltd.</b>
Debt/Equity Ratio	0.4:1	3:1	1:1
Internal Rate of Return (total Res) Average Debt	28%	17%	132%
Service Coverage Ratio	3.8:1	1.5:1	8:1
<b>Socio Economic Aspects:</b>			
Employment Linkage Employment		129 persons Tourism Service Agriculture Sector	5 person Salesmen Sugar Industry Vendors
Foreign Exchange Savings/Earnings		US\$6M(by yr.4)	Reduction in import of Beverages

### Project Financial Ratio (Incremental)

	<b>NDB's Minimum Expectation</b>	<b>Project Ratio</b>
Debt/Equity	3:1	0.4:1
IRR (Total Resources)	17%	28%
IRR (Equity after Tax)		19%
Avg. Debt Service Coverage Ratio	1.5:1	3.8:1

Break-Even (Year 1) 45% of projected sales

According to the ratio both projects are financially viable.

To the policy maker, faced with high unemployment and declining foreign exchange reserves both projects are perfect in terms of their employment, revenue generation, multiplier effects and foreign exchange earnings/savings. As shown these benefits have environmental costs and long term implications for the provision of infrastructure and pollution prevention measures.

The case of the tourism project is particularly important because this project highlights the fact that tourism, a major foreign exchange earner and employer is based on one important raw material, the environment which also supports other social and economic activities. Over the years, there has been little attempt to reconcile the environmental and economic aspects of tourism, but management of the environment can no longer be considered a 'back-burner' issue as today's tourist has changed

interest from mere attractions, (beaches per se) to destinations which have preserved their natural environmental quality. Inadequate facilities, pollution and overcrowded beaches can no longer be passed off, and a recent report indicate that one German tour company has been obliged to refund partial payments to their clients who complained of environmental inadequacies in a destination sold. In Italy, revenue was lost from one million tourists who did not visit because of seaweeds on the beach. Quantitative values can be developed on these costs of environmental degradation.

Of further consideration with respect to analysis of costs and benefits of tourism development is the question of land availability and affordability in the light of competing demand and conflicting use. (George, 1987) has demonstrated that on the north coast of Jamaica, tourism development has changed the use in agricultural land either through underutility in anticipation of sale at inflated 'urban prices' or conversion to resort and residential use. In 1981 the price of hotel land was 13 to as much as 56 times greater than agricultural land and therefore an owner could be tempted to keep land idle for extended periods in anticipation of sale. Premature sub-divisions resulted and land was sterilized. The suggestion which deserves continued analysis with respect to trade-offs is that juxtaposition of capital intensive tourism and large-scale extensive agriculture seems to inhibit maximum employment and best use of resources in both cases.

Price of land with respect to availability for local residents is also of concern in that residents are forced to live increasingly further away from their employment as land prices soar. Ocho Rios, Jamaica is an outstanding example (George, 1988).

The manufacturing project on the other hand has some negative impacts which could be corrected with increased garbage collection and additional treatment of the waste at the existing sewage treatment facility. However, there are additional dimensions in that when taken in the context that there could be over 15 similar projects in the area, the problem assumes a different scale. This highlights the fact that the projects have to be assessed not only on their individual impact but also in terms of their spatial cumulative effects which further emphasize that environmental considerations should be included at both the project and the policy decision making levels.

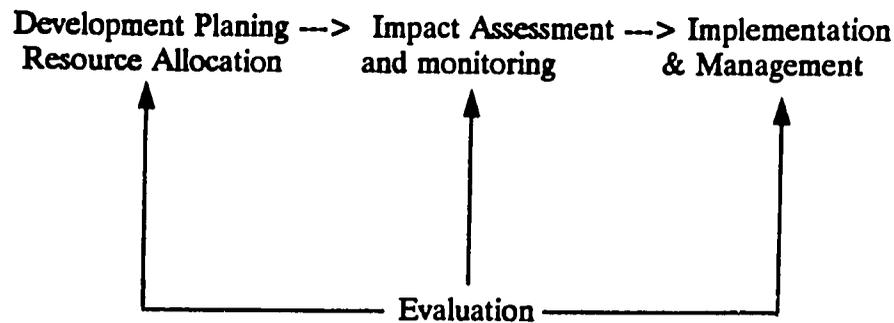
## **SUMMARY**

The fact that the EIA unifies development and the environment makes it vital to the formulation of environmentally sound plans/policies or projects.

The role and scope of EIA has evolved from mere impact prediction to a situation where the process is integrated with project planning and with government policy and decision making. Public participation in the EIA has also made it more issue related.

The overall place of EIA in the decision making process as it relates to environmental management and development control is summarized below:

Figure III



Source: Saddler, Barry: 'Future directions for EIA'. Presented International Seminar on Environmental Impact Assessment. July 12 - 25, 1987, Univ. Aberdeen, Scotland.

Girvan (1990) has observed that the challenge is to alter the structure of accounting which influences investment decision by:

- a) deducting from national income an amount which represents the loss of non-renewable resources.
- b) estimating the monetary cost of environmental impact. Both techniques have problems which can only be worked out through practice. It is a challenge of pricing at the micro-level, a challenge of reducing the number of items in the category of 'externalities'.

Both projects, Idlers Hotel and Morjam Limited highlight the fact that the existing framework for appraising projects is adequate in terms of assessing the long and short term environmental impacts and the associated costs and benefits of a proposed development. However, the quantitative data base to enable costing of impact needs to be developed. Furthermore the framework can be used as it exists, and costing inserted on a case by case basis.

While increased concern about environmental degradation is not new, recognition of the inter-dependence of both the environment and the economy has shifted the emphasis to a plan of action. Financial, economic and environmental cost benefit analysis must be applied at every stage of the project cycle. In utilizing this approach we move in a proactive direction towards urban land management. To ignore the process is to condemn urban areas to further deterioration.

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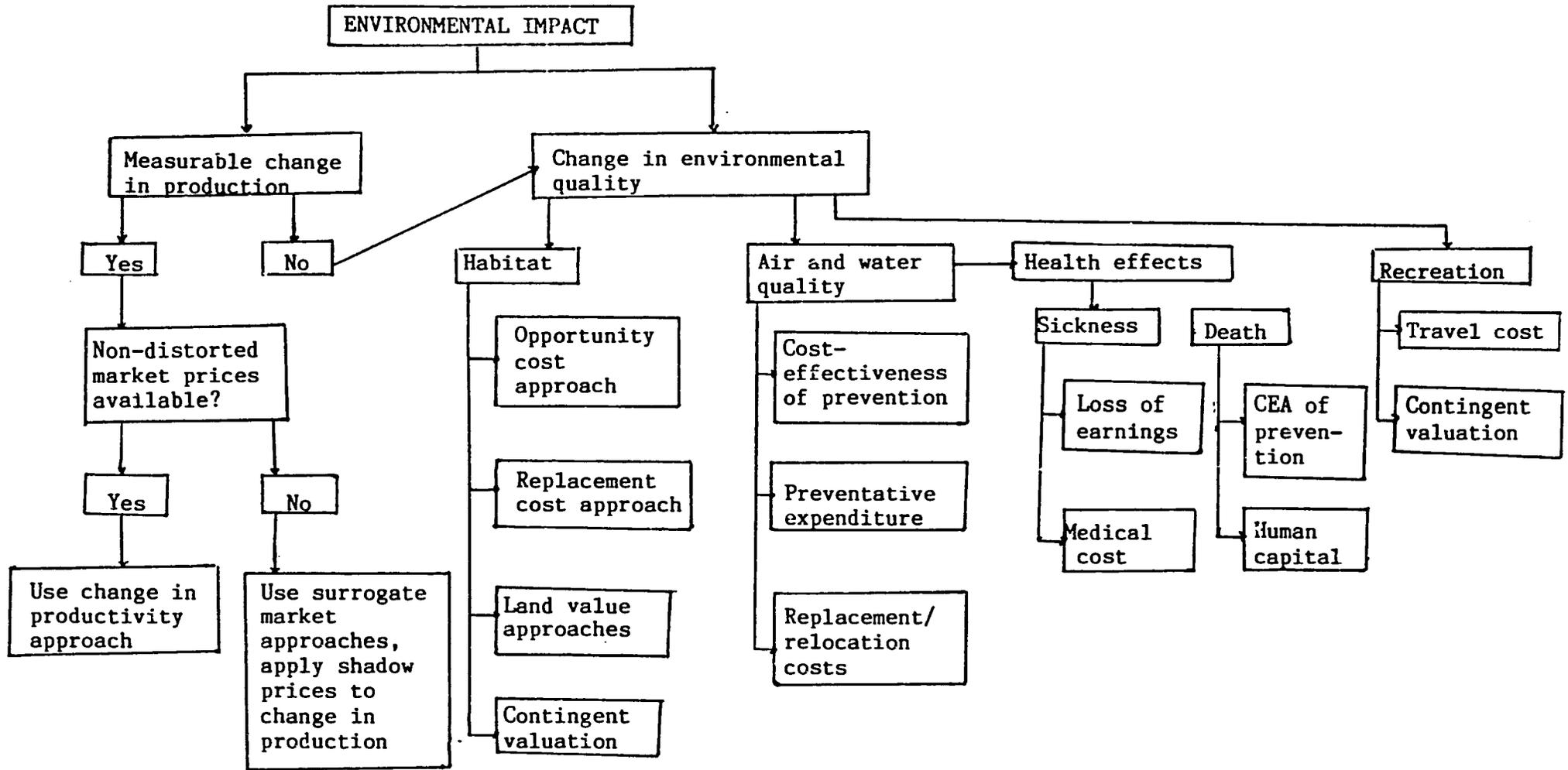
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SAMPLE VALUATION CHART

JONES, E.B.  
ANNEX 1



Source: Dixon and Boj8. 1988

*Handwritten mark*

## **WORK GROUPS**

### **CASE STUDY PAPERS AND SUMMARIES OF WORK GROUPS**

**DOMINICAN REPUBLIC - The Impact of Free Zone Operations on the Environment**

**ST. KITTS - Economic Development and Environmental Protection  
in the South-East Peninsula of St. Kitts**

**ST. LUCIA - St. Lucia, Soufriere and the Pitons: The Price of Development**

**JAMAICA - Mismanaged Urban Growth: Tourism Development and  
Environmental Quality in Montego Bay**

### **COUNTRY STRATEGIES**

# **THE IMPACT OF FREE ZONE OPERATIONS ON THE ENVIRONMENT AND URBANIZATION IN THE DOMINICAN REPUBLIC**

by

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Consultant**

## **INTRODUCTION**

A mainspring for economic development is technology, and while this technology offers the potential for economic growth it also entails a high risk for the rapid consumption of finite resources, the creation of new forms of pollution, and the introduction of new variations that could change evolutionary pathways. At present, society has been forced to be concerned with the impacts of ecological stress-degradation of soils, water, atmosphere, and forest-upon our economic future due to the impacts and trends of past economic development upon the environment.

This case study reviews the impact of free zone operations on the environment in the Dominican Republic. Free zones are considered an important element of economic development in the Dominican Republic since they generate a large number of job opportunities and significant amounts of export earnings. The Dominican Republic has become one of the most competitive sites for foreign investment in free zone operations. Free zone operations cover a wide range of apparel export, electronic assembly, and agroindustrial activities.

Unlike traditional heavy industries which are known to be important agents of environmental degradation, free zones do not have a visible effect on the environment due to their nature as light manufacturing and assembly plants. Nevertheless this paper will review the possible effects of free zones to environmental contamination, the effects of labor force transfer, and stresses the need for governmental regulations in the development and operation of free zones.

This report focuses on the free zone of Santiago since a number of environmental problems have been identified in this industrial park. A study comparing the free zone of Santiago with other free zones of the Dominican Republic is beyond the scope of this report. This report is limited to information gathered in interviews and documents collected in the field.

## **BACKGROUND OF THE FREE ZONES**

Extreme attention to environmental problems is presently needed in order to preserve fragile environments and finite resources in Third World Countries. Compelled to adapt tight monetary policies to cover debt payments, Third World Countries are devoting major resources not for

development but to meet financial obligations to creditors abroad. This implies the acceptance of increasing environmental degradation caused by the exploitation of natural resources in these countries. In the Dominican Republic, the emphasis that structural adjustment of the economy has placed on manufacturing for export, the need to increase sources of employment, and the decline of the peso against the US dollar have been major reasons for the government policy to expand the free zones. However, there has been limited environmental planning and concern for the present and future growth of the free zones.

At present, the industrial free zones of the Dominican Republic are considered the most dynamic export sector and an important force for economic development. Free zones are presently providing job opportunities for over 120,00 people in light manufacturing and assembly plants which overall represent 27.85 percent of the total growth of the labor force.

Free zones have a present growth of 10 percent while the other industries including sugar have experienced a growth below 10 percent, with negative growths recorded in 1975, 1976, 1984, 1985.

#### ECONOMIC TRENDS (US millions)

Variable	1970	%	1988*	%
<u>Goods</u>	214	83.5	890	47.5
Traditional	177	69.1	300	16.0
Minerals	15	5.9	391	20.9
No traditional	22	8.5	199	10.6
<u>Services</u>	42	16.4	984	52.5
Tourism	16	6.3	627	33.5
Free zones	-	-	150	8.0
Other services	26	10.1	207	11.0
<u>Total</u>	256	100.0	1,874	100.0

Source: Central Bank in "Impacto del Turismo en la Economía Dominicana"

Also an indicator of the importance of the free zones in the Dominican Republic is export earning. As shown in the table below, export earnings from free zones have increased almost 700 percent in the last decade, and in 1988 represented a 68 percent of total export earnings.

**EXPORT EARNINGS**  
(US millions)

Year	Free zone export earnings	Dom. Rep. net foreign exchange earnings from free zones	Dom. Rep. export earnings
1980	117.1	44.5	960.4
1981	135.8	57.6	1,189.6
1982	147.9	61.1	786.7
1983	175.0	61.9	787.7
1984	193.7	52.1	872.4
1985	204.7	44.6	745.0
1986	250.0	88.5	723.0
1987	323.7	98.1	717.7
1988	516.8	129.9	901.6
1989	692.0	180.0	1,018.6

Source: Dominican Export Promotion Center and Central Bank

The free zone program in the Dominican Republic is considered by many as "one of the world's most successful". Since 1983, over 138 US companies have invested in new business ventures in the Dominican Republic, far more than in any other country of the region.

The first free zone in the Dominican Republic was established at La Romana in 1969 on a trial basis. In 1982 there were only 3 free zones housing 60 companies; but in less than 20 years, the Dominican program has grown to encompass eighteen operational zones, four zones under construction, and eight additional projects under active development (see map next page).

**GROWTH OF FREE ZONES**

Year	Number of Firms	Employment	Under Roof Space
1979	24	11,500	925,000
1980	25	16,404	1,264,000
1981	30	19,456	1,370,000
1982	93	19,626	1,480,000
1983	107	22,272	1,680,000
1984	125	27,126	2,100,000
1985	146	35,720	2,750,000
1986	166	51,231	3,408,000
1987	178	69,538	4,970,000
1988	236	85,468	6,910,756
1989	290	112,000	8,140,115

Source: Investment Promotion Council

Although free zones are not thought to have caused major environmental problems up to this point, there are increasing concerns over the lack of environmental regulations and planning concerned with the location and operation of free zones. Since the expansion of the free zones in the Dominican Republic is rapid, any problem -- even if minor -- can have a multiplied effect due to the large number of operating industries and those projected in the near future.

## **GOVERNMENT ROLE IN PLANNING AND REGULATING FREE ZONES**

In spite of the recognition in the Dominican Republic that to achieve sustainable development it is necessary to avoid environmental degradation and the depletion of natural resources, environmental institutions facing the present challenges of socio-economic growth and development tend to be independent, fragmented, with narrow mandates and institutionally separated from those responsible for managing the economy.

Licenses for the operation of free zones are granted by the National Free Zone Council and ratified through a decree issued by the President of the Dominican Republic. An enterprise interested in establishing itself as a free zone must first submit an application to the Council.

Early in 1990 a new law on free zones was promulgated. This law seeks to stimulate the establishment of new free zones and the growth of existing ones.

Neither in the provisions of the National Free Zone Council, nor in the law encouraging the establishment of new free zones do environmental regulations exist or are they contemplated. According to this new law, free zones may be established in any part of the national territory to engage in the manufacture of goods or the performance of services. Limitations and exceptions are only for the national district and for certain industries that need to be located near the source of raw materials.

In the Dominican Republic, there are many laws that set limits of environmental degradation. There are also institutions created to manage environmental issues and natural resources, such as the Natural Resources Sub-Secretary, under the Secretary of Agriculture, and an Environmental Department of the Presidency; however, there is no coordination between these two agencies and they do not have authority in regulating the free zones.

The National Free Zone Council is controlled by the Industry and Commerce Agency and the following agencies comprise the board of directors: Secretary of Finance, the Industrial Development Corporation, the Dominican Export Promotion Center, the Foreign Investment Promotion Council, the Central Bank, the Dominican Exporters Association, two representatives from the Free Zone Operators, two representatives from the Free Zone Enterprises, and special guests who may include the Labor Department, the General Customs Agency, the Income Tax Department, the Dominican Institute of Social Security, and the National Institute of Technical and Professional Training.

None of these agencies have any responsibility for environmental quality at the national level. When a license for the operation of a free zone is required but the industry is such that an impact on the environment or on natural resources is anticipated, there is a tacit agreement that the Natural Resources Sub-Secretary will review the project. Nevertheless, staff from the Sub-Secretary expressed that so far they have not reviewed any project dealing with the installation of industries in free zone industrial parks.

The physical planning of free zones, such as water, roads, and garbage collection is the responsibility of each industrial park. This identifies a major institutional question regarding the appropriate planning and location of the free zones.

Most problems in terms of establishing a framework to prevent environmental degradation as a result of the free zones or other more harmful industries seem to be related to the following issues.

- ◆ There is no national environmental policy. Past efforts to promote environmental regulations have many times led to competing centers of authority. Various laws that regulate the environment and natural resources are overlapping, duplicative and conflictive.
- ◆ The boundaries of responsibilities of institutions regulating or managing natural resources are not clearly defined. Limited coordination exists between these administrative and monitoring agencies.
- ◆ There is limited law enforcement for non-compliance with environmental regulations. Agencies responsible for regulations and standards fail to monitor operations or take action for infractions.
- ◆ In spite of having to enforce the law, environmental institutions are poorly funded and weak and have to compete with non-governmental organizations for international funding.
- ◆ Politicians or government officials have limited knowledge of the present threats on natural resources and the environment. National decisions on environmental issues usually do not take into account the political consequences of such decisions of the electorate.
- ◆ In spite of the increasing interest that environmental issues have in the international arena, these issues are not integrated in political party policies or elections.
- ◆ Democratic governments tend to change rapidly. Opposition parties frequently refute the present government's programs and when the opposition party gains office it proceeds to dismantle existing programs and create its own.

## **FREE ZONE IMPACT ON URBANIZATION**

In the past, urban growth, economic development, and environmental preservation were issues neatly compartmentalized within sectors. Presently, there is an increasing awareness that these issues are intimately interrelated. Urban growth is usually triggered by economic development in the form of factories, industries and human settlements; and this trend of urbanization without planning -- as usually undertaken in the Third World -- has serious impact on the environment.

As in most countries of the Third World, urbanization in the Dominican Republic has become an increasing environmental phenomenon. Main urban centers are not prepared to receive the increasing flows of the rapid cityward migration of the last two decades. As a result, these urban centers have been confronted with dramatic demands in the form of new urban land, drinking water, energy consumption, and waste disposal causing great economic burdens to governments and exerting tremendous pressures on fragile environments.

In order to understand the impact of growing urbanization in the Dominican Republic it should be realized that in 30 years the urban population has increased 6 times; that the present need for adequate housing has been estimated at above 500,000 units; that the demand for residential energy has increased more than 25 times; that 70 percent of the water supply to urban centers comes from the subsoil and contains high levels of salt and microorganisms which are dangerous for human consumption; and that in the city of Santo Domingo, only 23 percent of the population is linked to the municipal sewage system and only 8 percent of this sewage is treated before discharge.

In the Dominican Republic, the urban growth of the past decades can be easily traced and quantified in terms of environmental degradation. The location of large industrial complexes within the limits of main urban centers causing dangerous level of pollution to urban dwellers, and the severe contamination of the Ozama and Isabela Rivers in Santo Domingo and Jaque del Norte River in Santiago -- all important sources of potable water -- are just a few examples of the impact of urbanization on the environment.

The Dominican Republic has extensive natural water resources which could irrigate the entire country without difficulty. Nevertheless at present, potable water -- adequate for human consumption -- is scarce. The main reasons for this scarcity is the extensive problem of deforestation which started 50 years ago and affected the forests around rivers, causing sedimentation and erosion, thus degrading rivers and streams. This deforestation was caused mainly by livestock practices; the increased numbers of human settlements along the rivers; and inadequate agricultural practices.

Free zones may have a major influence on future population transfers. During the last 10 years these zones have expanded throughout the Dominican Republic. They have expanded in terms of the numbers of businesses, workers, and geographical distribution. This suggests that future migrations and increased densities may occur, influencing the present demand for shelters, infrastructure, and natural resources at these locations. Various studies show that 61.6 percent of the present workers arrived in San Pedro, La Romana and Santiago over the last 10 years coincide with the operation of the free zone.

The impact of population transfers as a result of free zones has not been studied in the Dominican Republic. Nevertheless, conflictive views are held by different groups. The following summarizes these views:

- ◆ Free zones are becoming major influences in the future migration and urban development of the Dominican Republic.
- ◆ Free zones are occupying agricultural lands as are the large squatter settlement generated by this economic activity. More dramatic examples are the free zones of Licey al Medio (Santiago), Moca, and La Vega where major tracts of rich agricultural land has been used for free zones.
- ◆ Free zones are affecting the quality of life since the number of squatter settlements are increasing on the periphery of the free zones, wedged into courtyards and vacant lots or clinging to steep hillsides.
- ◆ Free zone development is reducing the population transfer to major urban centers. Usually located away from overcrowded cities, they are having an impact on rural-urban migration, decreasing urban densities, breaking city primacy, redirecting resource flows, eliminating

regional disparities, and promoting increased equalization of incomes.

- ◆ Free zones tend to increase the standard of living of the poor by providing jobs for a social group that otherwise would be unemployed.
- ◆ Housing conditions for free zone workers tend to remain unchanged: no piped water, sewers, paved roads, garbage collection, fire protection, nor electricity. An improvement in housing conditions can be anticipated through government housing projects. (For instance, the government is initiating a housing project for free zone workers in Santiago.)
- ◆ Free zones are helping to alleviate the pressure of the environment since large number of families are migrating to work in the free zones from river basins and fragile environment in the rural areas.

Because it is difficult to identify the precise location of where free zone workers actually live and the fact that new arrivals could be exerting new environmental pressures (such as cutting trees for new settlements thus producing erosion in riverbanks), is impossible to determine complete environmental impacts at this time.

It is also impossible to determine the precise impact workers in free zones have on the present trend of urbanization. For example, when visiting the free zones of San Isidro (Santo Domingo) the present operation has a policy of not hiring individuals who do not live in the area of influence of the free zone. Nevertheless, when interviewing some of the workers it was clear that they moved to the area in order to be as close as possible of their place of work. When visiting las Americas (also in Santo Domingo), executives indicated that one of the problems faced by the workers of this industrial park was the lack of housing in the immediate area of the free zone causing overcrowding and rising costs.

In different interviews in Santiago, free zone executives stated that workers use transportation to arrive at the industrial park and only a few live in the immediate areas of the free zone. However, through interviews with several families located on the periphery of the free zone, it was clear that at least one member of each family worked at the free zone. This situation was true in both, squatter areas which existed before the free zone started operation and in new squatter settlements.

It is important to understand that all families interviewed agreed that their standard of living had improved since working at the free zone and showed a reasonable satisfaction that the free zone provided an improved source of employment.

Although there is no clear data on the impact that free zones will have on future migratory trends, it can be assumed that the development of free zones will be a critical factor in the future population transfers of the Dominican Republic. It can also be assumed that the new family groups will undertake traditional patterns of urbanization, that is, houses will be illegally built, produced by family labor, using urban waste material combined with different commercial materials; that new dwellers will increase the presents demand for basic services provision; and that new environmental pressures will be exerted upon fragile environments, such as riverbanks, trees, agricultural land, and steep hillsides.

## **THE FREE ZONE OF SANTIAGO**

The free zone of Santiago was created in 1973. For the construction of industrial buildings and infrastructure, the government donated funds and land and assured a yearly subsidy for the development of the industrial park.

The general performance of the free zone of Santiago can be considered good. Since 1970 it has been the second highest free zone in generating hard currency. In 1987 the levels of hard currency transferred to the government from this zone was estimated at \$32.2 million.

Since 1973, the free zone of Santiago has generated the highest employment, although other free zones have larger numbers of industries. In the Santiago free zone, 35,000 workers are employed which represents an increase of 7 percent from last year.

## **FINDINGS**

Although no severe environmental degradation was found at the free zone of Santiago, a range of problems were identified. Some of these problems appear to require immediate solutions, others of no less importance, have not been quantified and consequently can only be seen as potential problems in the future development of the free zones in the Dominican Republic and elsewhere.

Some of these problems can be summarized as follows:

- ◆ Many textiles industries require the washing of finished garments in water containing detergents and chemicals from coloration which do not receive treatment before being discharged into the Jaque del Norte River.
- ◆ Large amounts of trash and food wastes are generated on site by the 35,000 workers who have meals twice daily while working at the free zone. The excess of garbage plus the inability of the municipality and the industrial park to collect this solid waste constitute a serious environmental problem. The accumulation of great amounts of decaying waste is noticeable in all the surrounding areas of the free zone.
- ◆ The planning of infrastructure is minimum.
- ◆ There are no distinct industrial park environmental regulations and each industry adapts operational standards according to their activities.
- ◆ Overcrowded conditions exist in the free zones.
- ◆ Industries generate great amounts of steam and high temperatures (up to 35 °C).
- ◆ There are limited security and fire safety programs at the free zone.
- ◆ There are no dining areas; and there are insufficient distances between industry. The planned green areas of the free zone were reassigned for construction of new industries.
- ◆ There is no organized transportation. The present means of transportation generates large concentrations of toxic gases during the arrival and departure periods. Observers estimate

that the concentration of vehicles at one single point in the city produces high amounts of Co<sub>2</sub>, sulphur and nitrogen oxide from vehicle exhausts.

All these problems seem to be triggered by the lack of safety and environmental regulations and an inadequate mechanism to enforce such regulations. There is no central agency responsible for the physical planning of the free zone to assure adequate water, roads, and sanitation. At present, there are 8 free zones owned and operated by agencies of the Dominican Government; 4 free zones owned by private corporations or foundations, but operated on a non-profit basis; and 6 free zones owned and operated on a for-profit basis by private corporations. There is wide agreement that privately owned free zones have more strict standards and regulations than the free zones heavily controlled by the State, such as the free zone of Santiago.

What is most striking is that the industrial park authorities seem not to have a mechanism for taking corrective actions to prevent environmental problems related to the free zone. The department of engineering of the free zone designs the shells of the industrial buildings but the construction of partitions is left to owners. As a consequence, buildings designed for 400 people have been adapted for the use of 800 people with ineffective ventilation. Buildings are overcrowded, generating high temperatures that cause health risk for workers.

Water from the industries located in the free zone is discharged without treatment into the Jaque del Norte River. At present, the high contamination of the Jaque del Norte River is of great concern of various sectors at the national level. This river is the most important source of potable water in Santiago. The direct impact of the free zone in the contamination of the Jaque del Norte River has not been quantified; the high level of contamination is most related to non-free zone industries which are discharging industrial wastes into the river without treatment thus producing a contamination equivalent to that produced by a city of 400,000 people. Industries located upstream before the potable water intake are less in number, but there is a great concentration of industries in the lower portion of the river where water levels are very low due to the various irrigation systems located at this point. It has been determined that the industries which are producing the most contamination are cement and leather plants. Downstream waters also collect large quantities of human waste from many slum areas which are not connected to the sewage system of the city. This has turned this area into a natural sewage reservoir.

One example of the lack of interagency coordination is the fact that no single institution is responsible or can enforce solutions for the contamination of the river. The water and sewage agency (CORAASAN), cannot regulate the industries which are under the responsibility of Secretary of Industry and Commerce. Two other institutions are also involved with this problem, the Secretary of Agriculture (which controls natural resources) and National Institute of Water Resources (INDRHI). The eradication of the slums is under the responsibility of the housing institution (INVI).

Due to the lack of coordination between these agencies and the lack of social and political power to control a problem of this nature, a National Committee was appointed to study the problem of the contamination of this river. In terms of the free zones, it was apparently determined that, in fact, contaminated water with chemicals was being discharged by these industries. The problem seems to be that waste water from textile industries are discharged into the streets, and drains directly to river without treatment.

The fact that waste water with high chemical concentrations drains directly into the waterways is a very controversial issue. It is denied by the free zone authorities and textile industries but

corroborated by professionals from the private sector and officials of the water and sewage management agency in Santiago.

This is an important environmental and political issue since textiles are the main export activity of the Dominican Republic. The textiles industries generate the largest percent of total employment in the free zones (65 percent). In Santiago textile industries represent 67 of total industries, 77 percent of the employment, and 60 percent of the physical space.

#### INDUSTRIAL ACTIVITY AND NUMBER OF WORKERS IN THE FREE ZONE OF SANTIAGO

Activity	No. of industry	Construction area	No. of Workers
Textiles	39	106,292 m <sup>2</sup>	26,372
Tobacco	6	23,295	2,429
Leather	4	12,564	1,041
Shoes	5	24,893	3,817
Others	4	11,494	1,041
<b>Total</b>	<b>58</b>	<b>178,508</b>	<b>34,700</b>

#### SUMMARY

At present, the industrial free zones of the Dominican Republic are considered the most dynamic export sector and a major force for economic development. Free zones are presently providing job opportunities for over 120,00 people in light manufacturing and assembly plants.

In spite of the importance of sector, the rapid increase of free zones (24 firms in 1979, 290 in 1989), and its contribution to the economy (10 percent growth while other sectors such as sugar have experienced negative growths in the last years), there is a lack of planning of free zones to assure their adequate growth in terms of potable water, electricity, roads, as well as to prevent environmental degradation.

In spite of the recognition that to achieve sustainable development it is necessary to avoid environmental degradation and depletion of natural resources, in the Dominican Republic environmental institutions tend to be independent, fragmented, with narrow mandates and institutionally separated from those responsible for managing the economy.

There is no present national environmental policy in spite of the many separate laws that regulate environmental effects. Although there are various institutions created to manage environmental issues and natural resources, there is limited coordination between these agencies and they do not have authority in the free zones.

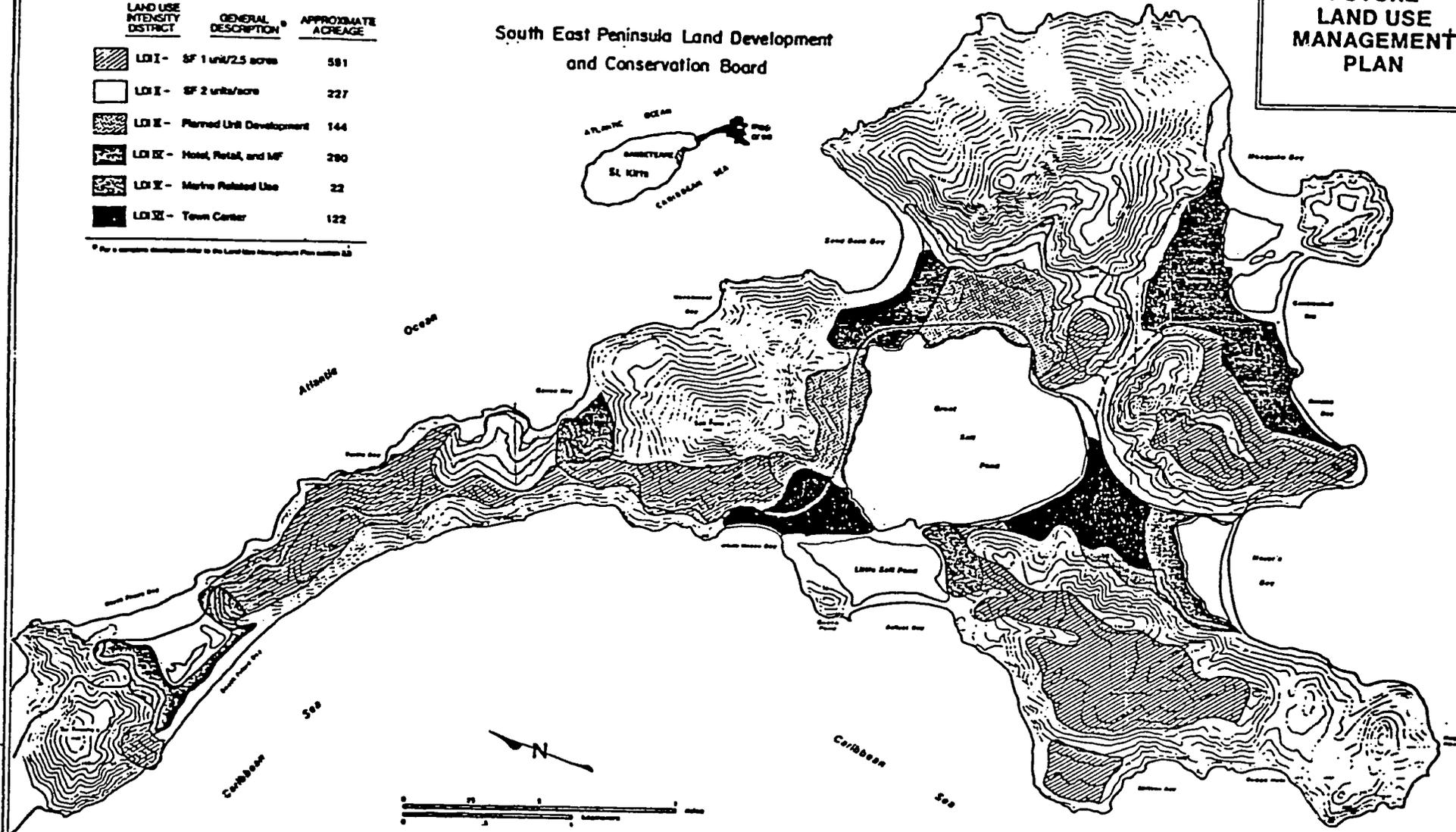
# SOUTHEAST PENINSULA ST. KITTS

MAP  
FUTURE  
LAND USE  
MANAGEMENT  
PLAN

South East Peninsula Land Development  
and Conservation Board

LAND USE INTENSITY DISTRICT	GENERAL DESCRIPTION	APPROXIMATE ACREAGE
	LDI I - SF 1 unit/2.5 acres	581
	LDI II - SF 2 units/acre	227
	LDI III - Planned Unit Development	144
	LDI IV - Hotel, Retail, and MF	280
	LDI V - Marine Related Use	22
	LDI VI - Town Center	122

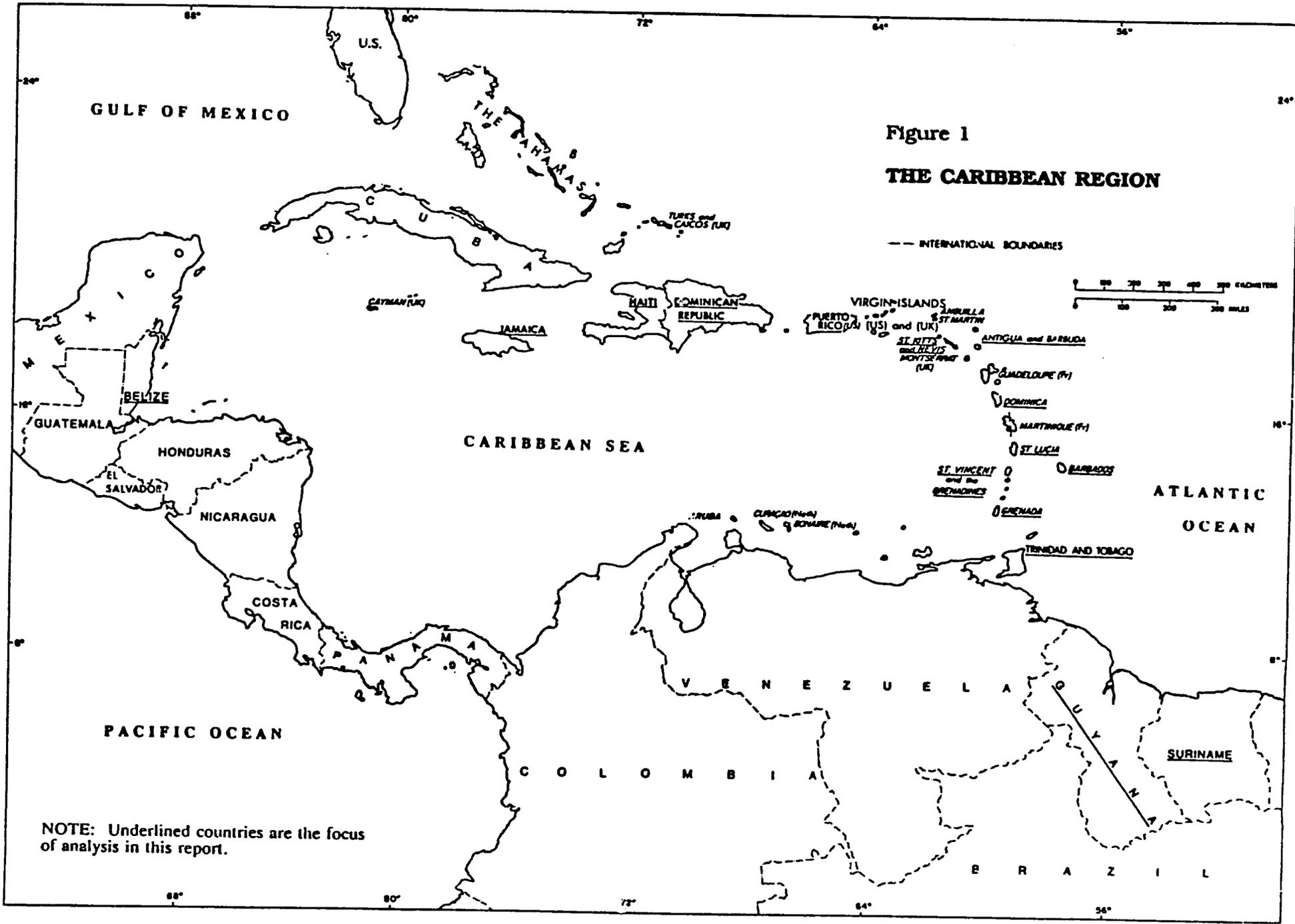
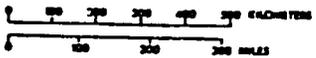
\* For a complete description of the Land Use Management Plan sections see



1976

Figure 1  
**THE CARIBBEAN REGION**

--- INTERNATIONAL BOUNDARIES



NOTE: Underlined countries are the focus of analysis in this report.

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Licenses for the operation of free zones are granted by the National Free Zone Council and ratified by means of a decree issued by the President of the Dominican Republic. Neither in the provisions of the National Free Zone Council, nor in the law encouraging the establishment of new free zones do environmental regulations exist or are contemplated.

Laws that regulate the environment and natural resources are overlapping, duplicative, and conflictive. The boundaries of responsibility for agencies regulating or managing natural resources are not clearly defined. There is limited law enforcement for not complying with environmental regulations. Agencies responsible for regulations and standards fail to monitor operations and take action for infractions.

Urbanization in the Dominican Republic has become an increasing environmental phenomenon. Although there is no clear data on the impact that free zones will have on future migration trends, it is expected that the development of free zones will be critical factors in the future population transfers of the Dominican Republic. It is also assumed that the new family groups will undertake traditional patterns of urbanization, that is, houses will be illegally built, produced by family labor, using urban waste material combined with different commercial materials; that new dwellers will increase the present demand for basic services; and that new environmental pressures will be exerted upon fragile environments, such as riverbanks, forests, agricultural land, and steep hillsides.

Although no severe environmental degradation was found in the free zone of Santiago, a range of problems were identified. One of the most striking is that since textile industries require the washing of finished garments, residual water containing detergents and chemicals from coloration are not receiving treatment before being discharged into the Jaque del Norte River thus contributing to the present level of contamination of this waterway. This is an important environmental and political issue since textile industries are the main export activity for the free zones in the Dominican Republic.

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**The Dominican Republic Work Group Team  
(I-R: Dr. Vincent George, Dr. Allan Sammy, Milagros Kennett)**

**THE IMPACT OF FREE ZONE OPERATIONS ON THE ENVIRONMENT  
AND URBANIZATION IN THE DOMINICAN REPUBLIC**

**Group Discussion  
Analysis and Recommendation**

**Author: Milagros Kennett  
Chairman: Dr. Vincent George  
Reporter: Dr. Alan Sammy**

Our group identified a number of problem areas in the Dominican Republic. Three stand out, as follows:

1. A distinct absence of government policies related to the establishment and control of Free Zones, (particularly regarding locational aspects and impacts on the surrounding communities and the environment.)
2. A failure to address the problems in Free Zones by existing public institutions, which have conflicting and/or overlapping responsibilities.
3. A deficient mechanism for participation of interested groups in the decision making process.

For example, there are no established minimum standards for establishing free zones, the composition of the governing council excluded worker representatives, there is no agency on the council representing environmental interests and there is no agency to monitor the operations of the businesses in the free zones.

However, the Dominican Republic is benefiting from the Free Zones. The successes may be identified as:

1. Job creation in a rapidly increasing labour force and where the traditional models of investment have not assisted in diminishing the problem.
2. The acquisition of skills and the employment of women.
3. Foreign exchange earnings which assist considerably in reducing the country balance of payment problems.
4. In some cases it appears that the Free Zones have resulted in a reduction of pressure on the environment.
5. In some instances the location of zones in rural areas has assisted in minimizing migration to already overcrowded major urban centres.

6. **The resulting improvement in the quality of life for thousands of families.**

**A number of shortcomings were identified:**

- ◆ **A strain on infrastructure and energy resources,**
- ◆ **Solid waste disposal,**
- ◆ **Lack of transportation to and from the workplace for many workers,**
- ◆ **Encroachment on agricultural land,**
- ◆ **Soil erosion,**
- ◆ **Water and air pollution,**
- ◆ **Increase in urban pollution,**
- ◆ **Land invasions on primarily state lands,**
- ◆ **Poor physical working conditions in the publicly owned Free Zones and a resulting negative psychological effect on the workers, and**
- ◆ **Many jobs are repetitive and boring though this is not peculiar to Free Zones.**

After careful analysis of the information the group is of the view that given the economic conditions of the Caribbean peoples, Free Zones do have a valuable role to play. The host countries must ensure that the operations of the Free Zones must be consistent with national policies and plans.

No one will disagree with the view that in the development thrust of governments respect must be paid to a harmonious balance between man and his environment in arriving at the achievement of its objectives.

Coming out of this case study, it is clear that there is a need for all governments to carefully formulate policies regarding economic development, urbanization and environmental management issues, as indeed it should for all planning. The group proposes the following as an initial step in developing a model for integrated development planning:

**Policies**

1. **Government should "free-up" the regulatory systems to create an atmosphere for investment by the private sector.**
2. **Environmental impact assessment studies should be a routine input in any development proposal. A proper monitoring and evaluation of the environmental cost and who pays for it should be known in the short and long run.**
3. **A proportion of income generated in each location should be reserved exclusively for the preservation and maintenance of the environment interpreted in the widest sense.**
4. **Government should require that working conditions, both human and physical, should meet set minimum standards.**
5. **A policy that maximum public participation from the formal and informal sectors should be mandatory at all stages in the planning and implementation process.**

6. It is mandatory also that the approach to planning should be interdisciplinary at all stages.

### Processes

Implementing these policies would require a framework of regulations, procedures and institutions:

1. The creation of an umbrella organization, where it does not exist, to oversee, monitor and take decisions about all matters related to development issues.  
  
It can recommend the establishment of statutory authorities responsible for specific sectors such as Free Zones.
2. The Statutory Authority must in its Act make provision for representation from the public on its board.
3. Data should be gathered and quantified, and disseminated or be available for dissemination.
4. The private sector should be invited and encouraged to become involved in influencing public policy.
5. All attempts should be made to use the available expertise and resources from international agencies.

Obviously, the frameworks outlines with respect to both policies and processes are skeletal and modifications must be made by each country depending on the host of economic, social, cultural and environmental factors at work.

It is clear to our group that urgent attention should be paid by the politicians and planning agencies to integrate environmental considerations into the planning process for all scales of development if we are to protect and in many cases recharge our environment.

**ECONOMIC DEVELOPMENT AND ENVIRONMENTAL  
PROTECTION IN THE SOUTH-EAST PENINSULA OF ST. KITTS**

by

Asad Mohammed  
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## **INTRODUCTION**

The South-East Peninsula (SEP) of St. Kitts offers the Commonwealth Caribbean country of St. Kitts/Nevis (SKN) the opportunity to enter into the mainstream of the tourism boom presently being experienced by other countries in the region. While there has been overall growth in the economy and tourism during the last decade, tourism has lagged behind islands such as Antigua and St. Lucia.

The large expanse of unspoilt, stunning scenic beauty of the South-East Peninsula has previously been isolated and undeveloped. A major new roadway from the mainland through the Peninsula, along with a concerted development thrust, would potentially allow St. Kitts/Nevis to cash in on the exclusive residential resort development and upmarket and sailboat tourism that is driving recent tourism growth in the region. This area is still relatively isolated/exclusive and has white sand beaches compared to the volcanic black sand beaches on most of the island.

It is hoped that development would follow the pattern of a decade old project at Frigate Bay which is near completion, but on a larger scale and found on the upper end of the market. Frigate Bay is a flat valley, bounded by hills and two white sand beaches which separates the mainland from the peninsular. It has a golf course, an all-inclusive resort with a casino, the Jack Tar, a mix of residential resort development catering to the upper end of the local market and a foreign market, beach, restaurant and related commercial services.

Unlike the relatively compact Frigate Bay development, the large scale of the proposed development compared to the entire island has potential negative economic and environmental consequences if it is not carefully managed. Recognizing this negative potential, and the rudimentary institutional framework guiding development and environmental protection in the country generally, the government established a special statutory development board for the Peninsula. The mandate of this board is to maximize the economic development potential of the SEP while minimizing the potential negative environmental impact. However, with the country's limited human and financial resources, the recurrent costs of the board and its need for highly trained personnel may prove problematic in the Board achieving its mandate.

The size of the SEP investments both in terms of publicly provided infrastructure and proposed private development will have spillover effects on the economy as a whole. On the positive side, there is expected to be increased activity and employment in related sectors such as construction,

materials, transport and services. The rate of implementation will have to be closely monitored to minimize potential negative short-run effects. Upwards price movements of peninsula land has already begun to have an inflationary impact on the price of land on the island generally. When actual construction and resort operations start, the tight market for skilled construction and hotel workers will probably require immigrant labour.

From a macro-economic perspective, the government must undertake a juggling act. The SEP offers a golden opportunity for tourism led economic growth, that can be monitored to prevent environmental disruption. Yet, because of the scale of proposed development, the price and supply of factors of production in the country as a whole will be affected. Already the development of the SEP Road has had an opportunity cost on the development of infrastructure on the rest of the country and the use of foreign borrowing.

The government appears resolved to mitigating the potential negative economic and environmental consequences and has so far stood behind the SEP Board in screening development and trying to recover economic benefits for the country. The strength of that resolve will, however, be tested when the long-term cost of maintaining and developing the infrastructure of the Peninsula and running the regulatory institution is combined with the development pressures brought upon by increasing land prices in the Peninsula.

The pressure is on from now for the government and the Board to maintain the unique environmental factors that offers the potential for tourism development within the South-East Peninsula: a potential that could so easily be ruined by overdevelopment and misuse.

## ENVIRONMENTAL CONTEXT

Location and Size: The peninsula being reviewed is as its name implies, on the southeast tip of the island of St. Kitts, which is show on Map 1. The Island of St. Kitts, which is part of the country of St. Kitts/Nevis, lies south of the Virgin Islands and is at the northern end of the Windward Islands. The Peninsula itself is 3800 acres, which is about six (6) percent of the overall country's area and over nine (9) percent of the size of St. Kitts.

Physical Characteristics: The South-East Peninsula is made up a rocky isthmus which stretches from Sir Timothy Hill to Great Salt Pond. Of the 3800 acres, approximately 450 acres are in salt ponds. The topography is mixed with relatively steep slopes and peaks as well as with some flat areas. Map 1 which shows the land use management plan includes the physical characteristics.

There are ten major environmental community types including: salina/salt ponds, beaches, dunes, mangroves, guinea grass, grass/acacia, thorn scrub and dry forest. The agriculture noted in reports were not evident on various site visits except for some pasturage. Development also appeared limited to the new roadway and infrastructure, two small functional beach facilities and two abandoned structures.

Environmental Considerations: The primary environmental consideration is that the development of the economic potential of the area takes place without overuse of the site. If development takes place to the point where there are negative environmental effects upon the aesthetic uniqueness of the area, its use as a tourism resource will be diminished. Planning for the area must, therefore, be cognizant of these considerations in the proposed development and a proper

programme for ecotourism can be integrated into such development. The following environmental considerations have been identified in the 1989 USAID Study (DESIL):

- 1) Fragmented landscapes from uncontrolled development will lose their natural character and their habitat value for wild life. The existing undeveloped state of the SEP has made this a relatively unique resource in the Lesser Antilles. There are habitats for resident and migratory shore birds, wading and woodland birds. These are unfortunately concentrated around the salt ponds which has the greatest potential for built development. With development generally, there may be need for special protection for certain varieties of wild life such as nesting sea turtles and exotic species such as the African Green monkey and the southern White-tail deer.
- 2) The SEP contains a unique assemblage of forests resources not found elsewhere in St. Kitts, and they should be protected during and after development. The introduction of Guinea grass and livestock grazing has already impacted negatively on the dry forests and should be controlled.
- 3) The carrying capacity of the beaches and the surrounding marine areas seem to suggest carefully controlled small scale tourism. Apparently, the reefs and near shore waters of the SEP are already overfished and tourism development will increase demand for most species.
- 4) Stormwater, Wastewater, and Solid Waste Disposal are going to be serious issues in the SEP development. Relatively impermeable, soils and areas of unstable geology can lead to severe erosion and flash flooding. Shallow and impermeable soils will also pose problems for wastewater disposal. Septic tank systems in use on most of the island will not be suitable for most of the SEP while alternatives will be expensive to build and maintain. It is estimated that with only 1300 units occupied on the site there will be 168 cubic yards/week of solid waste generation. Disposal will thus have to be done in a manner that will not affect the tourism development.
- 5) Land instability of large parts of the area will limit development. This problem can be exacerbated by removal of vegetation cover, earth- moving and infrastructure development.
- 6) The sand budgets of most beaches are very sensitive to any changes, and steps should be taken to properly manage this resource that is already susceptible to natural disruptions such as hurricanes or wave surges. Of specific concern is the mining of sand for rendering or as an aggregate in concrete mixtures as beaches are a normal source of supply of sand throughout the country.
- 7) The scenic quality of the Peninsular is a combination of contrasting natural topography, and undeveloped, unimpeded vistas. All development plans must minimize the disruption of this resource even though they cannot help but affect them.

## **ECONOMIC CONTEXT**

Population and Basis Statistics: The population of St. Kitts/Nevis has remained relatively constant at around 48,000 since 1972. The annual growth rate has been matched by out-migration. In 1987, forty-nine (49) percent of the population was between 0-14 years. Thirty-six (36) percent

was between 15-55 years and fifteen (15) percent was 55 years and over. Fifty-three (53) percent of the population was female and forty-seven (47) percent male.

**Economic Overview:** The major economic activity has historically been sugar production for export. There has recently been diversification towards the service sector, light manufacturing and construction. The service sector is dominated by state activities and tourism to a less extent. Public sector finances have been positive since 1986, and the GDP has been steadily improving for the last decade at between 6-10 percent per annum.

External borrowing has increased for the development of infrastructure primarily in the Frigate Bay area and the South-East Peninsula. It is now one of the highest in the region at \$890EC per person per annum.

**Tourism:** Much of the recent growth and development initiatives have focused upon tourism with its spillover construction effects. Again much of the activity has focused on the area of this case study, the SEP and Frigate Bay. Between 1984-88, stayover visitors grew at an annual rate of fifteen (15) percent per annum. Absolute growth from 1984-88 was from 39,804 to 69,608. Spokespersons in the industry said that there were approximately 80,000 in 1989, but visits were way below the optimistically anticipated 90,000 for this year. Tourism growth has been from a mix of destinations including returning and visiting West Indians contributing to a low degree of seasonality. Actual increases in Tourism expenditure more than doubled from 1984-88 at an annual rate of twenty (20) percent.

## **VIABILITY OF THE SEP PROJECT**

As early as 1980, with the general growth of tourism in the region and improved performance of the industry locally, the development of the SEP was expected to be an important part of the country's development plan. This was shown in the 1980 Roughton & Partners study. A 1983 Coopers & Lybrand study based upon a joint public/private sector proposal predicted a financially viable but risky SEP development. This project was, however, based upon a small integrated resort project of only one 300 room hotel and 100 residential units with ancillary development.

The development of both the Frigate Bay area and the SEP is proposed in the last national five year development plan 1986-90, to only include three 200 room hotels and some related residential resort development. This was seen as justifying the construction of the 10 kilometer road and installation of water, electricity and telephone infrastructure. The Coopers and Lybrand study had justified state expenditure of some EC\$25 million as recoverable for the much smaller project.

To date, the project has cost EC\$28 million financed by an US\$8.9 million USAID loan and grants for the roadway and a US\$1 million grant from CIDA for a water system. Almost EC\$6 million has been spent by the Government of St. Kitts/Nevis for the Banana Bay Road as well. Based upon the expected private investments and the resulting construction activity and tourism development, this project is considered financially viable by the government and a cornerstone of present economic development plans.

While the government has not published detailed estimated economic benefits from the investment in the SEP, its development is seen in the 1986-90 national plan as contributing to overall growth in the tourism and construction sectors.

## INSTITUTIONAL CONTEXT

**State Institutions:** Recognizing that despite the potential economic and social benefits of the development of the South-East Peninsula there were serious environmental constraints, the Government established "The South-East Peninsula Land Development and Conservation Board" under Act No. 12 of 1986, The South-East Peninsula Land Development and Conservation Act.

Under this act the powers and functions of the Board were to evaluate all types of development and make recommendations with regards to reservation and zoning of land, pollution control, environmental and coastal conservation and the promotion of development under The Land Development (Control) Act, No. 15 of 1966. They were also to develop and implement an environmental protection plan, undertake planning studies and prepare a "SouthEast Peninsula Development and Land Use Management Plan".

**National Development Control Framework:** This Board established the third planning and development control regime in the country. Under the first regime, governing the entire island, development was controlled by the above mentioned Act 15 of 1966 and the Town and Country Planning {Act} Chapter 264 1949, the Building Ordinance, 1943. The second regime had been established under the special development authority for Frigate Bay.

The existing national institutional framework guiding development by means of the Land Development, Town and Country Planning and Building ordinances was, however, inadequate to properly control the SEP development. While the statutory authority existed for them, neither the land development, the building ordinance nor the Town and Country Planning Act have a set of regulations or codes. A UNPD project in the mid-1970's had developed a national physical development plan, a development code and draft revised legislation but its work was not continued or implemented. In 1987, a National Conservation and Environmental Protection Act was established, but again this was not immediately adequate to the needs of the SEP, even though it did signify the Government interests in environmental protection.

**SEP Planning Framework:** It was thus necessary to develop along with the statutorily required Land Use Management Plan (LUMP) of the SEP Act, Development Guidelines for the South-East Peninsula (DGSP). These Documents, have been in force since June 1989 and being administered by the SEP Board. They provide an integrated and comprehensive development control mechanism.

The SEP boards thus administers its own set of development regulations and codes quite independent of and more comprehensive than the existing national development controls. The DGSP in fact replaces section 4b(iv) of the SEP Act which requires schemes to be developed in terms of the Land Development Act.

The LUMP lays out the broad planning goals and objectives of the Peninsula and establishes a set of land use management maps covering the following Areas:

- 1) Land Use Management
- 2) Conservation Districts
- 3) Scenic Vista Districts

- 4) **Wildlife Management Areas**
- 5) **Natural Hazards**
- 6) **Recreation Area**
- 7) **Public Facilities**

Two types of land use control standards were developed. The plan defined six (6) Land Development Intensity Districts (LDI I-VI) governing the type and density of use. Specifications include land use types and percentage mixture, floor to area ratios and building heights. The plan also described, but did not clearly define a series of overlay districts for public uses and natural resource protection uses. Public uses included sites for police, health, school, library and sewage facilities and service corridors for infrastructural elements. Natural protection districts included those for Wildlife Management, Conservation, Hazard, Recreation and Scenic areas.

Following on the broad objectives and standards in LUMP, the DGSP lays out the specific procedures for developers and the land development regulations down to specific site planning requirements. In addition to the management considerations in the LUMP maps, the administration of these standards and procedures are to be governed by a set of social and economic considerations. These include the promotion of economic growth, sustaining the long-term development of St. Kitts/Nevis, balancing public and private interests and the promotion of environmental values.

The SEP board is still a relatively unique and untried institutional structure in the context of ST. Kitts/Nevis and its complexity and comprehensiveness may yet flounder. It has, however, been supplemented in the broader statutes of the country by the 1987 National Conservation and Environmental Protection Act and the establishment at least on paper of a National Conservation Board.

Non-Governmental Organizations: The non-governmental sector is relatively undeveloped in St. Kitts apart from traditional business sector interests. Of relevance to this case study would be the Brimstone Hill Society who has been largely responsible for the restoration and development of the fort of that name, the Hoteliers Association and the environment conscious St. Christopher Heritage Society. However, there is a growing awareness of these issues in certain sectors of the society. Environmental protection and awareness will, however, be enhanced with the completion of the Country Environmental profile presently being undertaken by the Island Resources Foundation and coordinated in St. Kitts by the Heritage Society with USAID funding.

## **PROPOSED DEVELOPMENTS**

The following are a list of proposed developments that have actually reached the Board. The information gives the acreage by types of development and number of units and a listing of the types of problems so far incurred. This is followed by a comparison with the density estimate that was done by the USAID consultants.

These projects are in various stages of proposal development and no final development approvals have been given for any of the major projects. Permission has been granted and construction has started on only one minor project. It is generally felt that most of these projects will have to be scaled down to suit their individual sites and the overall plan for the Peninsula.

Resort Hotel: This is to be an all-inclusive resort development proposed for a 12.4 acre site

at Banana Bay and Cockleshell Bay and the application is for between 217-275 units. It is proposed to contain a casino. Major problems in the application so far include the limited area for on-site disposal of treated effluent by irrigation, general overbuilding of site, inadequate parking and the lack of public beach access. Land acquisition of adjoining property and a reduction in scale has been suggested by the Board to make the project acceptable.

Casino and Marina at Little Salt Pond: This is proposed as a comprehensive resort development focused upon a marina and casino on 158 acre of land of which 50 acres are in salt pond. It includes 8.3 acres of marina for 130 boats, 4 acres of parking for 300 cars, 7.4 acres of mixed retail commercial and office space covering some 100,000 sq. ft., 60.55 acres providing 425 condos and villa units, 20 acres for the central hotel and casino facility of 812 rooms, 3.5 acres of waterfront recreational facilities extending onto the sea and a possible additional 14.5 acres in villas.

Major problems include much higher densities than allowed on plan, proposed construction on unstable ground, a potential boundary dispute and the need for an integrated development of the salt pond, access to some sites and the scale of the necessary sewage treatment facility or system.

It was noted that there were tremendous implications for employment and income generation for St. Kitts generally from this project, and efforts were apparently made to help the project proceed by adjusting the specific development guidelines. No specific cases of changing the basic environmental considerations were evident even though more care seems to be warranted on certain points such as the beach and sea facilities. The developer has indicated a sincere interest in meeting planning and environmental considerations.

Comprehensive Resort at Friars Bay: This is a 257.6 acre site including a 20 acre salt pond. Phase one proposes a 250 acre room hotel, a service area and a mixed residential/commercial area of an unspecified amount of units. Phase two which proposes construction on a sand dune has been refused permission. Phase three includes 250-500 room hotel. Major environmental concerns include inadequate assessment of the carrying capacity of beach resources, instability and steepness of the slope on some of the proposed construction sites, violation of a proposed reservoir site and the negative impact upon an important sand dune. Overall, there is a lot of work to be done on this proposal to make it acceptable.

Hotel at Friars Bay: A fifteen acre site has been sold to a small but successful chain of Caribbean hotel operators. This North American company would probably want to build a 200 plus room facility on the site because of the price paid for the land. This sale may affect the overall development proposal immediately above.

Hotel/Convention Centre at Cockleshell Bay: This is a proposed 250 hotel facility on 153.5 acres with a large sporting facility which is to be followed by a hotel catering primarily to the convention business. Large parts of the site are covered by salt ponds. Major problems with the proposal includes inadequate studies to support proposed development and a lack of conformity to the LUMP. This work includes partial filling and conversion of the ponds into lagoons and potential flooding problems. No permission has been granted pending further studies and submissions.

Comprehensive Development at Major Bay: This is a 150 acre development that is proposed to include a major resort hotel on 11.5 acres, a beach club on 2 acres, a 5 acre commercial site, a utility site of 4.5 acres, 35 acres containing five condominium sites and residential sites of unspecified

acreage for approximately 100 building lots.

Major problems include use of unstable and potentially unstable land for residential and condo units, conflict of hillside densities compared to the LUMP, undefined and unsuitable filling and dredging of the salt pond, no public space and a lack of public beach access. The developer is rethinking some aspect of the proposal.

**Comprehensive Resort Development:** This proposed development at Whitehouse Bay and Sand Bank Bay is proposed for 381 acres out of a total holding of approximately 1000 acres. This is due to the diverse and unsuitable terrain for development. The proposal includes 3 hotels with a total of 1555 rooms and 1650 varied residential units.

Environmental considerations include the steep slopes and areas designated for wildlands, protection of Sand Bank Bay dune, the hydraulic regime on Great Salt Pond and its use as a habitat for birdlife. The proposals lack proper phasing, environmental impact evaluation, proper provisions for sewage disposal, public use areas and a marina development plan. Proposals are at a discussion stage.

**Beach Bar:** This beach bar at Mosquito Bay had some environmental problems such as sewage disposal, dune destruction and pollution. It was passed subject to some redesign and modification of setbacks.

**Comparisons with Initial Planning Study:** The proposed development of the SEP in the USAID study of 1989 had projected the land use plan to generate some maximum hotel construction of around 8500 rooms on approximately 1400 acres of buildable space. If the land was used completely for Residential construction, it would yield some 7500 units. It was estimated, however, that with residential, commercial and other land uses that 4000 hotel rooms would be a more realistic figure.

Preliminary aggregation of proposals reaching the Board listed above show some 4000-4500 rooms being proposed for approximately 1000 acres and some 2200 residential units on approximately 600 acres. These figures do not include commercial and other uses which are still to vague to quantify. These preliminary figures thus illustrate some 1600 acres (not counting commercial, beach, marina, and other land uses) being proposed for active development. This is already over the maximum development in LUMP, and proposals have not been received for some 1000 acres of the 3800 acres in the Peninsula.

## **PRIMARY CONSIDERATIONS OF THE SEP DEVELOPMENT**

1) **The Lands are all privately owned:** No specific procedure for land acquisition was undertaken for the construction of the roadway and this issue is yet to be resolved. There was a loose arrangement where landowners have given land in exchange for governments development of the infrastructure and development rights. This will make it more difficult to exact concessions from landowners in the provisions of public and protected areas. This is even more difficult as some owners have given substantial and often the better parts of their land for the road.

2) **Lack of Specific Designation of Public and Protected Areas:** Proposals to date show that the 10 percent of the development area required for public and environmental considerations is not

forthcoming. Even when they are eventually provided as part of development proposals, the SEP Board will have complex designation and management problems in matching the environmentally designated areas with the actual open space in the proposals. Very often proposed land uses are in conflict with the land designations and any variances of standards will encroach upon the environmental protection zones.

The Board had used a loose land designation procedure highlighting potential problem areas and the general areas required for public spaces. While the board has had the support of the Government to date in regulating development, it is still a complex problem. The eventual protection and management of the environmentally sensitive areas are dependent upon the aggregation of a set of individual applications and compliance with the overall land use plans. A range of intervening possibilities can negatively affect the final outcome.

The first simple problem is the aggregation of a series of minor variations of land use and site development standards. While each may be minor on an individual basis, they may collectively alter the overall LUMP. There is also the problem of a potential major investor being able to sway the government against the Board. While the government has been completely behind the Board to date, with the Attorney General actually sitting in on meetings, the scale of some of the investments make a powerful negative influence a real possibility.

3) Financing and Cost Recovery: The above problems may be compounded by the inability of the government to maintain the operations of the SEP Board in terms of financing and staffing. These requirements for the operations of the board seem to be taken for granted. The proper functioning of the Board is essential not only for the development stage, but also the maintenance period after development. Issues of continued responsibility for ongoing maintenance has been addressed as part of the USAID study, but no specific recommendations have been implemented to ensure such capability.

The whole issue of ongoing maintenance of the infrastructure and the administration of the Board has been only loosely linked to the mechanisms proposed for cost recovery. No land acquisitions were done for public space before the infrastructure was developed. A simple taxation on land transactions and ongoing annual taxation is to retrieve investment of the state. There is a 14% tax on land transactions, 10 being paid by the purchaser and 4% by the vendor. The state may, however, have to purchase land for public purposes at the enhanced value caused by its own investment.

4) Scale of the Projects: The size of the projects seem to go counter to overall guidelines for tourism development which emphasizes multiple small hotels that would better be integrated into the existing plant of the industry. The precedent for the exemption of facilities above 200 rooms from taxation, set by the Jack Tar facility at Frigate Bay, has for all intents and purposes put a floor on the size of tourism facilities. This does not auger well for existing small-scale guidelines for tourism development, the survival of the existing plant, or the meaningful participation of locals in the development of the SEP and the tourism industry generally. Skilled labour is already at a premium and may require importation as new developments take place. Existing hotels may have difficulties in competing for factors of production.

5) Impact upon the Construction Industry: The construction of the SEP road shows the limited capacity of the local industry. Rapid large-scale construction at the SEP may not allow sustainable growth of a vibrant construction using local labour, professionals, materials and

contracting companies. Construction materials will either be imported or in many cases be supplied locally with potential environmental degradation. This will certainly be the case with aggregate and sand from the Ghuts and beaches.

6) Stakeholders Views: There are a variety of views being expressed on the viability of the SEP development from various sectors of the society. A popular sentiment was that the road should not have been built as it disrupted the nature of the Peninsula. Many suggest that it would have been better to have developed the areas based on boat access. The same people would, however, also state that the road opened up a resource to the entire population that had only previously been available to the select few. Many are skeptical that the scale of development would actually take place to justify the expenditure by the State. Even if development did take place, many were afraid that the private landholders would receive windfalls from the state expenditure and there would be little real return to the country.

People in the hotel industry were skeptical about the real benefits for long-term tourism viability. They expressed fears that the development would be more of the all-inclusive, enclave tourism. This would bid up prices in the industry but would have little multiplier effects in the economy as a whole. They also pointed out the various exogenous factors which would affect tourism such as the state of the United States economy and the limited amounts of airline seat available. It was shown that recent trends in tourism growth had been reversed this season. They pointed out the impact that a natural disaster, such as a hurricane, could have on the SEP environment, especially if there was inappropriate development.

The interests in the construction industry were skeptical of the extent that locals would be involved except as labour. They anticipated that foreign professionals, experts and construction companies using foreign material would benefit the most. Some practitioners were, however, elated at already improved workloads.

Individual landholders were selling land in the SEP which reputedly doubled in the last three years from around US\$40,000 to US\$80,000. Landmarket transaction in the areas has slowed down as the potential of development benefits loom. The cost of projects so far proposed are massive and most firm development proposals have been foreign based with local landowners appearing to be more interested in (or capable of) land speculation.

## **SECONDARY CONSIDERATIONS OF THE SEP DEVELOPMENT**

1) Impact the economy as a whole: Similar to the impact upon land prices, the development of SEP may have an impact on the factors of productions and services throughout the economy. This may impact negatively on other sectors and regions of the society. This may also be compounded by limited multiplier effects of relatively enclave tourism development compared to other forms of foreign earnings.

The SEP infrastructure has been developed at high cost, primarily from foreign borrowing. This project with its high estimated economic growth has received priority over development or other infrastructure projects. This is a strategic development decision by the government that is dependent upon the success of the venture, but has recurrent cost implications and an opportunity cost on other economic activities and regions.

2) Housing and Services of Labour: There is no land available for low-cost housing or settlement in the SEP. Whether the increased labour requirement of construction or operations of the SEP development comes from SKN or abroad, there will be development pressure on the Basseterre area which is closest to the Peninsula. The already tight situation for housing and services in the area will be worsened. As most of the undeveloped land around Basseterre is under state control, mechanisms must be put in place to anticipate these requirements.

3) Water supply and Waste Water Disposal in Basseterre: This region is a fairly unique area in the country as it has the largest aquifer. Accelerated development of SEP would provide a dual problem. There will be need for increased water withdrawal as well as potential problems from traditional sewage mechanisms.

## CONCLUSIONS

This case study provides a golden opportunity to examine an area before development has taken place. There is already in place the necessary awareness and research as well as most of the institutional infrastructure. Further analysis of potential problems at this stage can still be in time to prevent problems further down the road.

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The St. Kitts Work Group  
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**ECONOMIC DEVELOPMENT AND ENVIRONMENTAL PROTECTION  
IN THE SOUTH-EAST PENINSULA OF ST. KITTS**

**Group Discussion  
Analysis and Recommendations**

Author: Asad Mohammed (PhD)  
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In 1989 the Government of St. Kitts/Nevis officially opened the newly built access highway to the South-East Peninsula (SEP) of St. Kitts. This new highway, St. Kitts pathway to tourism development, rendered accessible a large expanse of scenic and pristine lands which had previously been approachable by marine transportation. The SEP was always seen as having tremendous tourism and related development potential and the Kittian government was determined to cash in on the growing desires of tourists to luxuriate in the warm sunshine of a Caribbean island.

The unspoiled character of the area and the special characteristics of its beaches (white sand) all contributed to a realization that the area had tremendous economic potential which would result from the construction of all-inclusive resorts, establishment of other related activities to service the tourism sector and the opportunity for job creation. Though the project is in the very early stages of its development, many problems are beginning to surface which bring into question the economic and financial viability of a project of this scale, the sociological ramifications of urban growth and realignment, and the irreversible environmental damage which has been caused as well as the potential to create further hazards resulting from solid and liquid waste disposal and the degradation of natural habitats.

**KEY ISSUES:** The key economic issues which stood out in this case study were the extent to which this project would deliver the economic development goods for which it was conceived. Land prices had skyrocketed, ruling out the possibility of small scale housing development. Also, given the problems being encountered a key question is whether an adequate economic evaluation had been undertaken to ensure that the government would recover the cost of its investment.

Given the size of the local population and the scale of the project, the question of urbanization is very relevant. It does not seem apparent that adequate provisions have been made to provide the manpower which will be required to fulfill the demands of the construction sector. Neither does it seem possible that accommodation quarters for workers would be available on the SEP. It seemed obvious that there would be tremendous need to redesignate agricultural land for urban low income settlements.

In opening up virgin territory in the SEP the road also put at risk some fragile and sensitive areas. The limited availability of land suitable for the development projects envisaged will place tremendous pressure on the landscape which will lose its natural character and its habitat value for

wildlife. These sensitive areas are found in and around salt pond flats which incidentally have the greatest potential for built development. The carrying capacity of the beaches suggests small-scale hotel development which seems contrary to the proposed plans for large-type hotel projects. Also, the geological characteristics of the area raise questions about the satisfactory disposal of solid and liquid waste disposal. Many will contend that the scenic value of the SEP has been severely diminished. The question is to what extent will further built development erode the landscape. These questions all point to a need for conservation and monitoring measures to ensure that the environmental assets of this region are not diminished.

### Findings: Successes and Shortcomings

In recognition of the potential economic and social benefits of the development of the SEP and in view of the environmental constraints, the government of St. Kitts established the South-East Peninsular Land Development Board with powers to evaluate all types of development and make recommendations with regards to zoning of land, pollution control, environmental and coastal conservation and the promotion of development. Despite complementary remarks from everyone concerning the functioning and operation of the Board thus far, it is apparent that its effectiveness is seriously constrained. A host of institutional problems confronts the Board. These include land tenure and ownership pattern, overlapping legislation, lack of building regulations, failure to promulgate a national development plan and inadequate budgetary allocation for the operations of the Board. In its shortlife time the SEP board has had to administer its own set of development regulations and codes which were quite independent of and more comprehensive than the existing national development controls.

There was general agreement that the scale of the project is out of proportion to the size of the country and the carrying capacity of the area. The plan does not indicate a clear cut methodology towards the achievements of the overall goals. The emphasis on large 200+ room hotels seems a departure from the previous plans which emphasized multiple small hotels. There was little or no attempt to involve the public in a meaningful way in the planning and execution of this project. It does not seem that adequate evaluations had been made with respect to the effects this large scale project will have on the construction industry, the effects on sugar production, urbanization, skilled labour requirements, the effects on other small-type hoteliers, and the effects on the economy as a whole resulting from spiraling land prices.

The scale of development is not sensitive to the environmental constraints which contrasts with the potentials of the area. The SEP has been developed at a very high cost and the fact that all the land is in private ownership means that government has little ability to influence the type of development which is envisaged for the area. More significantly, governments failure to secure or acquire land before the construction of the roadway has meant that the Board will have great difficulty in enforcing conservation measures. Though all developers are required to set aside 10% of all properties which can be designated for public use or protected areas, great difficulty is anticipated in trying to enforce this regulation. If it is enforced, it is envisaged that developers will resort to more intensive use of designated building sites.

### Recommendations:

1. Revise the development plans of the entire country with better acknowledgment of its physical, human, financial and natural resource potential.

2. **The Land Development Control Act should be substantially improved (along the lines of the Development Guidelines for the SEP) and attempts should be made to have uniform national planning standards**
3. **The Land Development Control Act needs to be amended to exempt from its application developments within the SEP.**
4. **Revise the legal and institutional deficiencies of the development plan and establish control mechanisms for remedying such deficiencies.**
5. **Review and rationalize development planning legislation to eliminate areas of overlapping provision and jurisdiction.**
6. **Enforce the 10% open space principle.**
7. **Undertake and establish a National Conservation Plan to rationalize development and conservation goals.**
8. **Make adequate budgetary allocation to ensure the proper functioning of the SEP Board.**
9. **Establish machinery to allow the SEP Board to recover the cost of the project.**

## **ST. LUCIA, SOUFRIERE AND THE PITONS: THE PRICE OF DEVELOPMENT**

by

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### **INTRODUCTION**

Soufriere, formerly the French colonial capital of St. Lucia, is the third largest town and oldest settlement in the island, becoming St. Lucia's first town in 1746. The Town's French colonial heritage is vividly retained in the architecture of the older sections of town around the park, and along the waterfront. The most distinguishing aspect of the town, however, lies in the magnificence of the natural setting.

Set in a long, deep valley almost midway along the scenic west coast of St. Lucia, the visitor to the town, viewed either from the sea or land, is immediately struck by the compelling beauty of the natural landscape. The waterfront cuts a graceful arc anchored at both north and south points by towering hills and cliffs. The majesty of the setting is capped by the mountains; the awesome beauty of the twin Pitons to the south and backdrop of verdant mountains framing the town to the north and east, an area encompassing four major watersheds, two forest reserves as well as the habitat of the endangered St. Lucian parrot. The nature of the physical setting, the natural boundaries formed by the mountains on three sides and the sea on the other, is one which brings with it a distinctive aura of physical isolation. The rugged topography makes vehicular access to the town quite difficult, and road maintenance problematic. Soufriere is located 17 miles north of the international airport at Hewanorra, a drive of about 1 hour, and 26 miles south of the smaller airport at Vigie, a tortuous but rewarding one-and-a-half hour drive spanning precipitous, but breathtaking vistas.

The physical isolation of the town is mirrored in no small way by a nagging sense of economic isolation reflected in the largely depressed economic conditions and poor social-infrastructure facilities which reinforce the impression of marginalization from mainstream St. Lucian life, and non-participation in the general economic boom enjoyed by the rest of the country. Over the years, these dual facets have fostered migratory tendencies within the community resulting in the departure of persons from Soufriere to other parts of St. Lucia, notably to the capital city of Castries, some to seek better educational opportunities and jobs, others just simply looking for a way out. However, a series of ambitious, large scale projects, some already in early phases of execution, will combine to significantly change the pace of life in Soufriere by reversing both the physical isolation and the economic fortunes of the town. The actual determination of outcome, in terms of the costs and benefits of these projects, is not a simple process and will depend largely on the system of values, both economic and social, by which success is evaluated.

The recently started multi-million dollar west coast highway project will dramatically increase the accessibility of the town as the old, but scenic highway is widened and realigned. Improved accessibility will significantly increase developmental pressure in the Soufriere area [a process which has already started], the effects of which will be reflected in rising real estate values as speculative interests drive market forces in an upwards spiral along the entire west coast. If development is not planned in a comprehensive manner, but allowed to proceed haphazardly, the cumulative impacts have the potential to exert serious and irreparable damage to the natural environment, the very resource on which the sustained development of the entire area is dependent, while also holding the distinct possibility that local populations will be marginalized from the growth process.

Current plans for the development of the most unique areas of the Soufriere region into exclusive, large scale up-market tourism enclaves, have even more profound implications, and have raised serious questions regarding the nature of development, the role of community participation in the development process, the value, if any, of traditional and cultural values, and the use of natural resources in development, the subject of discussion in the sections which follow.

## SOCIO-ECONOMIC CHARACTERISTICS

The town of Soufriere has a population of approximately 5000 residing within town boundaries while another 4,100 live in the wider Administrative Area.<sup>1</sup> More than half of the population is under 15 years of age. Home ownership averages about 60% within the town and rural areas with a high degree of variability in housing quality, level of amenity and access to services. Toilet facilities include a mix of water closets with septic tanks, pit and bucket latrines. Sewerage is dumped in the Soufriere River and in the Bay, a practice which has resulted in extremely high levels of faecal coliform and nutrient levels within the Bay which is also used for recreational sea bathing by community residents.<sup>2</sup> Solid Waste management has emerged as one of the most serious problems facing this community as a result of inadequate capital equipment and human resources, lack of suitable sites for sanitary landfill, and ineffective institutional management. As a result, even though garbage is officially dumped in the town of Vieux Fort, the inadequacy of the collection service has resulted in the proliferation of several illegal dump sites within the town, including dumping within and along the banks of the Soufriere River and Bay. Problems of poor infrastructure and inadequate services cut across all sections of town. In a recent attitudinal survey residents of Soufriere cited lack of jobs, inadequate housing, poor infrastructure and services, and lack of community facilities among their most pressing problems.<sup>3</sup>

The largest tracts of land are owned in the form of estates by two families who received title under land grants from the French King in the 17thC. Over the years significant portions of these estates have come under pressure to accommodate the expansion of the town. In this way, sections of La Perle and Ruby estates have been subdivided for a number of uses, including well over 1200 house spots forming the core of the newer residential communities of Palmiste, New Development and Fond Benier in the northern section of town, across the Soufriere river. Estate lands have also been acquired in the past by Government to facilitate the construction of schools and playing fields.

Soufriere was known in the past as the bread-basket of St. Lucia, a reflection of the rich volcanic soils in the area which sustained the production of cocoa, citrus, bananas, coconuts (for copra/oil production) and ground provisions, providing employment opportunities for a significant portion of the labour force of about 3000. In the late 70's, the decline in primary commodity prices especially for cocoa and coconut oil, led to a significant decline in the production of these crops. Still

however, almost one-third of all economic activities are related to agriculture. Over the years, the steady encroachment of non-agricultural uses onto estate lands has served to remove a significant percentage of the most easily workable flat lands from agricultural production. This has resulted in the steady upwards progression of agricultural activity sometimes illegally into the forest reserve. Much of the production of ["green gold"] bananas and traditional ground provisions now takes place on the steep slopes around the town. This, together with the widespread occurrence of large forest clearing for charcoal production and subsistence farming, has invariably led to problems of deforestation, erosion and siltation of the Soufriere River and Bay area. The increasing misuse in application of herbicides, fertilizers, and pesticides, have increased the effects of chemical pollution within the water bodies.

Fishing provides income for approximately 250 fishermen who complain of declining catch in traditional, near shore fishing areas even though two areas within the Bay were designated as Fishing Priority Areas (FPA). This is not surprising due to the number of conflicts in the coastal area, the pollution of the Bay, and the use of this area for both recreational diving and as a popular anchorage for yachtsmen. In an effort to capitalize on the increase in tourist trade, a few of the younger fishermen use their boats as water taxis transporting visitors across the Bay to get a closer look at the Pitons. A few have added glass panels to the undersides of their boats, to cater to those visitors who wish to explore the marine world from the security of a dry berth. Some people are employed in the commercial and retail activities within the town, while a few others are employed with the public sector. However, the largest employers are the Copra Factory located in town which produces soaps, oil and butter for domestic use and export, employing approximately 160 persons, and the Anse Chastanet Hotel providing employment for a little over 100 persons. A few taxi operators and restaurateurs derive some income from the tourist traffic. Unemployment is estimated to be in the vicinity of about 30%.

## NATURAL RESOURCE CHARACTERISTICS

The area encompassing Soufriere and its environs represents a unique blend of the geological, ecological and aesthetic qualities of both the St. Lucian and wider Caribbean landscape and heritage. Most important among the natural resources are the twin peaks, Gros and Petit Piton, famed Caribbean landmarks, symbols of the St. Lucian flag and central to the future development of Soufriere. The nearby Sulphur Springs are billed as the world's only "drive-in" volcano; the hiking trails through tropical rain forests in the Quillesse Reserve, the hot mineral waters of the Diamond falls and baths, are all located within Soufriere. Soufriere Bay and nearby coastal waters offer the best reefs for recreational diving in St Lucia, as well as providing safe and scenic anchorage to visiting yachts. The range of natural resources combined with the archeological, architectural and historical legacy of the area, [including the remnants of the reputed birth place of Josephine Bonaparte] present an area unique in the diversity it offers.

The rich and diverse nature of resources offered within the area in the context of difficulty in sustaining large scale industry ( a function of distance from main sea, airports and markets) have for several years reinforced the notion that tourism may very well be the catalyst needed to inject new life into the economy of the town. While there is consensus concerning this path of development there exists much debate regarding the location, scale and type of tourism product offered, whether the town should be developed as a resort, or tour area, or some permutation of the two, and, most critically, whether or not the most important and unique areas of natural beauty, including areas regarded as national treasures should be sold and developed by foreign interests.

In any event, one look at Soufriere confirms the fact that it is not the prototypical "Sun, Sea, Surf" tourist destination. All beaches are black sand and can not compete with the traditionally more accepted white beaches of the Rodney Bay area. The town is located in one of the areas of highest annual rainfall in St. Lucia, [receiving on average 90-100 inches] within an area of volcanic activity and steep topography which bring special problems to construction, characteristics not typical of the Caribbean Tourism product. What Soufriere does have to offer, is however, unique and outstanding; the grandeur of the natural environment is unrivaled not only in St Lucia, but in the Caribbean, making the town ideally suited to the development of "ecological sensitive-tourism", harmonizing the linkages between the built and natural environments.

### **The Potential for Tourism**

The marketing power of natural beauty is evident in the boom of eco-tourism world wide. A recent broadcast of the cable TV Discovery channel showcased St Lucia as a "Natural Place to be", a theme echoed in the Tourist Board's marketing of the island. The fact that this sentiment is also shared by visitors who come to St Lucia, is confirmed by a poll of travel agents who visited the island to determine the main attractiveness of the island conducted in 1983 by Board of Tourism.<sup>4</sup> More than half of those polled cited St Lucia's nature and landscape as the main attraction.

In 1988, over 90,000 visitors paid EC\$ 273,000 to visit the Sulphur Springs.<sup>5</sup> Over EC\$ 15,000/ month is collected in toll fees at the Soufriere jetty from the operations of charter boats two of which, the Unicorn and the Buccaneer, run the most successful tour to Soufriere along the west coast, from Castries. In a two month period between August and September 1988, records indicate that at least 1950 dives were completed at 20 dive sites in around the Pitons and Soufriere Bay, at a total value estimated at US\$78,000.<sup>6</sup> In 1989, over 1400 visitors took the guided rain forest hike through the mountains. It is estimated that well over 100,000 tourist will visit Soufriere in 1990, all drawn by the natural environment. This number represents over one third of all visitors to St Lucia (including cruise ship arrivals) and close to 80% of all stay over visitors who lodge mainly in the Castries/Rodney Bay Area. While almost all visitors to Soufriere come as part of tour groups spending only a 2-4 hour period in the area on average, a poll of visitors to the town in 1988 indicated that over 60% would be interested in staying for a period of several days, if sufficient accommodation and facilities were provided, and the physical appearance of the town upgraded.<sup>7</sup>

### **DEVELOPMENT PLANNING ISSUES**

Planning for the future in the Soufriere context epitomizes the continuing dilemma of development within Islands such as St Lucia: i.e. the need to transform natural resources into productive inputs for the purposes of economic development while at the same time ensuring that environmental quality is not affected. Caribbean Governments saddled with mounting debt payments, low levels of foreign exchange reserves, high rates of unemployment and under-employment, generally look to external investors to stimulate national economies. The potential for enhanced economic welfare and growth determined by projected increases in per capita income and GDP, are by and large the sole criteria used to evaluate the merits of potential investment and development projects. Issues relating to the social well-being of a country, the preservation of cultural integrity, traditional values, merits of local ownership of natural resources, the value of community participation in the planning process are usually elements which are simply not considered in a cost-benefit analysis. There are times however, when the people of a country in whose names decisions regarding economic welfare are being made, are themselves prompted to pose

a serious question reflecting the complexity of issues relating to traditional values and cultural pride: is no price too high to pay for development? The study area under review, recently warranted the posing of such a question.

### **Development Policy for Soufriere**

Development pressure is currently being exerted to transform the Soufriere area into a major tourist attraction via large-scale resort type developments. The development of this part of the island forms part of national policy directing the development of the entire country. Thus the option of tourism development within this area is consistent with Government's national policy to promote the growth of tourism in St. Lucia as a whole. The construction of a modern marina at Rodney Bay, the plans for large new hotel complexes at Rodney Bay, on the causeway linking Pigeon Island to the mainland and at Choc Bay; the construction of the cruise ship terminal at Point Seraphin, and current plans for the expansion and redevelopment of both airports all reflect the high priority given to Tourism as a major element of the island's development thrust.

The St. Lucia National Plan Development Strategy (1977) states: "through the combined actions of the Government, National Trust and the St. Lucia Tourist Board, programmes for the conservation and enhancement of the island's natural and man-made attractions will be instigated". An important facet of the strategy has been a stated emphasis on greater participation of St. Lucians in the tourism industry, an element which has some potential for the development of small scale tourism related facilities.

### **Soufriere Development Programme**

The National Plan (1977) identifies a target of 500 hotel rooms in Soufriere. Since the majority of all visitors to Soufriere are tour rather than stay over visitors, actual demand for accommodation within the town, has been low. As a result there are about 58 rooms located within the town. Visitors arrive on organized tours by coach and boat. A few others are self-driven, or spend one or two nights on yachts sailing through. Most visitors spend only enough time to visit the main attractions: the Pitons, Sulphur Springs and Diamond Baths. Without exception, they all want to see the Pitons, and visit the Sulphur Springs.

Even though the natural resources and major attractions are located in Soufriere, the fact that the tour groups originate from Castries means that the bulk of the financial gains are not invested into the town economy, a fact which generates resentment among the townspeople. In an effort to redress this, concerned townspeople established the Soufriere Development Project (SDP) in 1986. With the support of Cabinet, the SDP comprises both a technical and non-technical committee mandated to spearhead the development of the town. Representatives of the Tourist Board and Town Council both sit on the various committees which have been instrumental in sparking local resident interest in the development of Soufriere through the SDP's ambitious "Magnificent Soufriere" programme with a stated goal "to improve the Soufriere area as a tourism attraction and to create tourism related amenities and infra-structure in a socially acceptable, environmentally sound and economically beneficial manner".<sup>8</sup>

The SDP has identified a range of proposals for the comprehensive development of the town and its environs.<sup>9</sup> The major areas of attraction have been identified as: the Pitons National Park and the Sulphur Springs. Proposals have been developed for increasing the physical, architectural, historical and cultural appeal of the town. These include plans for the redevelopment of the

waterfront area, the creation of a pedestrian mall, museum, historic and architectural tour, development of archeological sites at Belfond and Stonefield, the creation of a national park within the Pitons area, increased use of the Diamond baths/gardens, the use of the water wheel and historic sugar plantation buildings at Soufriere Estate as a major attraction and museum, as well as extension of the rain forest trails. Central to debates concerning the future development of Soufriere are questions which relate to the role of the Pitons in that development.

## THE PITONS AREA

From time immemorial, the majesty and beauty of the Pitons have instilled wonder and awe in countless generations of St. Lucians and visitors alike. Early Amerindians living in the shadows of the twin peaks centuries ago considered this a sacred place, and viewed the Pitons as powerful and compelling symbols of the Gods whom they worshipped. The Pitons and the steep amphitheater like valley which separates the two, are remnants of a volcano which erupted cataclysmically centuries ago, blowing its top off. The western side of the crater subsided into the ocean forming the deep bay spanned by the sheer walls of the Pitons at the north and south sides, and a series of high 1200' ridges to the east, divided into three estates, Jalousie, Beausejour and Palm. While the "Crown" owns major portions of this area, including the Pitons, some of this land is in private ownership.

Within this area are to be found at least twenty-one species of rare, endangered, threatened and endemic species of plants, many of which are found nowhere else. Four different ecological life zones have been identified from the bottom to top of the Pitons, each intimately adapted to the specific characteristics of the natural habitat.<sup>10</sup> Numerous archeological artifacts have been uncovered (and destroyed by bulldozers currently working on the site) attesting to occupation by the first St. Lucians. Until relatively recently, policy concerning the use of this area was unambiguous and consistent. It was felt that the curious mix of awesome beauty, fragile ecology, cultural and archeological significance of the Pitons were sufficiently compelling reasons to protect this unique area from development, in perpetuity. Recent developments and radical, unexplained complete shifts in official policy regarding the proposed use and development of the area now make it abundantly clear that the very attributes which dictated the past policy of preservation, are precisely those qualities which have exerted pressure for its "development". The following section discusses the evolution of this policy over the last 16 years.

### Official Policy For The Pitons Area

The 1974 Physical Development Plan formulated for St. Lucia by the United Nations Development Programme (UNDP) identified the entire area of the Pitons and the bowl shaped valley in between as "an area of unparalleled beauty, unique natural and geological complexity deserving of preservation in perpetuity".<sup>11</sup> This designation formed the basis for policy concerning land uses within the area on the part of the Central Planning Unit (CPU), the Development Control Authority (DCA) and the St. Lucian Cabinet.

In 1981, Cabinet agreed in principle to the designation of the entire area as a National Park, and embarked on discussions regarding the public acquisition of Jalousie and other estates within the area, so as to implement this designation, protect and conserve the area, in the public interest. In 1981, the Tourism Sector Plan prepared by the OAS for Government, focused on the use of natural attractions, including the Pitons as magnets for the tourist market. In May 1982, the CPU submitted to Cabinet and adopted a policy document entitled: "The Policy On Development at the Pitons".

The document refers to the Pitons including the area between the two (from Malgretoute in the north to Anse L'Ivrogne in the south) as: "a protected area for open space conservation... a zone in which only limited development, particularly temporary structures will be permitted.....Human activities within this zone will be restricted". The document went on to state that "the development of man-made structures at Jalousie will be discouraged" and that, moreover "No motorable road will be allowed into Jalousie Estate". The document instead identified "...a zone of intense human activity concentrated at the Malgretoute area, [flanking the northern side of Petit Piton, immediately north of the Pitons area] ...to act as a honey pot to draw large numbers of visitors away from the more fragile zones."

In 1984, the Draft Outline National Physical Plan formulated by the CPU stressed preservation of areas of natural and scenic beauty, together with the protection and preservation of sites of the nation's cultural heritage. The Pitons are identified as an area for "active conservation". The Piton amphitheater is described as an area of "Outstanding Landscape Quality requiring special policies for its preservation and enhancement". The Tourism Action Plan completed by the OAS in 1986, reconfirmed the earlier designation of the Pitons area as a National Park, and also introduced the concept of a marine park at Pitons Bay. In 1986 under the Fisheries Act No.10, 1984, five Marine Reserve Areas (MRA) were created to: "protect the natural breeding grounds and habitats of aquatic life"... and..." to preserve and enhance the natural beauty of such areas". Two Fishing Priority areas (FPA) were also created to "ensure that authorized fishing in the area is not impeded or otherwise interfered with".<sup>12</sup>

In 1986 at Government's request the OAS embarked on a technical plan for the creation of a National Park in the Pitons area. Meanwhile, the SDP identified the creation of the park as the single most important element to the success of the Project's plans for the development of Soufriere and in fact, in December 1988, submitted an application to the DCA for the creation the park. A submission was made to the World Wild Life Fund by the SDP regarding the raising of funds with which to purchase areas still in private ownership. The response from WWF was positive. The Fund, via official correspondence to Government offered assistance in the area of national park planning, together with assistance in raising all funds necessary to acquire private lands.

In February of 1989, the OAS Pitons National Park Report was officially submitted to Government. The report supported the concept of a National Park within which various intensities of recreational uses would be allowed, while the bulk of the park would be allowed to revert to its naturally forested state. The park was to be provided with a visitor and interpretative center, botanical garden, nature trails, and tour guides. The town of Soufriere was to function as the "Gateway to the Pitons National Park", supplying a variety of lodgings from bed-and-breakfast, to luxury villa accommodations, providing opportunity for local-ownership and spin-off economies, while the park itself would generate additional jobs. At the same time, critical national resources regarded as national treasures by St. Lucians, would be conserved and protected from development for the use and enjoyment of future generations of St. Lucians and visitors alike.

The OAS plan explicitly stated that proposals to develop Jalousie (under consideration at the time) were incompatible with the creation of a National Park. Seven other sites in close proximity to the proposed park were identified as more suitable alternatives for the development of large scale resorts of the Jalousie type. To complete the picture, the 1984-1994 Forest Management Plan for St. Lucia recommended National Park status for the area as does the National Trust's "System of Protected Parks and Conservation Areas" scheduled for completion by September of 1990. The Government has yet to officially respond to the OAS report, or the WWF offer of assistance

possibly as a result of the unexplained shift in policy regarding the **development** rather than the **preservation** of the Pitons Area.

## **DEVELOPMENT VERSUS PROTECTION**

### **Development Proposals for the Pitons area.**

In September of 1988 proposals for the development of the 316 acre Jalousie estate were submitted to the DCA. This application was approved in principle in January of 1989. In May of 1989, planning permission was issued for the construction of an access road and a jetty to allow berthing for 8 yachts. In July 1989, a few months after planning permission was issued for the construction of the road and jetty (the former built with public funds at a cost of \$250,000,) and after construction had already started, the DCA requested that an EIA be conducted.

### **The EIA**

A couple of excerpts from the EIA are illustrative of the main findings and recommendations of the Consultant.<sup>13</sup> The opening paragraph of the EIA states that:

"Jalousie estate is particularly prone to flooding and landslides. Four landslides of consequence were reported in recent times. Its location and physical characteristics suggest that it is also highly vulnerable to hurricane force winds which have affected St. Lucia on the average of one in three years since 1955. The combined effects of hurricane force winds, flooding, land and rock slides and wave attack could have devastating effects on property and life. Thus the suitability of the site for a resort is questionable..a national park is suitable for the Pitons environment"

Moreover:

".....approval of this project will make it exceedingly difficult to control future land use because of the anticipated pressure to develop adjoining and adjacently owned private property. A proposal to develop 60 residential lots and related commercial activity at adjoining Palm Beach Estate has been submitted to government. Widespread land use of this type is not compatible with landscape and heritage resource protection of the Pitons. Strict Land Use control is therefore required for all potentially impacting properties. The concept of a national park is endorsed as an all encompassing framework and strategy for future land use in this important environment."

The consultant recommended further that:

"In view of the need to protect the Pitons, Government should move with speed to define a policy affecting future land ownership and use of the area. As a minimum the policy should seek to secure public ownership of all lands.....negotiations should begin at once before significant increases in the marketable value of the lands"

The consultant added:

" There are emotional and utilitarian reasons for preserving and protecting the Pitons

landscape, including Jalousie estate, with its unique scenery and varied vistas." Public access was also identified as an issue requiring early resolution.

Among the Impacts (both social as well as environmental) identified as a result of the development of the Pitons area, were the following:

1. Loss of the visual and highly aesthetic integrity of the natural landscape
2. Increased incidence of erosion, landslipping and rock slides as a result of ground cover removal
3. Siltation of Pitons Bay due to cuts and clearing of steep hillsides to facilitate construction of roads and buildings.
4. Replacement of significant acreage of natural land cover by concrete and other impervious material, which will significantly increase the rate and volume of run-off.
5. Diminished reef quality through sedimentation
6. Coral/reef stress due to increased levels of nutrients, faecal coliform through possible sewerage seepage
7. Introduction of intensive human activity uncontrolled into fragile ecosystem
8. Loss of biodiversity
9. Disturbance of Hawksbill turtle nesting sites
10. Removal of rare species of flora
11. Increase in pollution
12. Destruction of sites of archeological significance
13. Conflicts with the traditional value of the area for fishing through increased tourism activity
14. Disruption of natural habitats
15. Lack of public access overland to the bay area.

The major recommendations of the EIA notwithstanding, one month after the submission of the EIA to Government, full planning approval of the project was issued in September, 1989.

Within a matter of months the DCA was inundated by a flurry of other proposals by foreign investors seeking to capitalise on the Jalousie precedent. Apart from the second project involving the construction of 60 villas at Palm Estate, slated for development along the lines of the exclusive enclave at Mustique in the Grenadines by the same developer who developed Mustique, there is now a third proposal to construct high density condominiums at Beau, the last remaining estate. Both proposals were submitted by the same parties who themselves also retain interest in the Jalousie development.

A fourth even more disturbing proposal was submitted, this time involving the development of one of the twin Pitons. Under this proposal, resort buildings were to be constructed on 11 acres on the 2,700 summit of Gros Piton. [Since the top of the peak is under 1.2 acres in size it is clear that the developer was considering the leveling of the peak, to facilitate development]. The proposal also involved the construction of cable cars to ferry 1500 people daily to the top of Gros Piton, linking the resort complex on the summit to the remainder of the resort constructed on 77 acres spilling down the sides of the mountain. In late May, despite the fact that government had failed to seriously consider the major recommendations of the EIA commissioned for Jalousie (particularly those regarding a moratorium on all further development, and the designation of a National Park) Government commissioned the same consultant to do yet another EIA for the development of Gros Piton, Beau and Palm Estates all in the same area as Jalousie. Seemingly overnight, from Petit Piton to Gros Piton, the most outstanding area of natural beauty in St. Lucia, an area traditionally protected, was now under pressure for development.

## **THE PLANNING PROCESS**

### **Institutional Responsibility**

The CPU of the Ministry of Finance & Planning in St Lucia is responsible for making recommendations to the DCA regarding the planning concerns and technical merits of applications submitted for development. The CPU has one officer who represents that office on the DCA. Under the Town & Country Planning Act of 1978, the DCA is empowered to make decisions on applications submitted for approval. The Board, appointed by Cabinet, is empowered to issue decisions which may be contrary to the recommendations made by the CPU. Moreover, under the planning legislation, the Minister of Finance and Planning (the Prime Minister) is given broad powers under the act to issue planning decisions as well as to override decisions made by the DCA. This form of legislative power is basically typical of that which prevails in all of the English speaking Caribbean. The system provides the opportunity for political expediency to override any or all other issues and concerns, first through the political appointment of the DCA Board, and secondly by virtue of the fact that the Minister responsible for Planning is empowered to override rulings made by the DCA.

The Ministry of Health and the Environment while issuing periodic statements on matters dealing with the environment is functional only in the sense of the public health unit dealing with issues related to public health and safety, but is not involved in the formulation of environmental policy per se. The Ministry of Agriculture, including both the Forestry and Fisheries Departments is involved in the application of specific legislation dealing with environmental concerns with main emphasis on sound husbandry and agricultural practices, the use of "crown" lands, and the demarcation and management of forest reserves, marine parks and fishing priority areas.

However, while the explicitly stated national policy on the environment is one which articulates a strong commitment to the preservation of the environment, the granting of permission for the development of Jalousie and consideration being given to other proposals in that area are not easily reconcilable with the stated objective.

### **Community Participation in the Planning Process**

The planning process in St. Lucia is one characterized by a lack of information and a lack of consultation. As a result, genuine community participation in the planning process does not exist. Information pertaining to decisions relating to development projects, even though legislated as being matters falling within the public domain under the Town & Country Planning Act, are not regarded as being public. As a result, a blanket of silence shrouds approval granted for projects, especially if there is a chance that they may be controversial. For most of the public, news of a particular project surfaces only at the outset of the clearing of a particular site for construction. At that time, it is usually much too late to question the pros and cons of a particular development. As a result, with a few exceptions, there is a general resignation within the populace that somehow they do not have the right to ask questions about issues deemed to be "political", and that, even if they did, there was little chance for popular concern to be translated into a change in outcome, a sensibility which recent events have not done much to dispel. The SDP, a member of whom sits on the DCA, was clear in its support for the creation of the Pitons National Park. All public policy documents prepared both by the Government itself, as well as by organizations commissioned by Government, supported the principle of conservation and protection of this area. There has to date been no official attempt to

explain or discuss the total shift in policy in this regard.

Two years ago, when news of the impending development of Jalousie leaked out, the first demonstrations of public opposition and calls for dialogue were made by concerned individuals in St Lucia, who engaged in radio panel discussions, in an attempt both to provide information to the population, create sensitivity regarding environmental concerns and to engage in public dialogue on the issue. This early effort failed in its main objective. Jalousie was given planning permission perhaps because opposition to the project was not sufficiently coordinated, sufficient public awareness was not generated, and the usual caution exercised in public debates regarding public policy was exercised by many who felt strongly opposed to the project, including professionals working within the civil service who privately expressed strong reservations about the project, but were understandably constrained in their public vocalism, as a result of the need to protect their jobs.

In March of 1990, the situation changed dramatically. Dismayed at the knowledge that the Jalousie permission was now the precedent used to justify the complete development of the Pitons area, together with news of proposals to develop Gros Piton, Beau and Palm, a group of concerned citizens formed the St. Lucian Environment & Development Awareness Council. SLEDAC was formed in an effort to provide the public with the information since it was felt that the nature of these proposals should have been discussed in public precisely because they deviated so completely from past long standing government policy and that moreover, the implications of the projects were not in the best interest of St Lucia.

Feelings for the Pitons are deeply rooted in the St. Lucian psyche. The thought of desecration to the Pitons led to expressions of shocked disbelief from all sections of the population, except those working on behalf of the foreign investors. SLEDAC proved to be a popular vehicle for expressing public sentiment. For several months, public meetings were held, presentations made to various groups including schools, community groups, professional societies. The local press was inundated by a storm of impassioned letters and articles, press conferences were held. International support for the work of SLEDAC came from numerous sources including the Crosteau Society, Greenpeace, Friends of the Earth, and several other extra-regional environmental organizations.

Interestingly enough, SLEDAC, a rainbow coalition including famed playwrights and artists, professional planners, environmentalists, academics, public service employees, and ordinary citizens from all walks of life, was branded as being "anti-Government" and "political" from the moment of its first newspaper article setting out the case for the preservation of the area and asking Government to put a temporary halt on plans for the development of the area so as to engage in much needed national discussion. The only official response was that those who voiced concern about the projects and the change in policy, were against the Government.

Less than three months after this cycle of sustained unofficial public debate, on June 6th, the nation was told by the Prime Minister that the plans for development of Gros Piton were mere rumours. No information was disclosed regarding the EIA which was then underway for the "Gros Piton Resort & Aerial Tramway Project", nor was there any discussion regarding the status of both Beau and Palm Estates which had already received planning permission in principle, even though the EIA was not yet complete.

## SUMMATION

There is much to learn from the Pitons experience in St Lucia, an experience which has in recent times been shared by the entire population, sometimes in roles of major conflict. Conflict is not however, without some merit; if managed properly it has the potential to set the stage for dialogue; alternatively, it can spawn more conflict. It is still too early to make any determination regarding the scenario which will develop, since the process is still evolving. To date, however, efforts to increase public participation in the planning process, and to discuss issues of critical national prominence within the public fora have led to serious political conflict and confrontation. The fact that the SDP is recognized by Government as a legitimate representative of the interests of Soufriere, and that the SDP itself supported the creation of the Pitons National Park, did nothing to influence a change in official policy regarding the development of the area.

However, the public agitation which resulted from discussions spearheaded by citizens, finally did result in the need for government to engage in limited dialogue on the issue. Apart from the Prime Minister's brief address on June 6th, and that of the Deputy Prime Minister two days prior to that, in recent time, the nationally owned TV station has showcased the benefits of the Jalousie Resort to the nation, while the Government has officially extended an invitation to the press to join in a guided tour of the resort area.

Government justifies its actions in the Pitons area by pointing to the need to create jobs in the area. Community groups who are opposed to this type of development point out that for the last 16 years of official policy regarding the preservation of the Pitons area, Soufriere was economically even more depressed, and that moreover, the OAS plan for the creation of the Pitons Park identified seven other sites within the town, in close proximity to the proposed park as more suitable alternatives for large scale resort projects, and as a result, arguments about jobs can not be used to justify the desecration of the Pitons area; that the Pitons area has significance beyond the town of Soufriere; the Pitons are national and regional monuments which should be protected from development, and owned by St.Lucians, in perpetuity.

These arguments, together with widespread public opposition to the continued development of the area, and calls for the creation of a National Park, [a compromise which can still be accommodated even though Jalousie is a reality], have as yet failed to elicit any signs of change in official policy regarding the continued development of the remaining areas. The only concessions so far have been that the summit of Gros Piton will not be threatened. There are lessons to be learnt too, about the role of an EIA in assessing development projects. In the Jalousie case, the EIA was an instrument used to defuse public opposition after permission was already granted. Moreover, none of the major recommendations submitted by the consultant were ever even considered. In the second case, the EIA was commissioned for the same area, to be undertaken by the same consultant. In no instance for the four projects reviewed, was the EIA used as a genuine tool with which to assess the projects under review.

There are also lessons to be learnt concerning the integrity of land use planning as a tool to guide development. The entire area has consistently been identified in government documents as an "area for active conservation". Any proposals for the development of the area could simply have been dismissed on the grounds that they were incompatible with uses for which the area was zoned. EIA's would simply have become non-issues. In small islands like St Lucia, with limited natural resources, the impact of such decisions is profound. In the final analysis, development has to be defined as being more than just simply a question of economics. If it not, there is an explicit understanding that

natural resources, regardless of their uniqueness can be sold for the price of creating 20, 50, 75, or 100 jobs. The role of the Pitons in the development of Soufriere and St Lucia, monuments whose significance extend way beyond the local and national boundaries within which they are located, has been reduced to precisely this equation.

## ENDNOTES

1. Government of St. Lucia, Annual Statistical Digest 1988
2. Students from the Department of Cermies, UWI Cave Hill Campus, recently spent a six week period from June-July 1990, working on a number of research projects as part of their post graduate diploma requirements and were supervised by the author and other faculty. Projects related to: Water Quality Sampling & Monitoring, analysis of the Socio-Economic Characteristics of Soufriere residents, the Role of Community Participation in Development, Solid Waste Management and Coastal Zone/Land Use Conflicts.
3. Cermes Research, 1990
4. OAS Tourism Development Plan for Soufriere, Saint Lucia April, 1985
5. Soufriere Development Project: Magnificent Soufriere: Community Participation in Tourism 1990
6. Smith, Allan, Coral Reef Management & Monitoring for the Proposed Pitons National Park. Prepared for the OAS, cited in: Jackson, Ivor Environmental Impact Assessment of the Jalousie Plantation Resort Project: August 1989
7. OAS Tourism Development Plan for Soufriere, Saint Lucia April, 1985
8. OAS, Area Action Plan For Soufriere St. Lucia, December, 1988.
9. A number of the SDP plans have already come to fruition including: the jetty, the yacht anchorage facility, the craft market, refrigeration complex for fishermen, meat market. A great deal of technical assistance has been provided by the OAS.
10. In Pierre, L, 1988, cited in Jackson, Ivor, 1989.
11. UNDP, Physical Development Plan for St Lucia, 1974
12. Jackson, Ivor, Environmental Impact Assessment of the Jalousie Plantation Resort Project: August 1989
13. All excerpts relating to the EIA taken from taken from Jackson, Ivor, Environmental Impact Assessment of the Jalousie Plantation Resort Project: August 1989

## **ST. LUCIA, SOUFRIERE AND THE PITONS: THE PRICE OF DEVELOPMENT**

### **Group Discussion Analysis and Recommendations**

**Author: Dr. Len Ishmael  
Chairman: Mr. Peter Reeson  
Reporter: Marlene Smith**

#### **1. What are the Main Issues in the Case Study:**

- ◆ **How to resolve job creation vs. environmental preservation, conservation.**
  - identify and use suitable alternative sites, thereby achieving solution.
- ◆ **No clear institutional framework for development planning and control**
  - no proper process for public and local participation
  - no proper process for appeals and feedback (lack of dialogue between government, people and developers)
- ◆ **Suspension of local government created and exacerbated the lack of institutional framework.**
- ◆ **Need for planning mechanism for integrated development.**
  - not clear how community development, infrastructure development and physical development would be achieved by private/foreign proposal.
- ◆ **How would/should development be financed?**
  - Government lacks funds to acquire lands and implement National Park proposal.
  - What are other sources of funds?
- ◆ **Private Development/Investment**
  - Does not guarantee significant spin-offs for local community and not always consonant with integrated development (project focus).
  - How to influence private development in integrated approach and bearing costs of infrastructure development.
  - Is present planning/development legislation relevant (e.g. authority to override popular/public opinion currently exists)

### **What are the alternatives/solutions:**

- ◆ "Big projects in small countries"
  - Is there readiness to accommodate certain investments without due consideration of the social and environmental implications?
- ◆ Expansion of town encroaching on agriculture land is a minor issue.
- ◆ Will development plan offer employment alternatives to displaced charcoal burners and provide other sources of energy?

### **Successes and Shortcomings of the Process for Planning and Development:**

#### 1. Successes

- ◆ Development Plan for the area was prepared;
- ◆ Environment Impact Assessment was done (albeit late) for project proposal;
- ◆ Public advocacy group (S.D.P.) formed to represent concerned townsfolk.

#### 2. Failures

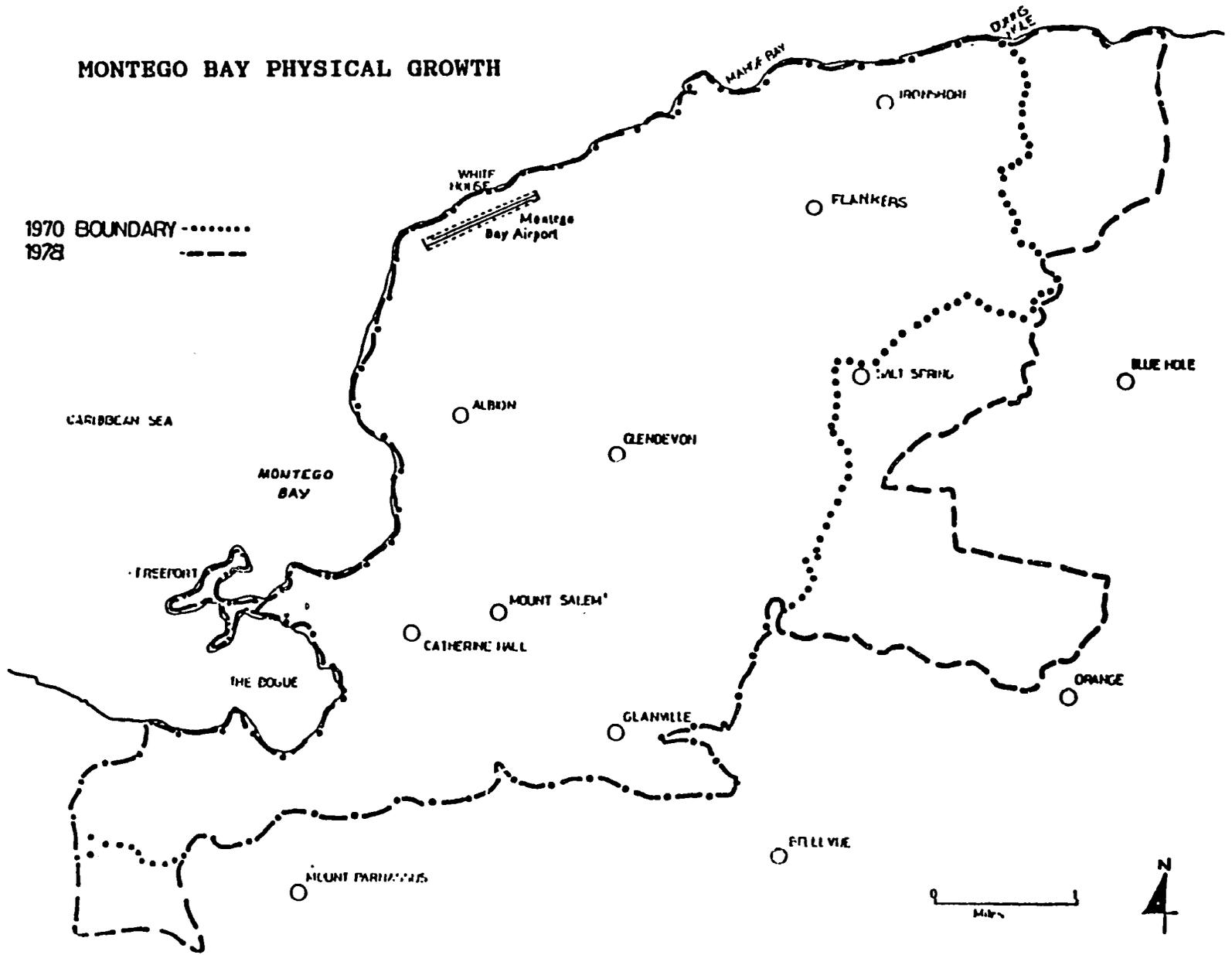
- ◆ No provision made for effective public participation;
- ◆ Failure of system to accept public comments and criticism positively without victimization;
- ◆ No apparent attempt to integrate developers in the process at an early stage;
- ◆ Deviation from original Development Plan;
- ◆ Development Plan never passed into law because of the lack of a legal framework for development policies;
- ◆ Extended Government deliberation process over sensitive environmental issues was taken advantage of by developer;
- ◆ Sound funding strategy was not fully integrated into process for implementation of S.D.P. development plan;
- ◆ Comparative cost benefit analysis not carried out for development proposals.
  
- ◆ Jalousie Project
  - Absence of analysis of available local skills;
  - Negative socio-economic impacts of imported labour;
  - Failure to utilize local expertise;
  - Site environmental protection measures not evident during construction phase.

### **Generic Actions for Better Integration of Environmental Management into Economic Development Planning and Coping with Urbanization:**

- ◆ Orderly and progressive land-use plan;
- ◆ Land-use policies should be based on "spirit of referendum" - participation;
- ◆ Establishment of a Lands Tribunal to:
  - reduce political manipulation of planning and development process;

- establish the process for achieving and sustaining an overall comprehensive plan;
  - legislate development plan
- 
- ◆ Mandatory application of EIA's - done early in planning/project cycle and to include screening process;
  - ◆ Planners may occasionally have to play advocacy role
    - initiate and encourage public participation via: dialogue, bottom-up approach, demonstration projects;
  - ◆ Strengthen Local Government and the decentralization process;
  - ◆ Improve flow of environmental information to financiers with a view to increasing their environmental sensitivities;
    - insist on environmental Cost/Benefit Analysis in project appraisal for both public and private sector projects
  - ◆ Strengthen environmental content in school curricula and teacher training courses.

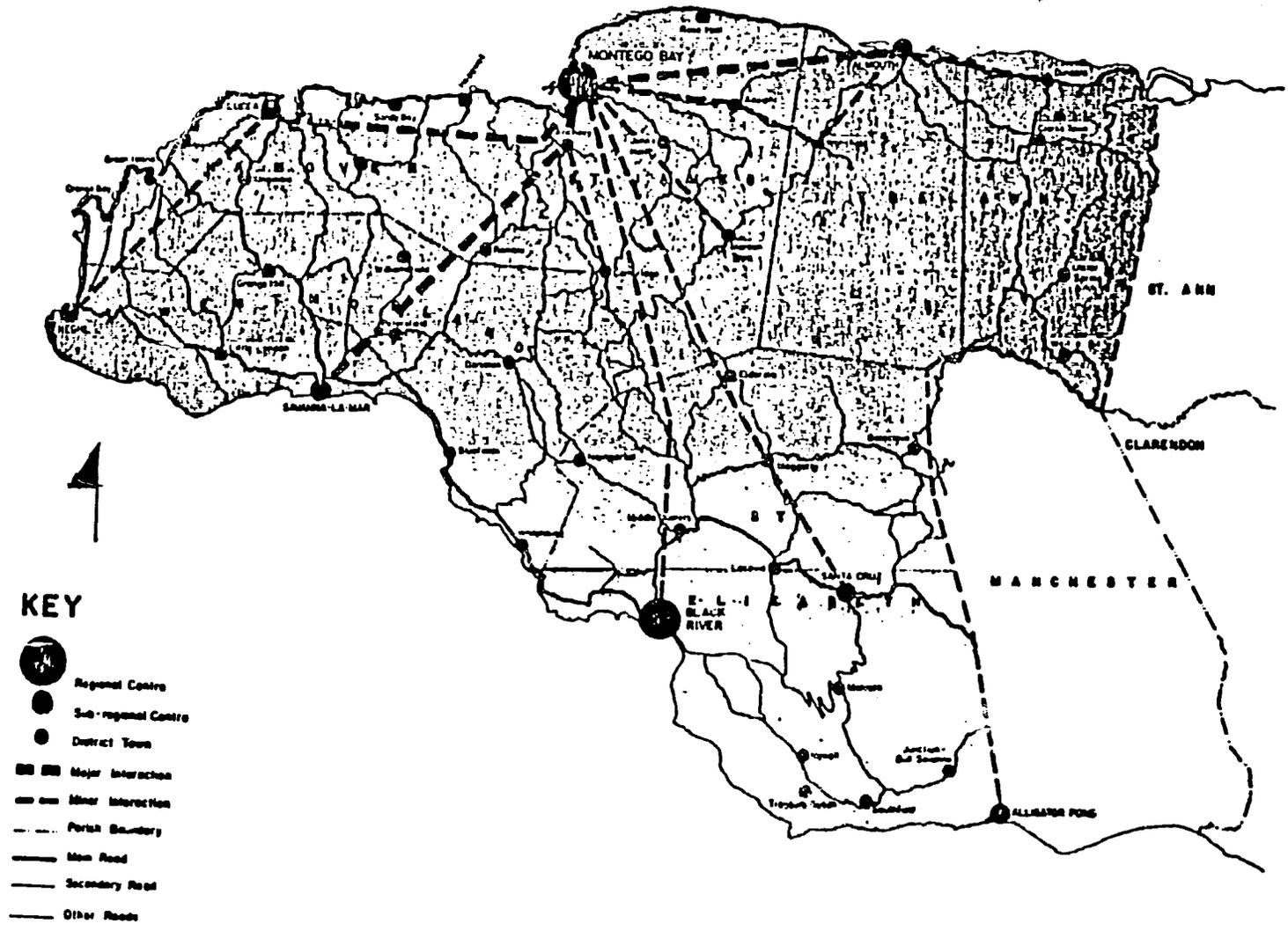
# MONTEGO BAY PHYSICAL GROWTH



MAP 2

130

MONTEGO BAY SPHERE OF INFLUENCE



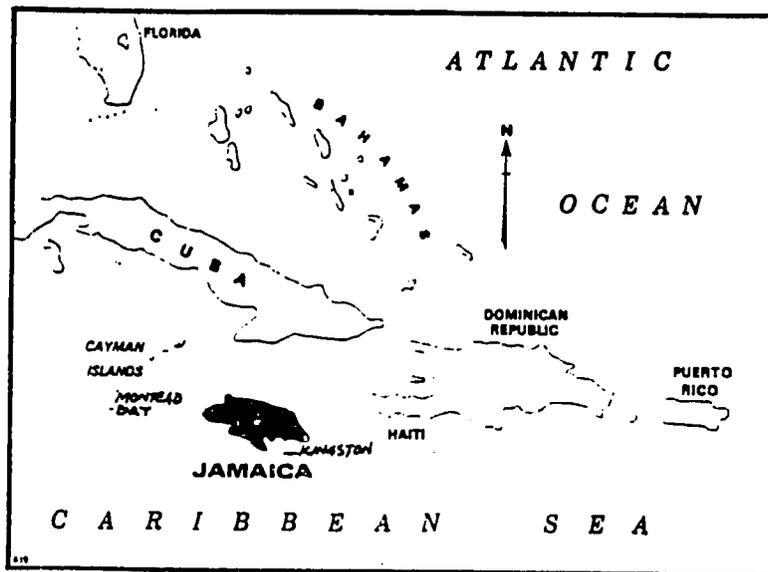
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MAP 1

1300

## MONTEGO BAY

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### FACTS AT A GLANCE

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Civic Status	City
Function	Designated Regional Centre
Population	95,000
Area	7,600 hectares
Environment	Coastal
Communication	International Airport, Port, Rail, Road
Economy	Tourism, Manufacturing
Labour Force	34,000

# MISMANAGED URBAN GROWTH: TOURISM DEVELOPMENT AND ENVIRONMENTAL QUALITY IN MONTEGO BAY

by

Yvonne Bell  
Consultant

## SYNOPSIS

Montego Bay is Jamaica's second city and the fastest growing urban centre on the island. Historically it grew as a colonial trading centre and by the 19th century was a thriving agricultural export and service centre. For most of the 20th century tourism has dominated Montego Bay's economy and fueled its growth. More recently manufacturing has become an important player also in its rapid development.

Montego Bay's major asset is its physical location. The city is set on a natural harbour surrounded by steeply rising mountains. Its marine environment is defined by a chain of white sand beaches and off-shore by shallow and deep coral reefs. It has good national and international communication links and a wide regional focus. On the face of it Montego Bay should be a thriving city providing a wide range of urban attractions and services. The reverse is sadly the case. Economic and population expansion have proceeded in the absence of adequate measures to protect its environmental assets. The result is severe physical and ecological degradation.

National efforts to address the burgeoning environmental problems have achieved a degree of success. The limited resources of the national agencies involved are however severely strained to meet the demands placed on the city by its rapid pace of development. In the face of the constraints on these national institutions, the local community have begun to demand a more pro-active involvement in retarding the detrimental growth of their city. The private sector in particular, has begun to assert a greater participatory role in the planning and management of the city.

This study focuses on those aspects of Montego Bay's development which are most implicated in its environmental problems as they now pose a serious threat to the continued growth of its economy and its well being. It shows that the city is bearing a heavy cost for the failure to integrate economic activities with positive environment protection. The study examines the problems, policies and programmes involved, and raises some critical issues faced in fashioning an appropriate development approach which can protect and benefit Montego Bay's community and their environment.

## **THE SETTING**

### **Accessibility and Importance**

Montego Bay was declared Jamaica's second city by an Act of Parliament on October 23, 1983. Located at the north-western tip of Jamaica, it is 120 miles from the capital of Kingston. As the western node of the rail and road transportation system, it has good overland connections to all major coastal and inland areas on the island. Its Sangster International Airport sits on the headland of the Montego Point, 2 miles from the city centre. From here light aircraft also provide regular links to four airfields across the island and beyond to the nearby territories of Haiti, Bahamas, and shortly the Cayman Islands.

Montego Bay's accessibility by sea is second only to that of Kingston. On its deep water harbour sits the modern shipping terminal of the Montego Free Port which provides good berthing facilities for cargo vessels and cruise liners. Small crafts are accommodated at The Montego Bay Yacht Club which is a regular port of call for regional and international cruising yachts. Located just west of the port the Club is also the end point of the yearly Miami to Jamaica international yacht race.

As the capital of the Parish of St. James, Montego Bay is the seat of the Parish Council and the regional headquarters of a number of central government ministries and agencies. It is also a regional market and entrepot whose influence spreads over a large part of western Jamaica (Map 1). Although its dominance has been slipping in recent years, Montego Bay is still regarded as the tourism capital of Jamaica, and was at one time known as the 'Gateway to the Caribbean'. The city and its environs remain the largest resort area on the island.

### **Natural and Physical Features**

The city is built on a narrow coastal plain alongside a well protected bay which is dissected by the North and South gullies and the Montego, Retirement and Pies rivers. Recent waterfront reclamation has extended the plain on its western edge. To the north, south and east are steeply rising hills which are separated from one another by the rivers and gullies. Their sharp relief give rise to flash floods which occur during heavy rains when a large volume of water is discharged by these channels onto the low lying plain.

The marine environment comprises an inshore terrace with patches of sand covering, some seagrass beds and shallow and deep coral reefs. These lie in the lee of the headland of the Montego Bay Point. Three artificial beaches were created on the reclaimed waterfront to add to the existing Doctor's Cave and Cornwall beaches. Beyond the beaches, 200 hectares to the south of the Point have been designated a Protected Marine Area. A small section (50 hectares) is being developed as a marine park. Named the Montego Bay Marine Park, it will provide a site for recreation, tourist attraction, and marine conservation and is expected to be operational by 1991.

## **GROWTH AND DEVELOPMENT DYNAMICS**

The pattern and trend of Montego Bay's recent development have been intensive and rapid. More significantly the dynamic growth areas are those which most rely on and affect its natural and physical features. This essential relationship between development and the environment has historically been the basis of Montego's Bay's growth.

## **Expanding Population and Size**

The city is one of the fastest growing of Jamaica's urban areas, growing even faster than the capital of Kingston. In twenty years its population has more than double from 43,521 in 1970 to around 95,000 today (1). Montego Bay now ranks third in size among the island's urban centres. This rapid growth has forced the city limit to creep up its steep hillsides. In 1970 the census boundary described a city area of 5,700 hectares of coastal plain. The 1978 Montego Bay Development Plan defined an urban fence which by then took in an area of 7,600 hectares (Map 2). Although this remains the relevant city limit, the new settlements included along the foothills to the east and south continue to expand.

## **Historic Trading Centre**

Montego Bay's natural harbour and fair weather led to its rapid growth as a colonial trading centre. As early as the 16th century trade in agricultural products from the surrounding areas became its principal activity. As these areas developed extensive sugar plantations during the 18th and 19th century Montego Bay grew into a thriving export and service centre. By the early 20th Century the town was exporting sugar, rum, coffee and bananas produced from smaller and more diversified plantations. From then the focus of its growth began to shift into new areas which continued to rely on its physical and climatic assets.

## **Tourism Dominance**

**Large Tourism Base:** The 20th century has seen Montego Bay develop, despite some setback, a strong tourism base. Due largely to the proximity of its beautiful beaches and coastal waters its tourist accommodation properties are all within the city limits. The majority of these have colonized two stretches of the coastline to the southwest and northeast of the city centre. The nucleus and spawning of the largest area is the 865 feet Doctor's Cave Beach. From here a 'strip' development has extended along the main coast road eastward to the Rose Hall boundary of the city. The other area has extended in a similar pattern westward around the bay.

In all, thirty (30) properties provide 5,400 rooms to make Montego Bay the largest of Jamaica's four major resorts as shown in Table 1. With the current expansion to its cruise ship terminal, the city's tourism infrastructure supports an industry which dominates its economy, and indeed the country's. Based on its room capacity Montego Bay is estimated to be generating about one-third of the total industry earning US\$600M (calculated on tourist spending) and 7,000 jobs.

Montego Bay is thus set to play a major role in Government's continued emphasis on tourism development. The Ministry of Tourism is aware of plans to increase the city's tourist accommodation by 600 rooms by year end. Data presented in Table 1. also show that developers plan to bring on stream almost another 3,000 rooms between 1991 and 1994. In addition, two new cruise ship berths now under construction will substantially expand cruise passenger arrivals.

Table 1: Tourist Accommodation by Resorts

Resort	Total Rooms		
	1988	1990	1991-94
<u>Registered</u>			
Montego Bay	5,410		
Ocho Rios	4,200		
Port Antonio	484		
Negril	2,035		
<u>Proposed</u>			
Montego Bay		570	2,780

Source: Ministry of Tourism (1988 data)

The Waterfront Redevelopment is a project designed to further capitalize on Montego Bay's potential for national income from tourism. In 1979 The Urban Development Corporation (UDC) initiated this tourism focused project as part of its multifaceted redevelopment programme for the city. The first step involved the demolition of the historic wharves and warehouses (vacated with the construction of new port discussed below) to make way for land reclamation which added 57 acres to the waterfront. In addition to the three beaches created, a new highway was constructed to by-pass the central business area.

A sub-division plan prepared in 1984 for the 47 acres remaining between the highway and the beaches laid out 24 sites for a range of tourism and related urban, commercial and residential developments (Map 3). When complete the development will add 440 units to the city's tourist accommodation. To date the project represents a major investment in infrastructure to create a wall of opportunity which could establish Montego Bay as a vital urban resort. Mobilization of this ambitious development has however been slow. Although a number of sites have been earmarked, so far none have been built on.

The project is however consistent with the tourism development objectives for the country which are overwhelmingly defined in terms of foreign earning potential. Growth target for the sector continues to be based on increasing foreign exchange from larger numbers of tourists. To this end major public investments are being made to receive and accommodate increased tourist arrivals in Montego Bay. Public investment continued to be made in the form of tax incentives for accommodation development, and further infrastructure investment in the new cruise ship piers and airport tourist terminal expansion in the city.

### Growing Diversification

In the past decade Montego Bay's economy has begun to diversify, mainly into manufacturing. The move was prompted by the economic crisis in the city brought on by the drastic decline in Jamaica's tourism which began in 1980 (3). As visitor arrivals dropped to less than their 1970's levels, hotels began to close and employment in the sector fell sharply. Government moved to expand and diversify employment opportunities in Montego Bay to reduce the city's total dependence on tourism.

Using the example of the Kingston Free Zone, a second one was established in the city on the site of the Montego Free Port. A number of industrial sites were also developed to further boost manufacturing in the city. The focus was however on export manufacturing.

Easy access to an airport and a modern port complex was seen to offer substantial advantages for export orientated manufacturers to locate in Montego Bay. In addition the quality of the city's resort environment was regarded as an attraction for and guide to the types of operations desired. Emphasis was placed on environmentally kind light manufacturing and off-shore electronic operations.

The Montego Bay Free Port plays an important role in the growing diversification and expansion of the city's economy. Established in 1962 to initially improve facilities for the increasing cruise ship and cargo business in the city, the 92 acre site on the southwest end of the bay has become a major commercial, manufacturing and tourist centre (with its 450 room Seawind Hotel and a complex of tourist shops). The site, which was purchased by Government in 1982, provides an ideal location for the new Montego Bay Free Zone. The export operations of the Free Zone are now well integrated with that of the port. Together they contribute some 3,000 jobs to the economy of Montego Bay.

**Port Operations:** The Demand which led to the relocation of the port resulted from the inefficiency of the old string of ports along the waterfront. The modern complex has enabled Montego Bay to develop a busy commercial port drawing on local and on-site export and transhipped imports such as oil and cement from Kingston. Commercial expansion has been accompanied by increased cruise shipping based largely on the use of the port as the home base for two North American cruise lines. In 1986 while 80 cargo vessels called at the port 113 cruise ship calls were made and these rose to 130 in 1988 (3).

More calls especially of larger cruise ships are expected with the completion of the works to expand the cruise ship facilities. The expansion programme when complete in 1991 will provide two additional 1600 feet berths with sufficient draft (35 feet min.) to accommodate the world's largest cruise ship the "Sovereign of the Seas" (operated by the Royal Caribbean Cruise Line). The capacity to accommodate ships of this order will permit arrivals of between 5,000-7,000 passengers per call. In addition to increasing direct fly-cruise operations of ships based at the port, it is anticipated that day-calls will substantially increase.

**Export Manufacturing:** 22 acres of the Free Port site are designated as the Montego Bay Free Zone. Adjacent to the Free Zone is an industrial park which was established especially for 806 and 807 garment manufacturers involved in finishing only imported ready-cut material which are directly re-exported. The total of 25 firms that presently operate from the Free Port are engaged in garment and footwear manufacturing, distribution and warehousing and data processing. 17 of these operate from within the Free Zone are mostly data entry enterprises.

The indications are that the economic performance of these export enterprises is strong relative to their input/output ratio and on account of their dual foreign exchange earning potential. The 1986 accounts of just two garment companies given by the Ports Authority showed that their exports totaled US\$1.7 M and they provided foreign exchange earnings of US\$972,000 from payments for rental, services and wages. These operations also account for a steadily increasing number of new jobs in the local economy. A healthy expansion in manufacturing earning and employment is now anticipated as 82,152 square foot of additional space is currently being built in the Free Zone which is planned for completion 1992.

**Industrial Sites:** Despite the growth in Free Zone enterprises most of the diversification into manufacturing is taking place outside its 'environment sensitive' zone. A recent survey put the number of manufacturing firms in the Free Port at about one-third Montego Bay's manufacturing enterprises (4). Most of the 50 firms listed were reported as operating from established industrial estates at Bogue, KIW, Glendevon and Reading which are areas located on the southern and western borders of the city. Their operations are larger in size and also potentially more aggressive to the environment.

Operations include processed foods, printing and publishing, wood products, and some basic metals. Many of these have serious environment implications especially those at Bogue which are located adjacent to the Bogue Lagoon. Although some of these estates have been in operation for a decade little attention is being taken of their likely impacts. Furthermore these operations are destined to increase as over half of all firms surveyed indicated their need for more floor space over the next three years to accommodate expected expansion of their operations. Their present operations is estimated (in the absence of current data) to be providing about 5,000 jobs to the economy.

Increasing Economic Diversification principally through export orientated manufacturing is major plank of Government economic policy for Montego Bay. The policy is guided there as elsewhere, by the need to secure a further means of responding to the fiscal demand for foreign exchange earnings while expanding employment. Government has so far invested some US\$8 M in developing manufacturing facilities at the Free Port to capitalise the foreign exchange return on low labour costs, proximity and accessibility to export markets of Montego Bay. There is strong commitment to further investment in the provision of physical facilities and tax incentives (some operations are being allowed up to 10 years of tax holiday on profits) to attract more export enterprises.

#### **Expanded Labour Force Through Self-Employment**

Montego Bay acts as a magnet for job and opportunity seekers from the five western parishes from Trelawny to St. Elizabeth shown in Map 1. They include Westmoreland which although it contains the newest resort of Negril, like the other parishes has very little other urban activity. Figures presented in Table 2 show that employment seekers in these surrounding parishes number well over 45,000. Current estimates of Montego Bay's in-situ working population is put at 34,000.

Employment figures presented earlier indicate that for all the expansion of the major growth areas, Montego Bay's economy is providing employment for some 15,000 people which is less than half the estimated labour force. Although there has been positive impacts on levels of employment of especially women from the rural areas, these formal sectors overall do not have the capacity to absorb the latent labour force in any meaningful way. Most of the jobs that are available also offer limited incomes, permanency and security.

Even with increasing year round tourism, employment in the industry is largely seasonal. The more permanently organised manufacturing sector offers lower wages than those prevailing in tourism. Table 3. shows the generally low wages in these sectors. The Free Zone enterprises provide the lowest, which start at a low of J\$120 (US\$1 = J\$7) per week. Even with quota achievement payment, wages generally remain below the lowest levels of J\$250-350 in tourism. This is resulting in relatively high staff turnover in the Free Zone as workers leave for better paid jobs in tourism. In addition both sectors offer little scope for employment at the managerial and technical levels.

**Table 2. Montego Bay's Potential Labour Force by Parishes**

Parish	1988		
	Employed	Unemployed	Total
Trelawny	27,700	3,000	31,200
St. James	54,700	16,500	71,200
Westmoreland	46,700	10,100	56,800
Hanover	24,300	6,700	31,000
St. Elizabeth	61,500	8,600	70,000
<b>Total</b>	<b>214,900</b>	<b>45,400</b>	<b>260,000</b>

Source: Labour Force 1988 STATIN

**Table 3. Average Weekly Wage in Major Sector Operations**

Operations	J\$ (US\$1 = J\$7)	
	St./time	O/time or Quota
Restaurants	165.12	188.25
Hotel Accommodation	250.40	298.05
Free Zone	120.00	170.00

Source: Employment Earning & Wages Survey 1988-89 STATIN

As the prospects for jobs with good disposal incomes and long term employment remain limited, self-employment has become the viable alternative to the city's large pool of job and opportunity seekers. Their greatest attraction is the presence of tourists and a regional population for whom Montego Bay provides a market and communication centre. Self-employment is most manifested in the high level of street vending activity now taking place in the city centre.

In 1988 by Western Parks and Market a survey conducted of the city centre (for which it has street cleansing responsibility) revealed there were 677 vendors on the streets. Details presented in Annex 1 show that commodities traded range from household durables to apparel and foodstuff. A further evidence of active self-employment is the large numbers of people, largely males, on the streets offering their services to tourists as guides, taxi drivers and entertainers. Unemployment is closely akin to self-employment in these circumstances as people engaged in the most casual trading are technically unemployed.

## **Eclipsed Development Policy**

The strongly growing areas of economic activities in Montego Bay discussed above are prompted and sustained by sectoral policies largely aimed at achieving national economic and monetary goals at the cost of the urban development objectives for the city. Since 1964, general policies relating to Montego Bay's development have aimed at giving it a major regional focus and function.

The policies were set out in the North Coast Regional Plan 1972, Montego Bay/Lucea/Falmouth Regional Study 1974, Urban Development Corporation's Catherine Hall Study of 1972 and National Physical Plan 1981. The later 1978-1998 National Physical Plan expressly designated Montego Bay as one of six regional centres to be developed to relieve the pressures on Metropolitan Kingston. The objective was to establish economic linkages which could close the gap in the standard of living between rural and urban areas and so arrest widescale urban drift.

The last comprehensive development guideline for the city is Montego Bay Development Plan 1978 and its related Development Order. The Plan echoed earlier policy objectives in its aim to provide for 'all the opportunities and activities to make Montego Bay function as a regional centre. It consciously sought to maintain the quality of the city's environment in conjunction with economic growth needed. Based on a fairly accurate projection of expected population (96,000 by 1990) the plan proposed a schedule of infrastructure, housing, services and utilities, urban upgrading and social amenities to meet expected development demands.

An inadequate level of investment have been made in these physical and social infrastructure provision. The plan prepared by UDC did succeed in mitigating some of the serious urban problems then developing. Its main output were the waterfront redevelopment discussed above which created the Howard Cook Highway to bypass the congested city centre and at Catherine Hall where over 1,268 lower-middle income houses were provided within a planned community with schools, health centres, shops and a police station and post office.

Since the 1970's however a more strongly segregative investment approach has been taken in Montego Bay. The focus on supporting export earnings has apparently failed to integrate activities which could create a regional economy around Montego Bay. The city now has a strong regional focus, but its regional function, links and influence remain quite weak. Although Montego Bay acts as a collection and distribution centre for the west, to a large extent its goods and services originate in Kingston or abroad. Its local products are for export, city residents and the tourist trade.

### **Trends and Potential**

**Physical Development:** As Montego Bay's primary economic areas expand in line with their policy imperatives more intense physical development can be expected. Tourism is the sector most poised for dramatic development. Expansion of cruise ship facilities and tourist accommodation will provide the major areas of activity. The planned development of the waterfront is however, potentially the most significant area of tourism development and has the capacity to generate a building boom in Montego Bay. In addition, the drive to diversify the economy will be maintained by expansion of manufacturing space on the existing industrial estates and at the Free Port. These developments will generate a demand for massive increases in urban infrastructure provision.

**Increased Population:** All the evidence points to an increased influx of jobs and business opportunity seekers. The latest projection prepared by Statistical Institute of Jamaica (STATIN) put

the population base of Montego Bay for 1995 at 109,000. This indicates an average annual increase of 4-5%. At this rate, for the foreseeable future Montego Bay will need to absorb nearly 3,000 persons per year. Based on its labour force pattern of high self-employment, the majority of the population increase can be expected to engage in employment outside the formal economy.

## **URBAN IMPACTS**

The attraction of Montego Bay's environment and its focus for a wide regional area have interacted to generate the rapid growth that has marked its recent development. The development activities which have sustained this growth have had markedly negative impacts on its environment and has robbed it of the social investments necessary to create a healthy and liveable city. Environment degradation and civic neglect are the city's most striking features.

### **Environment Degradation**

**Coastline Erosion:** Many of the hotels that are built directly on or adjacent to the shoreline have adversely affected it. Shoreline location have in several cases necessitated the erection of protective structures such as sea walls and groyne which have been the cause of serious coastal erosion. The Jamaica Country Environment Profile in 1987 noted that south of the Montego Bay Point, a seawall erected to protect two hotels was eroded by high wave energy and collapsed along with the adjacent road. A groyne constructed at Rose Hall Intercontinental Hotel has also caused beach erosion by obstruction of the natural movement of sand. Groyne construction has been a source of substantial loss of beach, particularly the former Sunset Lodge Beach.

**Residential Squatting:** The development dynamics of Montego Bay has generated self-employment, low wages and periodic unemployment which is contributing to squatter settlement in a profound way. People in such employment can find little provision of affordable housing and have resorted to enlarging the city's burgeoning squatter areas. Although public housing have been undertaken on a large scale in Montego Bay it has been outstripped as much by need as the ability of low and intermittent incomes to service their acquisition.

A study of Montego Bay's 13 squatter areas completed by Eyre in 1982 notes that the 'the basic problem is not so much the lack of money per se as its irregularity and the casual nature of employment' (5). The study found that 47% of dwellers relied on casual employment which included street vending, entertainment and craft vending. Tourism related prostitution and drug trafficking appeared to be important supplementary sources of income. Among those with regular jobs were hotel waiter/waitress, and as recently reported, Free Zone workers who face costly and onerous transportation journeys to and from their homes in the rural areas.

Most of the land occupied by these settlements is steep hillside and very precipitous slopes which are exposed to hazards of earthquake and landslides. Three of the areas Flankers, Albion and North Gully have created 46 hectares of make-shift housing adjacent to or within full view of the north resort area and city centre. The North Gully area is most dangerously built over gully beds which drain the surrounding hills. The visual impact of these areas is peaked only by their threat to public health and safety, and harmful ecological impact.

People are going out to work from areas where water supply is often inadequate for even the most basic needs of domestic consumption and hygiene. Sewage disposal is usually by means of makeshift latrines which is polluting the city's ground water that eventually leaks into the bay. Solid

waste from these areas also find its way via the gullies to the harbour. The environment of the city and bay are bearing the brunt of the high cost to Montego Bay of these squatter settlements.

**Commercial Squatting:** Equally costly in terms of pollution is the pervading presence of street vendors on the sidewalks, vacant sites and wayside trees of the city centre. The vending engaged in by masses of the city's self-employed is carried on from permanent shacks, portable stalls and hand carts. This invasion of open sites and streets have evaded the development controls which forbid the placement of unregulated and non-conforming structures on lands and in the public place. The presence of these structures create conditions in which pedestrian and vehicles are forced to share the congested carriageway posing serious hazards for the pedestrians. The widespread vending sprawl and associated unsightly land uses in the city centre have created a shabby and unsafe urban environment for Montego Bay.

**Inadequate Sewage Provision:** A limited central sewage treatment plant serves the central business district and the waterfront hotel areas. The plant has a capacity of 0.18 million gallons daily (MGD) which is presently over-subscribed though a large number of properties in the downtown area are still not connected to it. Plans to expand the plant to 4.00 (MGD) in order to meet increasing demand will not be completed until 2015. In the meantime the poor maintenance and under-capacity of the existing operation continues to be a serious problem.

Due to its poor operational state the plant is discharging primary sewage into the Montego River which then enters the bay together with the foul surface water from increasing numbers of unsewered properties. In addition, the independent sewage treatment systems used by housing schemes and outlying hotels (which also discharge at sea) have been found to be generally ineffective because of poor design or low maintenance. Either directly or by filtration large quantities of effluent are being deposited in the bay threatening the city's beaches and marine life.

**Marine Degradation:** The marine environment is under severe stress. Studies continue to show that the levels of nutrient effluent in the bay is unacceptably high. The heavy sewage outflows and marked contamination of the Bogue lagoon are mostly implicated. Significant colour changes in the water of the lagoon, have now prompted the National Resources Conservation Division (NRCD) to prepare a water quality monitoring programme which is to be implemented shortly. Although little hard evidence has as yet been gathered, it is suspected that discharges from the adjacent Bogue industrial estate could be the cause.

Data on the impact of the port activities is not available, however, the traffic particularly of oil tankers is an additional potential source of pollution. Their potential hazard to this largely clean-cargo and resort port was highlighted by the recent fire on board the oil tanker Annet II which after catching fire in the harbour was fortuitously towed out to open sea where it burned out of control for four days before consuming its load.

Even without the benefit of scientific measures, the ecology of the bay is clearly being destroyed. Its once rich environment, important for its fisheries resources and tourist diving and snorkeling potential, is seriously depleted. The Marine Park Development Report of 1987 notes that coral reefs immediately offshore 'are badly degraded and over-exploited in the areas most used as tourist attractions and shallow water fishing grounds' and that the city, 'despite having extensive coral reefs and fishing grounds has to obtain fish from the south coast to supplement local demand' which in a resort is high for shell and exotic fish.

**Gap in the Waterfront:** The undeveloped waterfront has raised a number of environment concerns. The coastal plain as noted above is low lying and prone to flooding. The site is located at the point where a 60-foot water discharge channel will need to be laid to the city drainage scheme now being designed by the Ministry of Construction. NRCD has also noted that any changes to and developments on the shoreline will require strict monitoring in light of the susceptibility to erosion of the coastline Montego Bay.

In physical terms the proposed development could seriously erode the appeal of Montego Bay. The declared aim of the project is to physically and economically integrate the main shoreline hotel area with the commercial centre of the city. Design proposals have not been firmed up, but graphic presentations suggest architectural forms based on an urban criteria which is insensitive to the scale and contiguity of both the city centre and hotel area. The presentations evoke the high-rise urban forms of the shoreline at Ocho Rios so often cited as having destroyed the charm and detracted from the natural beauty of that resort.

At present this large expanse of undeveloped lands is most noticeable for its unkempt appearance. The open lots serve variously as untidy car parking and taxi ranks, animal herding and dumping grounds. Their neglected state greatly contribute to the overall untidiness which now detracts from the attractiveness of the city's resort environment. Moreover, they hold the potential, if not sensitively planned to destroy the physical qualities of Montego Bay which have spawned its tourism development.

#### **Civic Neglect**

**Poor Property upkeep and maintenance:** Environment degradation on the level discussed above is leading to a marked lack of incentive, desire, demand for urban upkeep and improvements. Public properties such as sidewalks, monuments and townscape features are in a poor state of disrepair. Public open spaces are generally untidy and undeveloped, although nearly all belong to central or local Government with some owned by institutions such as churches. Where maintenance or replacement is carried out to townscape elements, it has failed to keep pace with their continued defacement and destruction. Street cleansing and upkeep of grass verges must also cope with a marked tendency to deposit waste along the roadside.

Business properties in the city suffer a similar degree of neglect. Existing shop and store keepers in the city centre are presently experiencing a general fall off of business in the face of thriving markets on their very door steps. The difficulties which tourists in particular have in negotiating the crowded pavements rob these businesses of a ready market. These conditions exert a negative influence on the regular upkeep of buildings, shop fronts and facades which is necessary to maintain a clean and attractive city centre.

**Investment Disincentive:** Montego Bay's low level of urban maintenance and improvement is often quoted as being a deterrent to investment in its further economic development. Investment in new businesses which could offer a wide range of urban attraction and facilities in the city is low. As a result the city's tourists are making fewer forays into town during the daytime and at night all entertainment is provided for them on site at their hotels.

Montego Bay's residents have, despite the presence of a large tourist population, the benefit of only two first class restaurants. Their city has no theatre, one little used cinema, few good shops and fewer eating places. With the city centre's diminishing attraction to tourists, the cost of tourist accommodation development is being inflated by the need to provide on-site ever more elaborate

attractions (6). Even developers who find the popular all-inclusive concept (never needing to leave the confines of the holiday property) a viable means of protecting guests from the squalid urban environment, see future investment linked to physical and infrastructure improvement in the city.

## **KEY POLICY MATTERS**

A number of key areas of policy are implicated in the environment problems which now threaten the healthy growth of Montego Bay. Either singly or in combination they are failing to integrate the demands of economic activities and protection of the environment base. Such an integrated approach would generate an overall environmental policy to guide the sound development of urban areas. Development of such a policy is now an imperative for Jamaica. However, in its absence the existing policies may provide scope for a more sensitive development approach for Montego Bay.

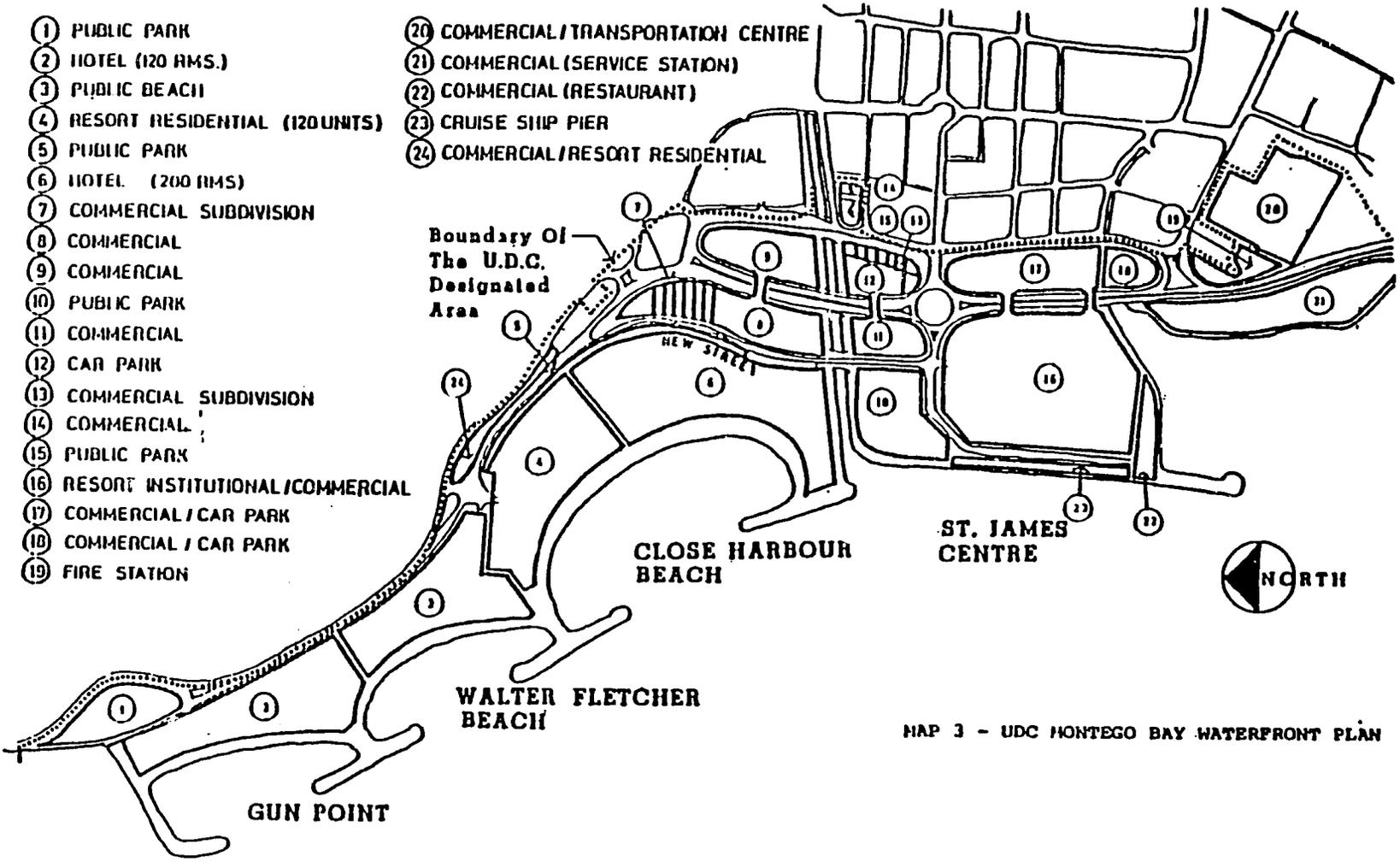
Land Use policy refers ostensibly to a material change of use as laid down by the requirements of the Development Order (1978) for Montego Bay. The objective is to balance changes in land uses for economic activity with those to meet the generated social demands for infrastructure, housing and amenities so as to avoid abuse of the environment. No programmes have however been evolved to ensure its achievement. In their absence development have often failed to conform to the requirements of the Order.

Hotels for example have been built in clear breach of the restriction on construction within the fragile limit of 25-100 feet of the foreshore. More importantly infrastructure provision has not kept pace with demand. There are also no measures for mitigating or even acknowledging the physical impacts of unregulated housing and commercial extensions.

Urban Housing policy and guidelines have not encourage maximal or mixed land use as has been done for commercial development. There are very few multi-dwelling complexes in Montego Bay in the private sector and none in the public sector. Middle income housing provision in the private sector is, within existing guidelines, plagued by a scarcity of land, long term finance, high interest rates and building costs. Public programmes which formerly delivered lower income housing have been costly in terms of high land use and building standards and have run ahead of their intended market's financing capacity.

Public policy is now geared to facilitating housing provision. A multifaceted programme in Montego Bay now include a USAID supported Settlement Upgrading for existing urban settlements and partial-build schemes. There is also a Starter Home scheme which provides a core unit of basic sanitary facilities and living space and is so designed to enable future extension. Another, the Build-on-your-own-land offers starter home on land owned by the purchaser. Although these scheme can promote people's stake in and awareness of their environment, the financial arrangements demand regular outlay which is impossible for much of the labour force.

Industrial Expansion policy is predominantly aimed at increasing and foreign exchange from export. The policy is apparently guided by the need to maintain diversification of the economy and maximise employment. Industrial development has largely been pursued with insufficient regard to their impacts on the local environment. Very few environmental assessments are conducted prior to the establishment of new plants. Documentation and monitoring of on-going operations are rarely carried out. There is also an absence of enforceable environmental standards or even health and safety standards. Furthermore there is no accounting of the measurable benefits of industries



- ① PUBLIC PARK
- ② HOTEL (120 RMS.)
- ③ PUBLIC BEACH
- ④ RESORT RESIDENTIAL (120 UNITS)
- ⑤ PUBLIC PARK
- ⑥ HOTEL (200 RMS)
- ⑦ COMMERCIAL SUBDIVISION
- ⑧ COMMERCIAL
- ⑨ COMMERCIAL
- ⑩ PUBLIC PARK
- ⑪ COMMERCIAL
- ⑫ CAR PARK
- ⑬ COMMERCIAL SUBDIVISION
- ⑭ COMMERCIAL
- ⑮ PUBLIC PARK
- ⑯ RESORT INSTITUTIONAL/COMMERCIAL
- ⑰ COMMERCIAL / CAR PARK
- ⑱ COMMERCIAL / CAR PARK
- ⑲ FIRE STATION

- ⑳ COMMERCIAL / TRANSPORTATION CENTRE
- ㉑ COMMERCIAL (SERVICE STATION)
- ㉒ COMMERCIAL (RESTAURANT)
- ㉓ CRUISE SHIP PIER
- ㉔ COMMERCIAL / RESORT RESIDENTIAL

Boundary Of  
The U.D.C.  
Designated  
Area

CLOSE HARBOUR  
BEACH

ST. JAMES  
CENTRE

WALTER FLETCHER  
BEACH

GUN POINT



MAP 3 - UDC MONTEGO BAY WATERFRONT PLAN

MAP 3

*Handwritten signature*

contributing to the civic and social amenities provisions of their host communities.

Tourism Trade now accounts for over 30% of Jamaica's foreign exchange earning and is therefore regarded by Government as pivotal to the economy. Government policy is based on developing markets, accommodation and attractions to facilitate increased visitor arrivals. There is however no commensurate policy to establish the carrying capacity of the tourism resources base, control and management of resort development or maintenance and enhancement of the environment of resort urban centres such as Montego Bay.

## **INSTITUTIONAL SETTING**

A look at the institutions with responsibility for development in Montego Bay reveal large number with responsibility and mandate for the environment. Despite their existence continued abuse is being inflicted on the environment base of the city. At the national level this is due largely to the dictates of economic imperatives, serious weakness in operating capabilities, severe shortage of funds and poor public support due to a low level of public environment awareness and education. The public and private agencies and organisation at the local level for their part are constrained by or respond to these circumstances.

### **National Level**

The plethora of institutional arrangements for environmental planning, control and management in Jamaica is presented in Annex 2. The list include three key regulating and management agencies. They have a fairly balanced range of functions to discourage environment degradation and to mitigate incidences that do arise. Two fall appropriately under the Ministry of Development Planning and Production, the NRCD and the Town Planning Department. Most of their functions are advisory and reactive with little provision, either in principle or in practice for input directly at the level of facilities planning such as hotels and factories. A gap in function does exist in the interactive management of the environment.

There are also a number of environmental resources development, control and protection agencies. Most, like the National Water Commission and Underground Water Authority were established to control and manage the exploitation of natural resources such as terrestrial and coastal water. Completing the list are three relevant planning and investment agencies. These include the UDC with its specific urban and tourism mandate, JAMPRO which has been instrumental in promoting business in the Free Zone and Jamaica Industrial Development Corporation who promote the development of industrial estates.

### **Local Level**

At the local level institutional responsibilities for the environment are principally administrative with some operational functions. Responsibilities reside with two public sector institutions although the private sector have begun to play an integrative and active role.

The St James Parish Council administers Montego Bay. The Council comprises a Mayor and Council who are elected representatives of the people of the Parish. It has responsible to oversee traffic management, administering building control and planning approvals and the provision of some public services such as street lighting. The Council is supported by a full time administrative staff.

The Parish Council has no capital budget and its budget for current expenditure is funded to a level of 90% by the Ministry of Local Government. Its remaining financing is generated by income from services such as market fees. Although the Council owns a sizeable stock of land in Montego Bay its ability to realize a return from these properties is restricted by a requirement to return to Government any income earned beyond 10% of its budget. These financial constraints, severely limits the Council's ability to effectively administer or manage the city.

Western Parks and Markets (WPM) is an affiliate of the Ministry of Local Government from which it receives funding to carry out garbage collection and street cleansing. WPM is an energetic agency who have in the past identified sites for relocating street vendors and have secured additional assistance to prepare the sites for use. A plan to relocated vendor from the main street of St James Street onto a prepared off-street site is currently underway.

Montego Bay Chamber of Commerce is a private sector organisation representing a broad cross-section of the city's business community. It has become a catalyst for the growing concern of the local public and private sectors to arrest what they see as a detrimental development course of their city. In 1989 the Chamber appointed a full-time manager to develop and manage programmes through which the business community could become involved in a meaningful way in addressing the city's needs and problems.

Under his direction the Chamber is sponsoring a street upgrading programme for the city's main street which is offering financial assistance to property owners to clean up and paint their buildings, and to work with the WPM to clear the street of vendors. Drawing on the initiative of this programme the Chamber has secured the consent of the Minister responsible for Planning to their request to be allowed to prepare a development plan for Montego Bay. A public/private interest Montego Bay Development Company is being formed to, in the first instance develop the plan, and thereafter to promote and financially assist its implementation.

Formation of the company is guided by the Chamber's vested interest in the healthy growth and advancement of their city. On the board of the company will sit a mix of public and private sector interests, including the Parish Council and other key city institutions. Through the establishment of this company the Chamber is beginning to build partnership with local institutions and interest groups in their endeavours.

## **CONCLUSIONS - THE ISSUES**

The major areas of development in Montego Bay have generated a huge unrealised demand for employment, urban services and infrastructure, and environment protection.

The pattern of development they have established has failed to build a necessary and desirable regional economy, and the resulting population drift to the city is creating disturbing levels of urban poverty. The process of development is also failing to provide civic gains in the form of urban attractions and social amenities. The effects have produced visual, physical and ecological pollution of the city's attractive environment. Montego Bay is now paying for this with an unhealthy and unattractive urban environment which threatens the prospects of further investment in its economy.

Development of the city is creating a pattern of urbanization which is largely pathological and Montego Bay can be aptly described as a city in some distress. Instead of benefiting from strong economic growth, the city is paying a high civic and environmental cost. The burden of costs rests

heaviest on the local community who live and work in the city. That community appears to be getting in shape to play a participatory role in mitigating and reversing the ill effects of their city's development. These are conditions which would seem to offer Montego Bay a unique opportunity to embark on a path to healthy development.

The major issues facing Montego Bay in creating the conditions for healthy growth revolve around balancing economic and urban growth and environment protection within Jamaica's current development structure and climate. At the national level these are dominated by a conflict between national imperative and local development needs and benefits. In addition urban management and control at the local level is weak, despite the presence of institutions that are publicly accountable, committed and energetic. The question is also raised of how to capitalize the opportunities being offered by the private sector to promote a more demanding and proactive local community.

**Profile of Street Vendors Survey**  
**Conducted on Thursday 21st January 1988**

Names of Streets	Fruits & Vegetables/ Ground Provision	Haber Dashery/ Dry Goods	Meat, Fish and Poultry	Others or Miscellaneous	Total
Church Street	10	38	4	3	51
Church Lane	2	36	1	1	42
St. Claver's Ave.	10	42	--	9	61
Strand Street	--	34	--	2	36
St. James St.	6	65	--	9	80
Market St.	1	22	--	2	25
King Street	--	5	--	4	9
Union Street	--	6	--	7	13
East Street	--	2	--	1	3
Love Lane	12	6	2	2	22
William Street	16	5	7	9	37
Orange Street	20	3	8	5	36
Lawrence Lane	4	22	4	2	52
Creek Street	3	9	--	9	19
Water Lane	--	2	--	--	2
Gravel Lane	1	2	--	--	3
Cornaldi Ave.	--	2	--	3	5
Hart Street	2	3	--	1	6
Barracks Road	5	6	--	5	14
Barnett Street	5	49	--	14	68
Hatpour Street	2	7	--	6	17
Fustic Road	38	34	6	17	95
<b>TOTAL</b>	<b>137</b>	<b>399</b>	<b>32</b>	<b>108</b>	<b>677</b>

GRAND TOTAL OF 677 VENDORS

\* Others of Miscellaneous: Sky Juice, Cigarettes, Sweets, Drinks, etc.

## ANNEX 2

### **Key Regulatory and Management Agencies**

National Resources Conservation Division (NRCD) in the Ministry of Development Planning and Production (MDPP) is Jamaica's chief resource management and conservation agency. NRCD administer several pieces of key environmental legislation, including the Beach Control Act (1955), and the Watershed Protection Act (1963). The Division's key functions include: Resource management and policy formulation for wildlife species, water sheds and coastal zone management; Research and monitoring of inland and nearshore aquatic resources, including surveys and investigations on water quality; Development control, including the performance of environmental impact assessments.

Environmental Control Division (ECD) The ECD in the Ministry of Health carries out monitoring and assessments with regard to the control of water quality, sewage, industrial wastewater, solid waste, industrial working environments, air pollution and noise.

Town planning Department (TPD) The role of the TPD within the MDPP is to carry out comprehensive development of land throughout the island along the national/regional and urban development policy guidelines of the Government. Inherent in these function is the vital role of development control with respect to the orderly and progressive development of cities, towns and their necessary amenities. The TPD is responsible for: Preparation of the National Physical Plan; Recommendation for public policies on land use and development; Preparation of land use studies, plans and regulation and Preparation of Development Orders. The last Development Plan and Order for Montego Bay where both prepared in 1978.

### **Resources and Protection Agencies**

Port Authority of Jamaica regulates coastal structures on or over water, provides aid to navigation, monitors oil spills, provides information on ship traffic, and is responsible for the review, approval, construction and leasing of buildings on the foreshore in areas under its jurisdiction. The Authority is also a major share holder in the Montego Bay Free Zone.

Office of Disaster Preparedness (ODP) within the Ministry of Construction, coordinates disaster response and post-disaster recovery activities, makes recommendations on public policies for the avoidance of risk areas, maintains a system for monitoring and forecasting environmental events, and reviews development and subdivision proposals in high risk areas.

Water Resources Division (WRD) within the Ministry of Local Government collects data and provides technical information and support to the other Government agencies on water resources (stream flow, tidal data, critical water levels etc.)

Underground Water Authority (UWA) is a statutory body which was established to provide for the conservation and proper use of underground water resources and to control the exploitation of resources.

## **Infrastructure Development and Maintenance**

National Water Commission (NWC) is a corporate body whose functions are: to develop and coordinate an economic water supply system; to maintain water quality and reliability of the water supply system; to promote and provide water supply and sewage services island wide.

### **Relevant Planning and Resources Agencies**

Planning Institute of Jamaica (PIOJ). The PIOJ is set within the MDPP with responsibility to initiate and coordinate planning for the economic, financial, social, cultural and physical development of the country, to monitor the implementation of these plans and manage technical cooperation, agreements and programmes. In addition, PIOJ carries out research, training and provides consultant services to other ministries, agencies and statutory bodies.

Urban Development Corporation (UDC) is a statutory corporation reporting to the MDPP. It is legally empowered within designated UDC areas, to act as its own planning authority and to design and construct development projects and implement conservation elements of its projects. UDC also prepare physical plans for designated areas, and supervises and coordinates implementation of the Comprehensive Rural Township and declared areas Tourism Development Plans. In 1970 Montego Bay was designated a priority development and UDC was mandated to undertake a redevelopment programme for the city.

Tourism Action Plan Limited (TAP) is a joint public/private sector company set up to stimulate investment infrastructure to improve Jamaica's tourism product. One aspect of the company's programme is to mobilize resources to strengthen the institution and assist the programmes of Chambers of Commerce in the main tourist areas.

JAMPRO Limited is a statutory corporation reporting to the MDPP. It provides local and foreign private investors with advice, information and assistance regarding investment opportunities. JAMRO also incorporates the functions of the former Jamaica Industrial Development Corporation for ensuring that the Government's industrial development objectives are met. Activities include planning and implementation of public sector industrial project, promotion of both public and private industrial development projects and operation of industrial estates throughout the island. Responsible is also carried for the development and implementation of a Comprehensive National Industrial Plan and to upgrade the performance of the manufacturing sector.

## **NOTES**

1. The most reliable base we have for establishing the present population is to calculate its estimated 4% annual growth on the 1982 Census base figure of 70,300. The result come close to the 100,000 which most commentators accept.
2. With the start of the decade the international recession began to exacerbate growing political uncertainty in Jamaica and Jamaica's tourism. The results were that the stop-over (non-cruise) arrivals to Jamaica in 1980 of 395,340 was 469 less than that in 1975.
3. Calculated from Ministry of Tourism data and the latest figures given by the Port Authority of Jamaica, Annual Report 1987.

4. Ramson report referred by Kingley and Telgarsky in Jamaica: Spatial Trends and Policy Implications - Urban Institute.
5. L. Alan Eyre, The Internal Dynamics of Shanty Towns in Jamaica, Caribbean Geography, Volume 1: November 1984.
6. Sandals Royal Caribbean recently initiated a 'Streets of Montego Bay' programme which involved hiring traditional street sellers to recreate the streetlife of nearby city centre on the hotel grounds for a day.

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**MISMANAGED URBAN GROWTH:  
TOURISM DEVELOPMENT AND ENVIRONMENTAL QUALITY IN MONTEGO BAY**

**Group Discussion  
Analysis and Recommendations**

**Author: Yvonne Bell  
Chairman: Mr. Lennox Sankersingh  
Reporter: Geraldine Pitt**

**1. The Key Issues:**

**A. Economic**

- Whether there should be greater emphasis on diversification away from the dominant and expanding tourism sector.
- Capacity to maintain tourism competitiveness relative to existing and new tourist areas.
- Areas of economic growth not sufficiently absorbing city's employment seekers.
- Employment created is essentially low paid and with limited permanency.
- Full economic potential of hillside development under-utilized.

**B. Urbanization**

- Inability to cope with massive population expansion.
- Detrimental colonization of hillsides and shorelines.
- Development occurring outside regulatory framework.
- Squatting on environmentally fragile hillsides and commercial squatting in city centre with the resulting loss of environmental appeal.
- Ill effects of rural-urban drift with insufficient urban infrastructure, amenities and services.

**C. Environment**

- Inadequate land use control and insufficient environmental monitoring.
- Deficiencies in the management of the disposal of solid waste and sewage.
- Threatened marine ecology, shoreline stability, water quality, public health.
- Negative environmental impact of extensive commercial squatting.
- Soil erosion from spread of unregulated housing.

## **2. Development Successes and Development Shortcomings**

### **A. Development Successes**

- Tourism as it benefits the economy is not just seasonal but yearly.
- The manufacturing industry has a positive impact on the economy (e.g. employment).
- The establishment of a manufacturing sector which is environmentally friendly.
- The increase in beach front and waterfront was done with little environmental problems.
- Housing supply has been improved for low and middle income sectors with social infrastructure included.
- Improvement in communication network to and from city.
- The involvement of the professional and business sector in the planning and development process of the city centre.
- The use of locally produced goods (e.g. food) in the tourist industry.
- Entry of local entrepreneurs into the tourism industry-ownership of hotels, etc.

### **B. Development Shortcomings**

- Utility and infrastructure has not kept pace with population expansion.
- Lack of adequate/sufficient housing.
- Shortage of staff to manage and control development.
- Enforcement of legislation is weak and legal fines for non-conformity are low.
- Ignoring the environmental integrity of surroundings.
- Inadequate legal instruments.
- Inadequate social facilities/amenities and recreational facilities.
- Inadequate public transportation (mainly rural/urban networks).
- Degradation of the marine environment (e.g. pollution from ships).
- Destruction of marine life by sedimentation caused by deforestation of the watershed and resulting erosion.
- Inadequate storm water drainage.
- Inadequate employment opportunities.
- Insufficient training for potential work force.
- Type of development generates low levels of revenue for sustaining environmental integrity.
- Weak institutional base.
- The lack of a proper data base especially in the tourist sector.

## **3. What should be or should have been the Development Goals?**

- Orderly planning and provision of infrastructure to match general development and population expansion.
- The need for subsidy towards low income housing recognizing limits on finance and other constraints.
- Marriage of resources of the hotels with government resources for the general improvement of the town.
- Educate hotel owners/managers on environmental matters.
- Develop community mechanisms to address environmental problems.
- Education aimed at population control.

- Promotion of community self-help.
- Need to establish a threshold for tourism and begin to look at better integration of the sector with Montego Bay as a region.
- A system to develop the small business/vendors into environmentally acceptable business persons.

**4. Proposals for the better integration of environmental management concerns into planning and management of economic development of economic development and coping with urbanization**

**A. Policies**

- Must be realistic and implementable.
- Must be clearly defined.
- There must be an integrated approach to the formulation of policy.
- Formulation of a comprehensive land policy and land information system need to be established - a documentation centre or inventory of all existing materials.
- Establishment of an agency that will integrate existing environmental responsibility with emphasis for the environment.
- Proper development of environmental standards.
- Pre-selection planning and evaluation of projects to ensure environmental compatibility.

**B. Institutions**

- Should aim to build credibility with the public.
- Should be staffed by qualified and competent personnel.
- Should be well informed by state of the art technology but be mindful of and be guided by appropriate technology.
- Should improve institutional capacity by showing expertise through a regional pool of experts.
- A greater degree of the co-ordination of the institutional decision making process.
- Possibility of maximizing the opportunities provided by the Caribbean Conservation Association as regional environmental organization.
- International Institutions should be encouraged to make available knowledge on existing technology.

**C. Regulations/Incentives**

- Regulations need to be updated.
- Fines, charges and other forms of sanctions should be updated.
- Possibility of involving the public in enforcement.
- Improve systems/mechanisms for expediting legal action - possibility of a special court or division of a court or special times of hearing.
- Incentives to encourage environmental control.

**D. Information Dissemination/Public Education/Awareness**

- Hold public hearings.
- Joint public/private initiatives.

- Educating business community and community at large about environmental matters.
- Keep media informed about environmental issues.
- Environmental education in schools.
- Corporations can identify with environmental issues by advertisements and promotions, and other ways - as a means of improving corporate image.
- Encourage people living in watershed areas to plant trees.
- Need to raise the consciousness of public servants - public servants need to be stronger in advising and educating their ministers.
- Explore CCA or similar regional institution to provide the basis for data information gathering and dissemination, skills pool for technical assistance on environmental matters in the Region.

**Note:**

During the group discussions, it was pointed out that many of the problems identified in the paper are presently being addressed by the authorities such as:

- Improvement in transportation linkages.
- Private and public sector initiative being undertaken to upgrade and refurbish city center, largely through the efforts of the Montego Bay Chamber of Commerce.
- The formation of Towns in Action Plan - a public/private sector company to act as a catalyst in speeding up development.
- Efforts are being made to improve water supply, sewage treatment and electricity and telephone services.
- Formation of marine parks in Montego Bay to help in the conservation of marine environment.



**Lionel Nurse, Town & Country Planning Office, Barbados, and  
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## COUNTRY STRATEGIES

During the final session, the participants at the Conference were grouped by country delegations to prepare brief strategies for improving environmental management in their respective countries. The objective of this session was to permit country delegation members who had participated in different case study groups to reflect on how the findings from the case study discussions might be applied to their own countries. The strategies were not intended to be official recommendations but rather the consensus of the group on how improvements could be made, based on information from the Conference.

Strategy preparation consisted of two parts. In the first, each group briefly analyzed the current situation including the principal causes of environmental degradation, the extent to which environmental considerations are integrated into economic development and urban planning, and current constraints to more effective integration. In the second part, the country delegations were asked to recommend ways of improving environmental management through policy formulation, institutional strengthening, improvements in the regulatory environment, improvements to the decision making process, and information gathering and dissemination.

In analyzing the current situation, delegations identified both human activities that cause environmental degradation and institutional inability to control those activities. While the range of activities varied according to the characteristics of the countries, most identified rapid urbanization, uncontrolled urban development on unsuitable sites, and inadequate services, particularly inadequate sewage treatment and solid waste disposal as the principal urban-related causes. Pollution from other economic sectors, principally tourism and industry, was also cited as a key cause of environmental degradation. The more rural countries identified activities such as slash and burn agriculture that leads to deforestation.

On the policy and institutional level, several delegations identified inadequate attention to environmental concerns during development planning either because of a lack of environmental expertise in planning agencies or a lack of consultation with agencies possessing that expertise. For example in Monserrat, economic planning is conducted in the Ministry of Finance but there is no environmental expertise in the Development Planning Unit. A few other countries, such as Belize and Jamaica, indicated that environmental concerns were increasingly integrated in development planning as Environmental Impact Assessments are required and greater inter-agency coordination is occurring. The Belize delegation noted that many actions had been taken in their country to promote natural resource management such as the protection of natural areas and recognition of endangered species. The Jamaican delegation stressed that a variety of environmental protection laws exist in that country (Clean Air Act, Natural Resources Conservation Act, Water Resources Act) but because of inadequate standards and other institutional weaknesses the laws are poorly implemented.

Most all countries indicated that where institutions exist, they lack adequate financial and human resources. Beyond this shortcoming, insufficient use is made of expertise where it does exist, most notably at the universities. Compounding institutional weaknesses, there has been insufficient public education about environmental problems. Delegations acknowledged that public awareness and pressure could be an important tool in promoting environmental action.

Turning to strategies to improve the integration of environmental concerns in economic planning and urban management, some country groups felt that improvements in environmental policy were already underway. Others felt the need for more clear cut policy regarding how and when environmental impacts should be taken into account. The majority of recommendations dealt with improvements in the institutional framework, generally in the form of an agency responsible for coordinating environmental activities and reviewing development plans from an environmental perspective. For example, Monserrat indicated that the Development Planning Unit in the Ministry of Finance would have environmental expertise added to the staff and that a special unit in the Ministry of Agriculture would be responsible for environmental affairs. The Jamaican delegation recommended rationalizing the functions of agencies involved in development planning in regards to their role in environmental management. The Trinidad and Tobago delegation urged that while new institutional forms must be created, they must also be adapted to the Caribbean context, not simply borrowed from elsewhere.

In general, institutional strengthening was seen as a critical action to build capacity to deal with environmental matters. Strengthening in this context appears to mean strengthening the role and authority of the institutions and strengthening the capacity of the staff with the institutions. For example Belize recommended strengthening the monitoring and enforcement capacity of the Department of Lands and Valuation which plays a key role in land development. A corollary of this type of action would be the review of existing regulations and regulatory processes as to the extent to which they are effective in reducing negative environmental impacts.

There was also general agreement that improvement must be made in the decision making process, primarily in the form of greater public participation. This requires public education and greater flow of information about resource quality and the environmental impacts of human activities. It also requires a structure that places greater emphasis on local decision making capacity.

Regarding information management, several country groups recommended increased use of land information systems or GISs to improve the quality of available information and its flow among agencies involved in development planning and regulation. Trinidad and Tobago noted that a GIS system has recently been installed in the Town and Country Planning Department and is expected to contribute to improved decisions regarding environmental impacts. In addition to information systems, the Jamaica delegation recommended greater use of Cost/Benefit Analysis to generate information about the economic value of environmental impacts and to estimate the full environmental costs of projects.

## APPENDIX

### LIST OF CONFERENCE PARTICIPANTS

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