

An Evaluation of Environmental Impact Assessment in Barbados

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Abstract

Environmental impact assessment (EIA) has evolved significantly over the past thirty years and while it has become embedded within planning processes in most developed countries, the successful application of EIA has not been as common within developing countries. This research is set within the broader context of evaluating the effectiveness of a developing national EIA system. The objective of this study is to review and evaluate the EIA system in Barbados against internationally accepted benchmarks for EIA process and EIA report quality in order to determine strengths and weaknesses of the national EIA system.

Since its introduction, both the process and outcomes of EIA have improved in Barbados as expertise in the field accumulates over time. Strengths included a comprehensive scoping mechanism via the EIA Review Panel process, the provision of guidance regarding prescribed EIA report content, and thorough requirements for mitigation of significant environmental impacts.

This evaluation concludes with a call for greater attention and improvements towards identified weaknesses of EIA policy and process in Barbados, including improved screening mechanisms, public consultation prior to and during the EIA process, the provision of additional EIA guidance, and increased focus on monitoring and follow-up activities. These weaknesses could be addressed in order to introduce greater efficiencies into the EIA process and ultimately afford for improved environmental protection.

Key words: environmental impact assessment, EIA, environmental assessment, environmental management, Barbados

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Acronyms

CZMU	Coastal Zone Management Unit
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPD	Environmental Protection Department
ESPU	Environmental Special Projects Unit
EU	Environment Unit
GDP	Gross Domestic Product
GOB	Government of Barbados
HDI	Human Development Index
IAIA	International Association for Impact Assessment
IDB	Inter-American Development Bank
LAC	Latin America and Caribbean
MDB	Multi-lateral Development Bank
MFI-WGE	Multilateral Financial Institutions-Working Group on Environment
MHLE	Ministry of Housing, Lands and Environment
MPCA	Marine Pollution Control Act
MW	Megawatt
NCC	National Conservation Commission
NEPA	National Environmental Protection Act
NGO	Non-governmental Organization
NPDP	National Physical Development Plan
OECD	Organization for Economic Cooperation and Development
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
SIDS	Small Island Developing States
TCPA	Town and Country Planning Act
TCDPO	Town and Country Planning Development Office
TOR	Terms of Reference
UN	United Nations
UNEP	United Nations Environment Program
VEC	Valued Ecosystem Component

Chapter 1: Introduction

1.1 Understanding the problem

It is now widely accepted that economic development must be accompanied by measures to help protect the environment. Environmental impact assessment (EIA) has emerged as a key process used to address the environmental consequences of development projects, plans and policies (Biswas *et al.* 1987). EIA is defined by the International Association for Impact Assessment (IAIA) as the “process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made” (IAIA, 1999:2). Those undertaking EIA seek to inform and influence the decision-making process with respect to proposed developments in order to promote environmentally-sound decisions. EIA is not a procedure for preventing developments from being implemented; rather, it is intended to provide a mechanism to ensure that developments are approved in the full knowledge of their environmental consequences (Wood, 2003a).

Since the formal introduction of EIA within the United States’ National Environmental Policy Act (NEPA) in 1969, there has been widespread adoption of the EIA process by over 100 countries across the world, embedding EIA as a fundamental component of national environmental laws and regulations (IDB, 2001a). Many national governments have based their legislation on the United States NEPA, with local modifications of the EIA process which in turn has

contributed to a continual evolution of the procedures, methodologies and procedures of EIA (Barrow, 1997).

EIA has also been promoted by and incorporated into the environmental review policies and procedures of international institutions, including several United Nations agencies, such as the United Nations Environment Programme (UNEP). The great majority of multi-lateral development banks (MDB), such as the World Bank, the Asian Development Bank and the European Bank for Reconstruction and Development, have also made extensive use of EIA. Indeed, the World Bank's environmental assessment policies, having been subject to extensive public scrutiny and numerous revisions over the past decade, have been deemed by some as exemplary, and have been used as a comprehensive model for environmental assessment policies within a multitude of other MDBs and national governments (Gutner, 2002). A realm of players are involved in carrying out the EIA process, including governments at the national, regional, and municipal levels, environmental consultancies, non-governmental agencies (NGO), and local citizens.

EIA is now over three decades old and the vast majority of its development has been in the context of evaluating plans for proposed projects in North America and Europe. EIA has without doubt become an integral part of routine environmental planning processes within developed countries. While some developing countries were quick to adopt EIA, the application and development of EIA within developing countries has not been as extensive (Lee et al. 2000; Barrow, 1997).

Generally, EIA performance has not been as successful in developing countries as in developed countries (Jain et al. 1993). The Organization for Economic Cooperation and Development (OECD) concluded that several factors contributed to the less efficient and less effective practice of EIA in developing countries, including a lack of political will, awareness/prioritization of environmental issues, a lack of an adequate framework for environmental law, insufficient public participation, and insufficient financial resources (OECD, 1986). Consequently, research into the implementation and effectiveness of national EIA systems has been targeted as a major new research thrust (Wood, 2003a). Erhlich (1998) adeptly notes that developing countries can benefit from the experiences of countries where EIA has been practiced for a relatively long time, while avoiding the trial-and-error process that led to the improvement of EIA in developed countries over the last 30 years. However, it is also important to recognize that EIA need not just be *present* in developing countries, but that it must be adopted in a structure and fashion that best reflects their particular economic, social and cultural context.

This research is set within this broader context of evaluating the effectiveness of EIA procedures within a developing national EIA system with a focus on Barbados. Past studies of environmental management and EIA performance by governments in Latin America and the Caribbean identified several of these countries as having some of the poorest levels of performance with regard to environmental management and protection (Alzina, 2001; IDB, 2001a).

Barbados is a small Caribbean island located to the northeast of Venezuela between the Caribbean Sea and the North Atlantic Ocean. Barbados has a relatively small population of approximately 280,000 (CIA, 2005), but is the most densely populated island of the West Indies islands. The country is classified by the World Bank (2005) as an upper middle income economy¹ and is ranked 30th out of 177 countries on the United Nations Development Programme's Human Development Index (HDI)² which is the highest of all countries in the Latin America and Caribbean region.

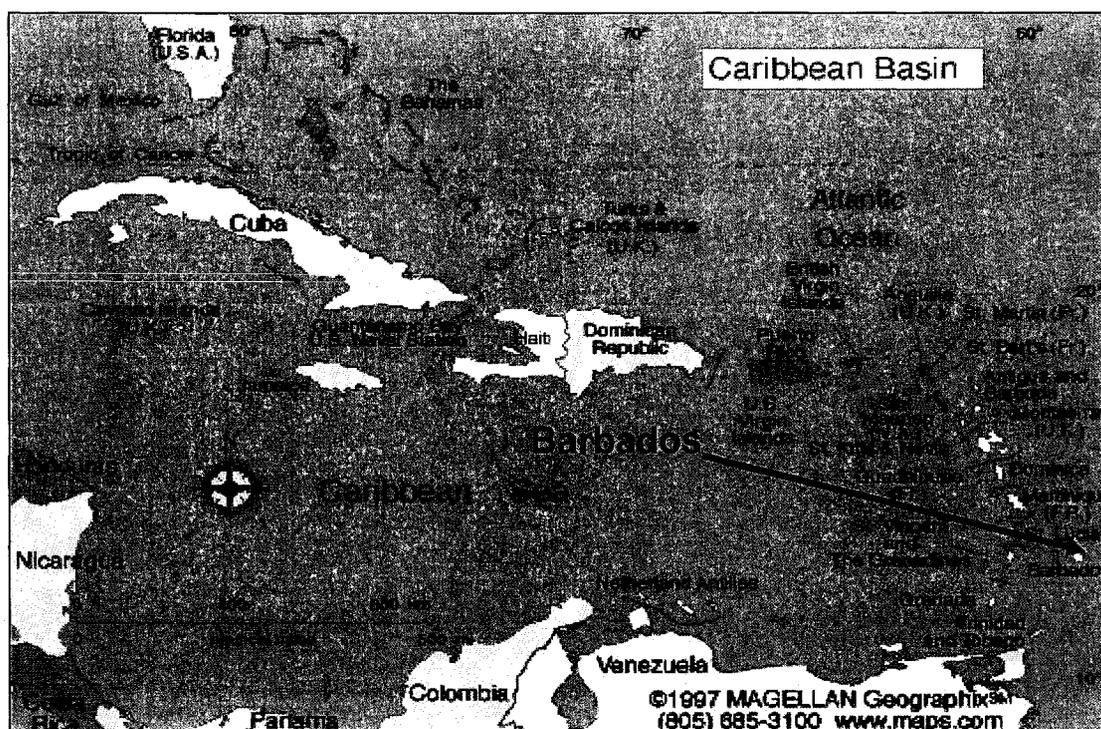


Figure 1. Map of Caribbean region (Pearson, 2005)

¹ The World Bank defines upper middle income economies according to 2004 Gross National Income (GNI) per capita of \$3,256-\$10,065. According to the World Bank, low and middle-income economies may be referred to as developing economies.

² The HDI is a measure of three dimensions of human development: health and life expectancy, education and standard of living, and is intended to afford a more thorough view of a country's development level than measures of income alone (UNDP, 2005).

Barbados is also one of 51 countries that belong to the Small Island Developing States network (SIDS), representing small islands and low-lying coastal countries that share similar sustainable development challenges, including small populations, small economies that are excessively dependent on international trade and are vulnerable to global developments, limited resources and costly public administration and infrastructure (SIDSNET, 2003). Barbados' GDP is primarily derived from the tourism sector, as well as the petroleum, fish and natural gas sectors. The island faces several key environmental challenges including fresh water scarcity, air quality, deforestation, coastal and marine protection including coral reefs, and the loss of agricultural lands (UNCSD, 2002).

Barbados has received development assistance, particularly from the Inter-American Development Bank, to carry out numerous environmental-related projects and programmes. The Ministry of Housing, Lands and Environment holds ultimate responsibility for environmental issues within the national government. Furthermore, a National Commission on Sustainable Development carries the mandate of advising the government on national and global issues related to sustainable development. Barbados has in place numerous laws and policies with respect to various environmental issues; EIA was originally introduced in the country in the late 1990s and has since been established as a formal process within the Town and Country Planning Department.

1.2 Research Purpose

It is from these observations that an opportunity for further study of the effectiveness of national EIA systems is identified and from which the proposed research question emerges: *What are the strengths and weaknesses of EIA in Barbados and how can the effectiveness of EIA be improved?* In order to address the overarching research purpose, the objectives of this research are to:

- (i) specify a set of international benchmarks for EIA process and outcomes in developing countries;
- (ii) establish the context for EIA process and outcomes in Barbados;
- (iii) conduct a comparative evaluation of EIA process and outcomes relative to the international benchmarks derived from (i); and
- (iv) investigate opportunities to address identified weaknesses in EIA process and outcomes in Barbados.

The scope of this research is focused on the EIA process and EIA outcomes in Barbados. For the purposes of this research, process is defined as the various plans, guidelines, regulations and other legal text (collectively defined as “EIA policy”) as well as the mechanisms and course of actions undertaken by institutions and participants that are involved in EIA in Barbados. EIA reports will be evaluated as a means to assess EIA outcomes. EIA outcomes more broadly encompass other results of the EIA process such as the effectiveness of mitigation and monitoring activities, the environmental benefits achieved by a

development, and long-term environmental change. This research is focused on EIA reports as one element of EIA outcomes given that access to long-term environmental monitoring documentation for various projects that were previously subject to the EIA process in Barbados would not be available within the timeframe of this research. Accordingly, this component of the research provides an assessment of EIA outcomes at a relatively early stage in the EIA process.

1.3 Thesis organization

Following an introduction to the thesis in Chapter 1, Chapter 2 provides an introduction to the EIA process, defines its objectives, and traces the evolution of EIA over the past three decades. This section describes the status of EIA in developing countries, including commonly identified strengths and weaknesses, and develops a context for EIA effectiveness studies in developing countries.

Building on this background of EIA policy and practice in developing countries, Chapter 3 defines the research framework employed in this study. This section establishes the international benchmarks for EIA process and outcomes within developing countries against which the Barbados process and EIA report quality will be benchmarked. The framework, methodology, data sources and scope of the research are described.

Chapter 4 provides a description of Barbados, including an overview of its history, geography, political structure and economic development. This section

outlines the key environmental issues facing Barbados, and the present structure of the national government's administration and the legislation that is currently in place to address environmental issues. Finally, Chapter 4 describes the current EIA process that exists in Barbados, including the administrative and institutional framework for EIA and the procedures in place for the implementation of the EIA process.

In accordance with the research framework and international benchmarks for best practice EIA in developing countries established in Chapter 3, Chapter 5 presents an evaluation of Barbados' EIA process against internationally accepted benchmarks for EIA in a developing country context. Strengths and weaknesses of the EIA process are discussed. Further, Chapter 5 provides an evaluation of the quality of EIA reports previously conducted for proposed developments in Barbados against the established EIA report review framework.

Chapter 6 concludes the thesis with a summary of the key strengths and weaknesses identified with respect to EIA process and outcomes in Barbados, as well as the key recommendations to address the constraints facing EIA in Barbados.

Chapter 2: Overview of EIA in a developing country context

2.1 Purpose and principles of EIA

History of EIA

The emergence of environmental awareness in western countries throughout the 1960s sparked the introduction of environmental legislation, environmental institution building and the rise of environmental non-governmental organizations (Modak et al. 1999). Prior to 1969, reviews of the environmental effects of particular projects were undertaken on an ad hoc basis typically in response to public or governmental concern (Barrow, 1997). Over time, American policy-makers perceived a need to formally implement environmental management legislation that would provide for a systematic, comprehensive approach to evaluating the effects of federal agency proposals on the environment. The National Environmental Policy Act (NEPA) of 1969 is commonly identified as the formal start to EIA (Wood, 2003a).

NEPA was a response to a number of factors including increased concern by the public and involvement by NGOs in environmental issues and developments in planning theory and assessment techniques (Barrow 1997). During this period, NEPA was considered to be the most progressive environmental legislation in United States, and has since received much international attention (Wood, 2003a). Modak and Biswas (1999) describe the NEPA as *the* landmark in environmental management, as it led to the introduction of EIA in a number of national legal systems.

EIA of the 1960s was influenced by the scientific and technical backgrounds of its pioneers and hence NEPA was centered upon the scientific identification, prediction and mitigation of biophysical effects stemming from large-scale development projects (Cashmore, 2004; Fuggle, 2004; Modak et al. 1999). EIA during this period was focused upon large-scale project review (e.g. airports, highways, dams), and the development and application of scientific methods for EIA purposes (Cashmore, 2004).

It was not until the 1980s that social dimensions were introduced into the field of EIA, primarily through the evolution of social impact assessment (SIA) and public consultation processes (Modak et al. 1999). SIA is the process of analysing, monitoring and managing the social consequences of development (IAIA, 2003). The introduction of social facets into EIA is presumed to be a result of an increased understanding of the interdependence of the various components of the environment and humankind, and of increased criticism that suggested that studies of biophysical elements were overlooking social impacts (Modak et al. 1999). Further, the field witnessed the emergence of cumulative environmental assessment, health impact assessment and a variety of other risk assessment methods (Modak et al. 1999).

The last decade of EIA has witnessed the introduction of strategic environmental assessment (SEA) in which environmental assessment has moved beyond individual project review and into assessing the environmental effects of policies, programmes and plans (UNEP, 2002). The SEA process is a proactive method for analyzing and preventing the potential adverse

environmental impacts that may be caused by sector policies and plans enacted by governmental or development agencies (UNEP, 2002). For example, SEA may be applied to trade, resource, or land use plans, or strategic plans or policies pertaining to sectors such as transportation, tourism, or energy.

SEA is viewed by some as a more appropriate approach to addressing contemporary trans-scientific problems encountered in environmental assessment than the traditional scientific, positivist approach which dominated the development EIA in the 1970s and 1980s (Lawrence, 1997). Overall, EIA has evolved from its initial quantitative, science-based focus into a field that attempts to achieve a balance between the science of the physical environment and the social and human perspectives of development, as evidenced by the introduction of SIA, SEA and the trend towards greater participation of a broader range of stakeholders.

EIA Theory and Principles

The current theoretical state of EIA is largely an uneven mix of planning theory, traditional scientific theory, discipline-specific social, economic and biological theories, public policy and organizational theory, and a loose amalgam of methods, concepts and frameworks (Lawrence, 1997). Ultimately, EIA remains largely rooted within the philosophy of logical positivism, and continues to rely upon a Western scientific approach to the analysis of the environment, and exists within hierarchical government structures. Based on a review of the literature within the field of EIA, particularly documents authored by EIA

practitioners, it is evident that practitioners largely agree that what can be observed and measured is considered to be absolute knowledge, or scientific truth, presenting a predominant role for positivist approaches within EIA.

In 1999, the IAIA, deemed by many to be the premier international organization in the field of EIA, published the Principles of Environmental Impact Assessment Best Practice which identified 14 basic best practice principles that the IAIA considers applicable to all stages of the EIA process (Table 1). The principles are intended as a reference tool by those who are professionally active in the field of EIA, and carry the objective of promoting effective EIA practice consistent with the institutional and process arrangements for EIA that exist around the world (IAIA, 1999). The principles were created by a working group of professional EIA experts from developed and developing countries and were open to comment by a broad range of IAIA practitioners. These 14 principles are intended to be applied to the EIA process as a single “package,” though the IAIA is conscious that in some cases, the principles, while interdependent upon one another, may conflict (e.g. rigour vs. efficiency). The IAIA therefore advocates a balanced approach in the application of the principles.

IAIA Basic Principles of EIA Best Practice	Description
Purposive	EIA should inform decision makers and result in environmental protection.
Rigorous	The EIA process should apply best practicable science and appropriate methodologies.
Practical	EIA should result in outputs which assist in decision making and are acceptable to all involved stakeholders.

(continued)

(Table 1 continued)

Relevant	EIA should provide sufficient, reliable and useable information for decision making.
Cost-effective	The EIA process should achieve its objectives within the limits of available resources.
Efficient	The EIA process should impose the minimum cost burdens (financial and time) on proponents and participants while meeting accepted requirements and objectives of EIA.
Focused	The EIA should be concentrated on significant impacts and key issues that need to be taken into account by decision makers.
Adaptive	EIA should be adapted to the realities, issues and circumstances of the proposals under review without compromising the integrity of the process.
Participative	The process should provide appropriate opportunities to inform and involve interested and affected stakeholders, and their inputs and concerns should be incorporated in the EIA documentation and decision making stage.
Interdisciplinary	Appropriate techniques and expertise in the relevant disciplines, including use of traditional knowledge where relevant, should be employed.
Credible	The process should be carried out with professionalism, fairness, objectivity, and balance.
Integrated	EIA should address the interrelationships of all social, economic and biophysical aspects.
Transparent	The process should have clear, comprehensible requirements for EIA content, ensure public access to information, identify the factors what will be considered during decision making, and acknowledge limitations.
Systematic	The process should result in full consideration of all relevant information on the affected environment, proposed alternatives and the necessary mitigation and monitoring measures.

Table 1. IAIA Basic Principles of EIA Best Practice (IAIA, 1999)

2.2 Stages of the EIA Process

EIA is described as an “anticipatory, participatory, integrative environmental management tool which has the ultimate objective of providing decision-makers with an indication of the likely consequences of their decisions relating to new projects, programmes, plans or policies” (Wood, 2003a:xvii). In order to achieve its objective, the EIA process must be carried out with the goals of ensuring a participative process and that the potential significant adverse environmental, social and economic impacts are avoided or adequately mitigated or offset. The EIA process should be applied as early as possible in the project

life cycle. Figure 2 presents a schematic overview of the typical EIA process. A description of the general stages of the EIA process follows.

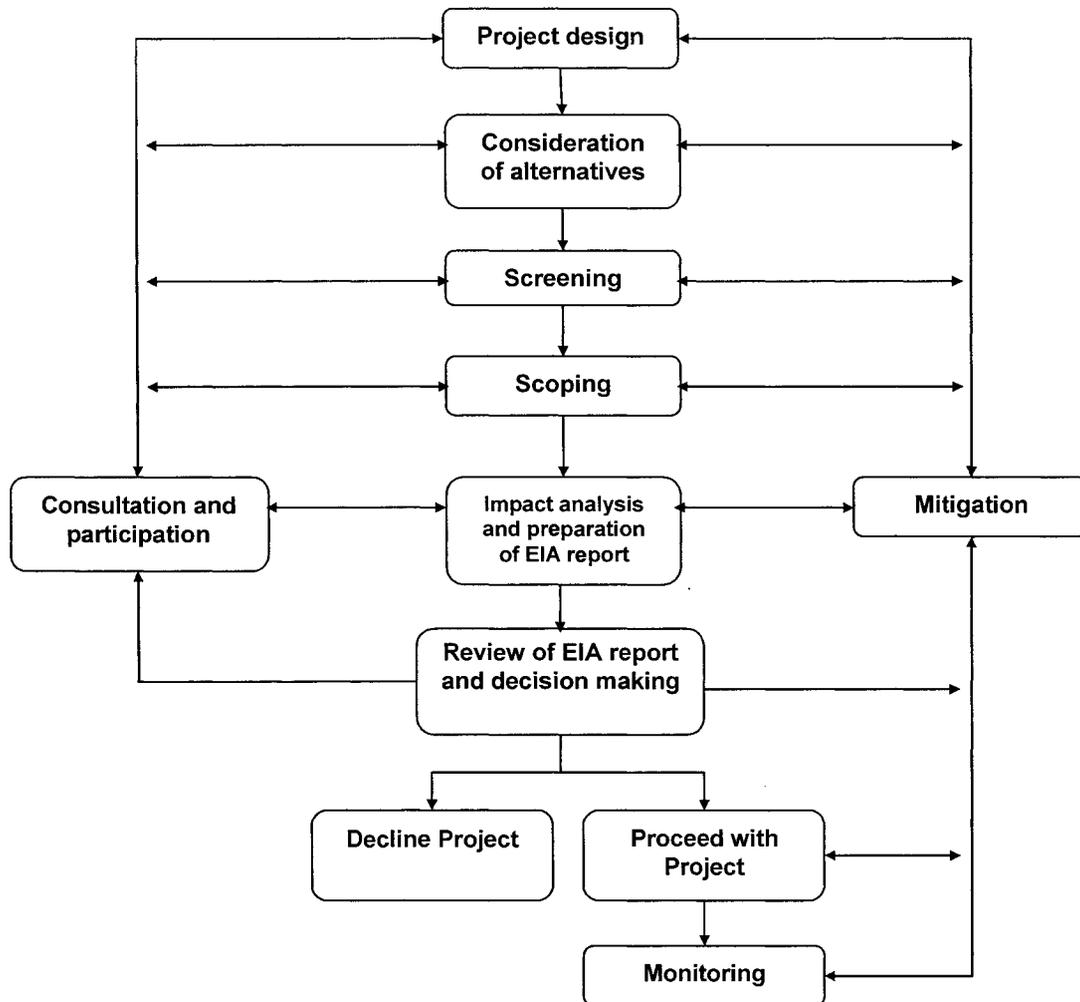


Figure 2. Schematic overview of the EIA Process (adapted from Wood, 2003:7)

Consideration of alternatives: Alternatives to the proposed project, including the “no-go” scenario in which the status quo is assumed without the proposed project and alternative ways of achieving the proposal’s objective (such as alternative

technologies, location, design or scale) must be considered in order to assess the merits of a range of options and then identify an effective way of meeting the purpose and need of the proposal.

Screening: Based on the significance of the potential environmental impacts of a proposal, screening is undertaken to determine whether or not an EIA is required for a proposal and to determine the level of detail required. Determining significance during screening is commonly achieved by comparing a detailed proposal description against an established list of project types, actions, thresholds and criteria to determine which should be assessed (Wood, 2003a). The screening stage can either recommend that a proposed development proceed without further environmental assessment, or it may result in a requirement for a more thorough evaluation to be undertaken prior to proceeding with the proposed development.

Scoping: Scoping is undertaken in order to identify the relevant issues that require further study in the EIA as well as the boundaries (e.g. temporal and spatial boundaries) of the EIA. At this stage, the Terms of Reference (TOR) are typically prepared in order to provide guidance and specify the requirements of the EIA. Some EIA systems issue TOR to define the guidelines for the EIA process, the issues to be covered and the depth of analysis that is required (UNEP, 2002). Scoping and the preparation of a TOR are intended to ensure that resources are concentrated towards collecting the relevant information for

decision makers and are not wasted on undertaking excessive or irrelevant analyses (UNEP, 2002).

Impact analysis: The potential environmental, social, economic and other related impacts, including cumulative and indirect impacts, of the proposal should be identified and evaluated with respect to their potential significance (positive or negative). The significance of potential impacts is typically determined throughout the EIA process via consideration of a number of factors such as the following:

- The direction of change in relation to baseline conditions (e.g. positive or adverse change);
- The magnitude of the potential impacts (e.g. inconsequential versus catastrophic impacts);
- The geographic extent of the potential impacts (e.g. localized versus transboundary impacts);
- The duration of potential impacts (e.g. short term versus long term and/or frequent impacts);
- The degree of irreversibility of potential impacts;
- The ecological context of the potential impacts (e.g. impacts to endangered species or ecologically sensitive areas such as coral reefs);
- The social and economic context of the potential impacts (e.g. impacts to human health or safety); and
- The level of environmental impacts in comparison to environmental standards, guidelines or objectives (e.g. air quality standards) (CEAA, 2000; Sadler, 1996a; UNEP, 2002; Wood, 2003a).

The degree of uncertainty associated with environmental impact predictions must also be addressed throughout the EIA process. For example, the probability of the occurrence of predicted impacts and the level of confidence attributed to predictions should be evaluated within the EIA process. The degree

of uncertainty of the conclusions of the EIA is an important consideration for decision makers.

The interpretation of significance will involve judgements based on the data, expert opinion, public opinion, standards and thresholds considered in the assessment process (CEAA, 2000). The interpretation of significance will involve a determination of the acceptability of the degree of change that will result from the potential impacts of the proposal in comparison to existing baseline conditions.

Mitigation: This stage of the EIA process should identify the measures required to avoid, minimize or mitigate potential significant adverse impacts. Where further mitigation is not feasible, compensation measures should address unavoidable and unacceptable adverse residual impacts.

Preparation of an EIA report: An EIA report should organize the information obtained and the results of the EIA process that will (i) enable the proponent to manage the impacts of the proposed project, (ii) present the relevant information to key decision makers, and (iii) assist the public in understanding the potential impacts of the proposed project (UNEP, 2002). The typical content and structure of an EIA report is examined in further detail in section 3.2.

Review of EIA report by decision-makers: The results of the EIA should be used to inform the decision-making process in order to promote environmentally-sound

decisions, though the EIA may only be one of the inputs considered by decision makers. Other factors, such as political, social and economic priorities and cost-benefit issues must be considered alongside the environmental aspects of a proposal. As final project approvals are typically political decisions, decision makers will normally include governmental authorities at the municipal, regional and/or national levels (UNEP, 2002). The project proponent can also be considered to be a relevant decision maker as a series of interim decisions regarding the project proposal must be made throughout the EIA process, such as decisions regarding preferred alternatives and design specifications (UNEP, 2002).

The conclusions of an EIA report should be used by decision makers to determine if the potential environmental impacts of a proposal are acceptable and if the proposal should receive approval. If the conclusions are deemed unacceptable, decision makers must decide whether to reject the project proposal or whether the project must be redesigned.

Monitoring: Monitoring during the implementation of a project and after project completion must be undertaken to verify the conclusions of the EIA, address any unforeseen impacts, ensure that impacts are properly mitigated and ensure that the conditions attached to a project approval are met. Monitoring requirements and commitments are typically defined by the project's environmental management plan (EMP) and/or by the conditions of the project's approval.

Public consultation and participation: Public consultation and participation should be undertaken to ensure that the views of affected stakeholders are included in the EIA process. The EIA process should be considered iterative and incorporate feedback throughout the process (Morris et al. 1995). Accordingly, it is important that public consultation and participation occur throughout the EIA process at appropriate stages and that the scope of public involvement be commensurate with the significance of the social impacts on public stakeholders (UNEP, 2002). Public consultation should commonly occur during the scoping stage and during EIA report review, however for certain projects, such as those that are large-scale and/or will have significant adverse environmental or social impacts, it may be appropriate to also solicit public involvement during the screening, baseline collection, impact analysis, and mitigation design stages (UNEP, 2002).

EIA Effectiveness

EIA literature provides numerous case studies of the evaluation of the effectiveness of environmental assessment (Egler, 1998; Ehrlich, 1998; IDB, 2001a; Sadler, 1996a). Typically, the effectiveness of EIA is judged according to the extent to which the EIA process has achieved its intended objective. EIA effectiveness is therefore defined for the purposes of this study as the degree to which the EIA process has achieved the intended objective of improving the quality of decisions regarding proposals. Sadler (1996a) notes that concern with effectiveness is an overarching and integral theme of environmental assessment

theory *and* practice, and that the overall evaluation of performance of an EIA process can only be fully understood and comprehensive when evaluated in relation to the national framework of decision-making in which it operates. UNEP (2002) has provided a definition for determining EIA “performance” as the success of the EIA process as measured by its outcomes and results (e.g. the environmental benefits achieved or the effectiveness of mitigating, avoiding or reducing impacts). Inevitably, evaluation and judgement regarding the effectiveness of an EIA process will be subjective, and context-specific.

2.3 EIA in developing countries

While criticisms of the EIA process in developed countries such as the United States certainly exist, EIA is generally considered successful overall (Alzina, 2001). The majority of developed countries have had decades of experience with EIA and have consequently had time to refine the process and adopt additional elements to improve effectiveness and efficiency as EIA experience accumulates. Developing countries, on the other hand, have generally experienced poorer EIA performance compared to developed countries (Alzina, 2001). Environmental issues are often not as competitive in comparison to other priority issues such as macroeconomic stabilization and poverty reduction within developing countries (Gutner, 2002). While such socio-economic issues remain a priority, environmental issues are gaining importance and developing countries are generally placing greater emphasis upon environmental protection.

EIA literature identifies a number of weaknesses and inefficiencies that are commonly experienced in developing countries. Barrow (1997) relates these challenges to some of the fundamental issues that developing countries experience with regard to social, economic and cultural factors, including the following: institutional weakness, such as corruption and frequent changes in government; higher levels of illiteracy and basic unfulfilled human needs; inadequate public services and trained human resources; and a generally higher prioritization of economic growth in comparison to environmental protection. Figure 3 provides an overview of some of the key challenges that developing countries generally experience with respect to effective implementation of EIA.

- *Weak legal basis for EIA:* The legal basis for EIA may be weak or non-existent. Implementing regulations may be non-existent or may impose unrealistic requirements. Implementing agencies are often young, under-funded, lack political authority and frequently operate in an environment where sharing of information is deficient.
- *Inconsistent application and coverage of EIA:* Screening of proposals is commonly weak and demand for EIA may be limited. EIAs may not be required unless development agencies are involved in a proposal and therefore exert their own requirements for EIA.
- *Insufficient consideration of alternatives:* The analysis of alternatives to the proposal is commonly weak.
- *Poor quality EIA reports:* The quality of EIA reports prepared within developing countries has generally been substandard compared to EIA practice in developed countries. Alternatives analysis, presentation of relevant baseline data, impact analysis and prediction, and attribution of significance are identified as some of the most common areas of weakness.
- *Weak EIA review and decision-making:* The review stage may be poorly conducted or nonexistent in some countries.
- *Weak or non-existent mitigation and monitoring:* Mitigation measures outlined in the EIA and EMP are not always undertaken. Monitoring by governmental officials is

identified as a serious shortcoming, and is largely attributed to insufficient financial and human resources.

- *Minimal participation:* Public participation may largely be informative in nature rather than truly participative. Public input may be sought in order to meet a “checklist” requirement but may have little overall impact on the EIA process and resulting decisions. Public consultation is often inequitable and unrepresentative, and, in some cases, may not be considered culturally appropriate. (continued)

(Figure 3 continued)

- *Benefits and costs of EIA systems:* The financial costs of EIA and the delays that are incurred as a result of the EIA process are viewed as burdensome to project proponents.

Derived from: Alzina, 2001; Barrow, 1997; Biswas et al. 1987; IDB, 2001a; Wood, 2003b.

Figure 3. Overview of common challenges regarding effective EIA in developing countries

EIA in Latin America and the Caribbean

The need to effectively apply the EIA process in developing countries is apparent, and Latin American and Caribbean countries (herein LAC region) have followed the example of developed countries in establishing EIA systems. A study of EIA systems in the LAC region, conducted by Alzina (2001), concluded that a diversity of methodologies exists in the application of EIA systems within the LAC region. Overall, the study concluded that the institutional foundations of EIA, its laws, principles and administrative procedures are reasonably well established in the LAC region; however, not all EIA systems in the region were found to perform equally well and several shortcomings were evident. For example, a brief analysis of Barbados concluded that although 17 of the 33 key elements deemed to comprise an effective EIA system were not met (e.g.

monitoring and enforcement), overall, the Barbadian EIA system was performing satisfactorily based on a quantitative analysis of various EIA performance criteria.

Of equal interest is a study issued by the Inter-American Development Bank (IDB) (2001a) entitled "Review of Environmental Impact Assessment in Selected Countries of Latin America and the Caribbean," which focused on 26 countries in the LAC region. Overall, the study concluded that while 24 of the 26 countries were found to have formal, operative EIA requirements in place, EIA has still not been sufficiently consolidated and requires further modification to achieve greater effectiveness in environmental decision-making and protection in the LAC region (IDB, 2001a).

Chapter 3: The Research Framework

3.1 Overview of the EIA evaluation framework

This analysis of the strengths and weaknesses of the EIA process in Barbados employed the four-stage evaluation framework presented in Figure 4. The framework starts by establishing a set of international benchmarks for EIA process and outcomes in developing countries, followed by a review of the context for EIA process and outcomes in Barbados. The assessment of strengths and weaknesses was based on a comparative analysis of the first two components and this also helped identify opportunities to address identified weaknesses in EIA process and outcomes in Barbados. Overall the research objectives identified in section 1.3 are mapped onto the evaluative framework outlined in Figure 4.

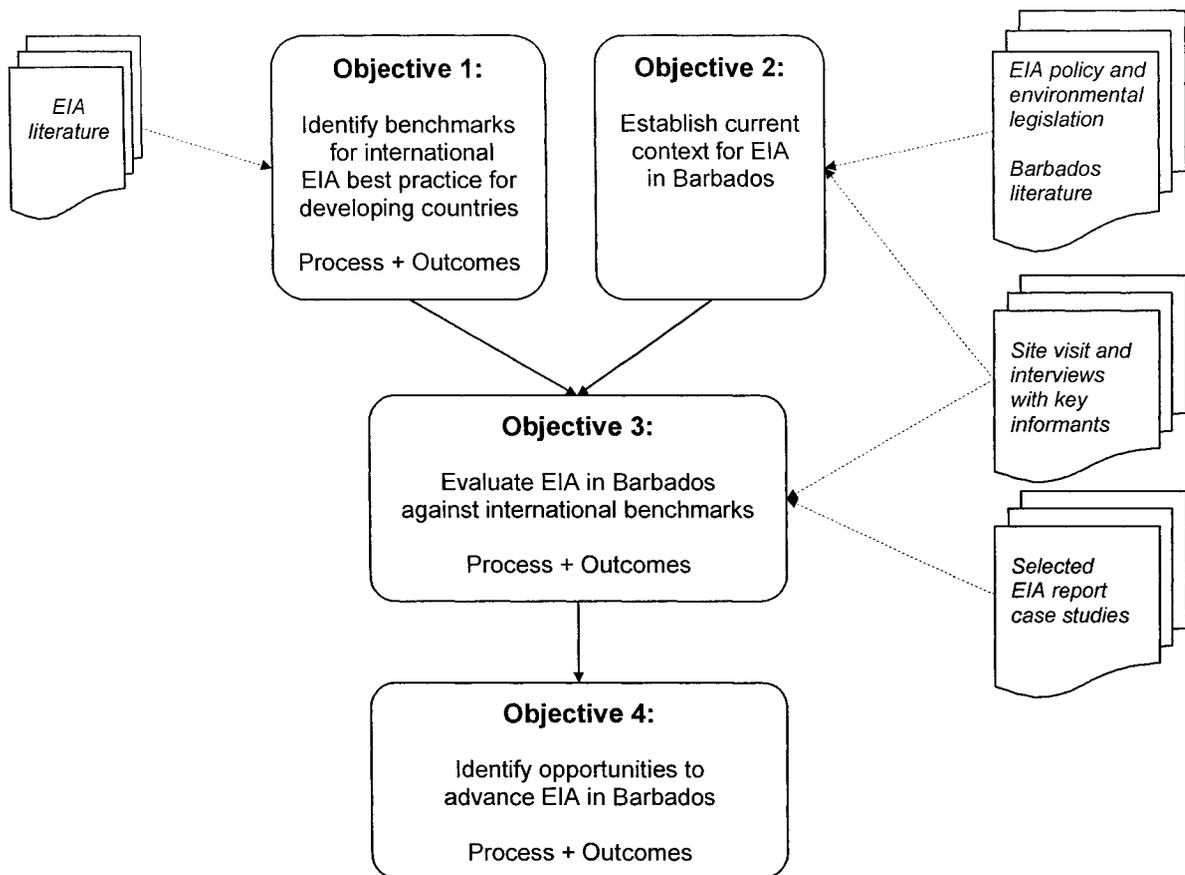


Figure 4. Schematic overview of the research framework.

3.2 Selected EIA frameworks for comparative analysis

According to Sadler's International Study of the Effectiveness of Environmental Assessment (1996a), the application of theoretical norms to a particular EIA system is a widely used prescriptive method of evaluating the effectiveness of EIA. This evaluative approach is subjective, and subject to the following qualifiers: (i) the EIA process operates in an open-ended, decision-making context; (ii) it is influenced by the actions of numerous participants; (iii) the outcomes of the process are not always clear or apparent; (iv) in these

circumstances, cause-effect relationships cannot be measured or quantified; and (v) proponents and opponents of EIA often interpret differently the utility of the process (Sadler, 1996a).

The international benchmarks employed in this study have been selected from theoretical norms embedded within EIA literature and the norms established by international EIA practice. Two key components comprise the comparative analysis framework: Wood's (2003b) criteria for evaluating performance of developing country EIA systems and the Environmental Assessment Harmonization Model currently proposed by the Multilateral Financial Institutions Working Group on Environment (MFI-WGE) (2003). Wood's criteria and the MFI-WGE model were selected as the benchmarks against which EIA process and outcomes in Barbados are assessed for several reasons. Firstly, each of the frameworks has incorporated the expertise of international EIA professionals from various types of institutions (e.g. multi-lateral development banks, academics, consultants). Secondly, each of the frameworks is current within EIA literature; the frameworks were published within the past three years. Finally, both frameworks are highly relevant and applicable to the context of EIA in developing countries. Wood's criteria are intended to evaluate EIA in developing countries and the MFI-WGE framework is intended to provide a common framework for EIA requirements for public and private sector projects that are receiving support from the member institutions. The following presents a description of the main components of each of the comparative analysis frameworks that will be used to assess EIA process and outcomes in Barbados.

Wood criterion for evaluating the EIA process in developing countries

A paper prepared by Wood (2003b) that stemmed from the November 2003 Conference on “New Directions in Impact Assessment for Development: Methods and Practice” is applied within this research as the key benchmark for evaluating EIA processes in developing countries. Wood’s study is the culmination of a review of EIA literature as well as over 100 interviews with various international agency officials, governmental officials, academics and research groups, industry and consultant representatives, and NGOs from various countries around the world. The study establishes 14 evaluative criteria for assessing the performance of EIA systems in developing countries that are based on the objectives of EIA and the stages and operation of the EIA process (Table 2). Included in Table 2 is a brief summary of how Wood’s study concluded the “average developing country”³ typically compares against the criteria. It must be noted that Wood asserts that there may be exceptions to the inevitable generalizations involved in forming the judgements regarding the average developing country.

³ Wood (2002b) does not further define the characteristics of the “average developing country.”

Criteria for EIA in Developing Countries	Comparison of the “average” developing country
Is the EIA system based on clear and specific legal provisions?	Legislation rarely specifically provides for a clearly defined EIA process that is integrated into other decision making procedures.
Does the screening of actions for environmental significance occur?	Existing lists of activities, thresholds and criteria often allow considerable discretion.
Must the relevant environmental impacts of all significant actions be assessed?	Highly significant projects are often covered but EIA is not always implemented.
Must scoping of the environmental impacts of actions occur and the production of specific guidelines be produced?	Scoping, especially a scoping process which involves the public, is rare.
Must the impacts of reasonable alternatives be demonstrated?	Alternatives, including the “no-go” option and the environmentally preferable alternatives are often not considered.
Are there prescribed content requirements for EIA reports and are checks to prevent the release of inadequate EIA reports performed?	EIA reports are often designed to meet developing agency requirements. Few checks exist.
Must EIA reports be publicly reviewed and are proponents required to respond to the points raised?	EIA report review is weak but improving. It is rare for proponents to respond to points raised and the public is often not involved.
Are consultation and participation required prior to, during and following EIA report publication?	Formal requirements in both scoping and review are frequently absent.
Must the mitigation of impacts be considered throughout the EIA process?	Implementation in practice is often unsatisfactory.
Are EIA findings a central determinant of the decision (i.e. does the EIA influence the decision)?	Although EIA theoretically influences decisions, this is rare in practice.
Is project monitoring a requirement?	There are few specific requirements relating to monitoring and comparison against existing conditions. Monitoring requirements are rarely put into practice.
Must the EIA system be monitored and, if necessary, be amended to incorporate feedback from experience?	EIA system monitoring is almost completely absent but modifications to procedures occurs as experience is gained, or under developing agency pressure.

(continued)

(Table 2 continued)

Criteria for EIA in Developing Countries	Comparison of the “average” developing country
Are the financial costs and time requirements of the EIA system acceptable to those involved and are they believed to outweigh the discernable environmental benefits?	Financial aspects not evaluated due to data limitations. Many criticisms that the time consumption of the EIA process outweighs its benefits and leads to increased costs.
Does the EIA system apply to programmes, plans and policies, as well as to projects (i.e. does the system employ the use of strategic environmental assessment (SEA)?	Some SEA may occur as a result of encouragement by development agencies.

Table 2. Criteria for assessing EIA policy in developing countries (source: Wood, 203b)

Wood’s criteria for assessing the performance of EIA in developing countries will be employed in Chapter 5 as the benchmark for comparative analysis of the EIA process in Barbados. It is argued that Wood’s criteria are highly relevant for the purposes of evaluating the Barbadian EIA process as they were derived with the widespread participation of numerous international EIA experts and professionals. Further, Wood’s criteria are tailored specifically to the requirements and operation of the EIA process in developing countries.

MFI-WGE framework for evaluating EIA report quality

The model against which the quality of EIA reports from Barbados will be evaluated is derived from the Common Framework for EIA recently developed by the MFI-WGE to establish a Common Framework for environmental assessment requirements across member institutions. Most relevant for the purposes of this research is the component of the Framework that addresses EIA report content. Nine elements are proposed for inclusion within an EIA and the Framework

provides a description of the expected content for each EIA report element against which the content of EIA reports from Barbados will be assessed.

Member multi-lateral financial institutions of the MFI-WGE include multi-lateral development banks (MDBs) such as the World Bank, Inter-American Development Bank, and the Caribbean Development Bank, three development agencies that finance development projects in Barbados. Other member institutions include the Asian Development Bank, the African Development Bank and the European Bank for Reconstruction and Development. This is of particular relevance to the context of EIA within developing countries as MDB donor agencies are frequently involved in projects in developing countries and therefore have the ability to exert influence upon, and provide guidance to, national EIA systems (Gupta *et al.*, 1998). Of further relevance is the fact that the MFI-WGE Common Framework is intended to promote EIA as a cooperative process, to encourage best practice EIA, and to be used as a basis for capacity development within host countries (MFI-WGE, 2003). Also, the MFI-WGE Common Framework was published in 2005 and arguably represents the most current, comprehensive guidance document on EIA in an international context. Therefore, it is argued that the MFI-WGE Common Framework is a relevant model from which to derive evaluative criteria for best practice EIA report quality in developing countries, and that the framework is considered sufficiently robust for the purposes of evaluating the quality of EIA reports from Barbados.

In comparison to the EIA process criteria put forward by Wood, the MFI-WGE Common Framework is more tailored towards outlining the EIA outcomes

that must be achieved by developments in the public and private sectors in recipient countries. The Common Framework is based on the principles and approaches to EIA common to most multi-lateral financial institutions. The specific framework that will be employed for evaluating EIA report quality in this study is presented in Table 3.

Number	EIA report content element	Content description
1	Executive summary	A non-technical summary of the analysis, main findings and recommended actions relating to the project's environmental and social feasibility are presented.
2	Project description	The purpose(s) of the project is described and a concise description of the proposed operation, including maps of the project site and area of influence are presented.
3	Policy, institutional, and legal framework	A discussion of the policy, institutional and legal environmental and social framework associated with the project, including any project-specific legal or other requirements are presented.
4	Analysis of alternatives	Project alternatives are described and evaluated, and the justification for the preferred proposal is stated.
5	Baseline data	A description of the existing environmental and social conditions that are relevant to project decision-making, both at the proposed project site(s) and within its area of influence, is provided.
6	Impacts and risks	The direct and indirect environmental and social impacts and risks, including benefits, are analysed. The quality of available data and key information gaps are evaluated.

(continued)

(Table 3 continued)

Number	EIA report content element	Content description
7	Management plan	The options and recommendations to prevent, avoid, reduce, mitigate, eliminate or compensate for any adverse impacts of the proposal are presented. Mechanisms for including the recommendations into the project design are incorporated, including schedules, assignment of responsibility, and budgets for the environmental and social impact management measures. Provisions for capacity building are incorporated when institutional capacity is not sufficient to carry out the key activities. ⁴
8	Monitoring	The monitoring, reporting and evaluation of requirements throughout the project's lifetime are presented.
9	Consultation	The report includes an adequate record of the public consultation process and a summary of the results of consultation with affected groups is presented.

Table 3 Framework for evaluation of EIA practice via EIA report quality (derived from MFI-WGE, 2003)

It is noted that the MFI-WGE Common Framework also lists several impact assessment elements that, while not presently common to all multi-lateral financial institutions, will in future be incorporated into the MFI-WGE Common Framework for EIA. These potential issues for consideration include cumulative effects, induced (secondary or delayed) impacts outside the immediate project area, and the analysis of associated project facilities.

⁴ Capacity building is listed as a separate element in the MFI-WGE model, but it has been incorporated into the EMP section in the above table.

3.3 Implementing the Research Framework

3.3.1 Data collection and analysis

The methodological approach to this study draws on triangulation by establishing the accuracy and integrity of information and conclusions by comparing different types of information sources. According to Roe (1998), triangulation is highly appropriate when undertaking research into a complex issue where uncertainty may be high, such as topics pertaining to the environment and sustainable development. Roe (p.86) notes that triangulation is particularly helpful in identifying and compensating for biases and limitations in any one method or data source. This research therefore employs a range of data gathering methods that were primarily qualitative in nature, consisting of interviews with key EIA informants, a review of a collection of secondary sources, and direct observation. Each of the data gathering methods is discussed in further detail as follows:

Interviews

The interview method employed in this research was defined as “an interaction between an interviewer and respondent in which the interviewer has a general plan of inquiry but not a specific set of questions that must be asked in particular works and in a particular order” (Babbie, 1989:270). This method enables the researcher to adapt questions and to employ follow-up questions that best explore the interviewee’s expertise on the subject matter. However, in order to guide the general subject matter of the interviews, sample lists of

questions were devised in order to guide discussions with interviewees from various institutional groups (e.g. academia, governmental, consultants, etc.). Lists of questions that were used to guide interview discussions are included in Appendix 1.

Key informant interviews are one of the primary sources of data pertaining to the EIA process in Barbados. Interviewees were originally identified during an EIA literature review and additional interview candidates were identified via the snowball method whereby key interviewees were asked to identify additional useful interviewees regarding the subject matter. A total of twenty participants were interviewed, and several of these candidates participated in one or more follow-up interviews. Interviews were conducted at a time and location convenient to each participant and interviews were recorded in note form. Most interviews took place in-country during a three-week research trip; other interviews, as necessary, were conducted over the telephone. Table 4 presents a list of key informants contacted, whether they agreed to be interviewed, when interviews took place, and the type of interview.

Sector / Name of Participant	Participant Title	Agency	Status / Date	Mode
Government				
Geena Patrick	Town Planner	Town and Country Development Planning Office	Completed 05/12/05 09/08/05	Personal and telephone
Rudy Headley	Town Planner	Town and Country Development Planning Office	Completed 09/06/05 09/07/05	Personal (x 2)
Trevor Leach	Deputy Chief Town Planner	Town and Country Development Planning Office	Incomplete	N/A

(continued)

(Table 4 continued)

Sector / Name of Participant	Participant Title	Agency	Status / Date	Mode
Government				
Mark Cummins	Chief Town Planner	Town and Country Development Planning Office	Incomplete	N/A
Donna King	Environmental Officer	Ministry of Health, Lands and Environment: Environment Division	Completed 09/02/05	Personal
Gayle Drakes	Environmental Officer	Ministry of Health, Lands and Environment: Environment Division	Completed 09/02/05	Personal
Lionel Nurse	Permanent Secretary	Ministry of Health, Lands and Environment: Environment Division	Incomplete	N/A
Allison Wiggins	Coastal Planner	Coastal Zone Management Unit	Completed 09/13/05	Personal
Lisa Stenhouse	Environmental Officer	Environmental Protection Department	Completed 09/09/05	Personal
Consulting				
Justin Jennings-Wray	Consultant	Stantec	Completed 09/01/05	Personal
Yolanda Aleyenne	Consultant	Eco Isle Consulting	Completed 09/06/05	Personal
Richard Gill	Consultant	Richard Gill & Associates	Completed 09/07/05	Personal
Billy Bian	Consultant	Richard Gill & Associates	Completed 09/07/05	Personal
Wendy Walker-Drakes	Consultant	EcoLink Consulting	Completed 09/12/05	Personal
Private sector				
Brian Reece	Environmental, Health and Safety Officer	Barbados Light & Power Co.	Completed 09/13/05	Personal
Roger Blackman	Senior Planning Engineer	Barbados Light & Power Co.	Completed 09/13/05	Personal
Andrea Jordan	Plant Chemist	Barbados Light & Power Co.	Completed 09/14/05	Telephone
Jimmy Kidd	Director of Golf	Sandy Lane Golf Club	Completed 09/06/05	Personal
Philip Johnson	Operations Manager	DesalCo (Barbados) Ltd.	Completed 09/06/05	Personal
Other				
Janice Cumberbatch	Professor and Consultant	University of the West Indies	Completed 05/13/05 09/12/05	Personal and telephone
Kemraj Parsram	Technical Officer	Caribbean Conservation Association	Completed 09/12/05	Personal

(continued)

(Table 4 continued)

Sector / Name of Participant	Participant Title	Agency	Status / Date	Mode
Other				
Cheryl Dixon	Operations Officer	Caribbean Development Bank	Completed 05/11/05 09/08/05	Personal and telephone
Yuri Chakalall	Senior Development Officer	Canadian High Commission (Barbados)	Completed 08/30/05	Telephone

Table 4. Overview of interview participants

Secondary Sources

A variety of secondary sources were utilized in this research, including journal articles, books, “grey” literature (e.g. informal publications published by multi-lateral development banks, Barbados governmental department pamphlets, and unpublished reports by consultants), and internet-based information. Secondary sources were identified on the basis of their relevance to the subject matter of EIA in developing countries and EIA process and outcomes in Barbados.

Secondary sources were used to identify internationally-accepted EIA best practice criteria in a developing country context. Secondary sources were also used to develop an understanding of the current capabilities and constraints of Barbados in addressing environmental issues via an examination of its political, economic and social context.

EIA reports that have been prepared under the national EIA process were also evaluated in order to assess EIA outcomes in Barbados. The four EIA reports were obtained from project proponents who were identified either through the interview process or within secondary sources of information. Where gaps in

documentation were identified, consultants were contacted directly to provide additional information where possible. The four EIA reports span four sectors over a five-year period and were written by three consulting firms that regularly conduct EIAs in Barbados. While these reports do not constitute a representative sample of all EIAs conducted in Barbados over the past five years, they are considered to provide a foundation for reviewing and appraising the quality of EIA reports generated within Barbados. The evaluation of EIA report quality was conducted via comparison to the MFI-WGE EIA report content framework, previously described in section 3.2. Table 5 provides a summary of the EIA reports evaluated in Chapter 5.

Project Description	Sector	Report Type	Report Date	Author
Greenfield petroleum distribution project	Oil and gas	EIA	April 2003	AMEC Earth and Environmental Ltd.
Thermal power plant generating station expansion	Power generation	EIA	December 1994	AGRA Earth and Environmental ⁵
		EIA Addendum	December 2001	EIA Addendum: AMEC Earth and Environmental Ltd.
Limestone quarry expansion	Mining	EIA	July 2001	Richard Gill & Associates; Associated Consulting Engineers Ltd.; Dr. Hugh Sealy
Greenfield clay pigeon shooting facility	Recreation	EIA	July 2001	Richard Gill & Associates

Table 5. Summary of Barbados EIA reports evaluated in Chapter 5

⁵ AGRA Earth and Environmental Ltd. is now known as AMEC Earth and Environmental Ltd.

Ideally, the assessment of EIA outcomes would involve a comparison of environmental quality before and after the implementation of a project. This is not possible here for the following reasons: (i) there may be an absence of reliable baseline information; (ii) there is an absence of sufficient information on post-project implementation monitoring; and (iii) there may be an unsuitable time period between project implementation and the present to observe environmental quality changes. Hence the assessment of EIA outcomes is confined to reviewing and appraising EIA reports relative to the criteria established in Table 3. Accordingly, this represents an assessment of EIA outcomes which provides insight at a relatively early stage in the EIA process.

Direct Observation

Where possible, field visits were made to different projects that had been subject to the Barbadian EIA process, including a golf course, a reverse osmosis desalination plant, and a power facility. These site visits were made in order to gain a better understanding and personal awareness of the project components and their relevant environmental issues, as well as to meet with and interview relevant project staff (including follow-up meetings with consultants) who were responsible for the environmental approval process for the various projects. Observations were recorded in note form and through photographs. The site visits afforded greater understanding of the practical applications of the EIA process as well as a greater understanding of the challenges faced by various project developers/planning applicants.

3.3.2 Scope of the Research

Limitations in access to information and the need to maintain the confidentiality of research participants posed significant challenges to the research. With respect to access to information, EIA reports are only made available through the Town and Country Development Planning Office (TCDPO) during a 28-day public review period at the TCDPO departmental office. Access to previously approved EIA reports or EIA reports that were no longer subject to the 28-day review period is extremely limited, and requires a lengthy approval process by the TCDPO and the project developer in order to obtain access. The TCDPO does not publish a list of EIA reports so projects that were subject to the EIA process were identified during interviews with key informants, and the developers and relevant consultants were contacted directly to obtain access to EIA reports. Accordingly, the EIA report selection for this research presents only a sample of existing EIA reports. As much as possible, efforts have been made to ensure a breadth of EIA reports has been included in the evaluation. This issue is further addressed in Chapter 5.

The relatively limited number of people working on EIA in Barbados required extraordinary care regarding the protection of confidentiality, in order to encourage participants to offer their true opinions without feeling an obligation to withhold criticisms at the risk of facing penalty or criticism by other parties. It is believed that the lack of references to specific quotations by interview participants is not a major drawback to the results of the research as the researcher sampled several informants and other data sources, across which

there was evident corroboration on several aspects of the EIA process. The informed consent form obtained from each of the interview participants is included in Appendix 2.

Chapter 4: Overview of Barbados

4.1 A short history and environmental background

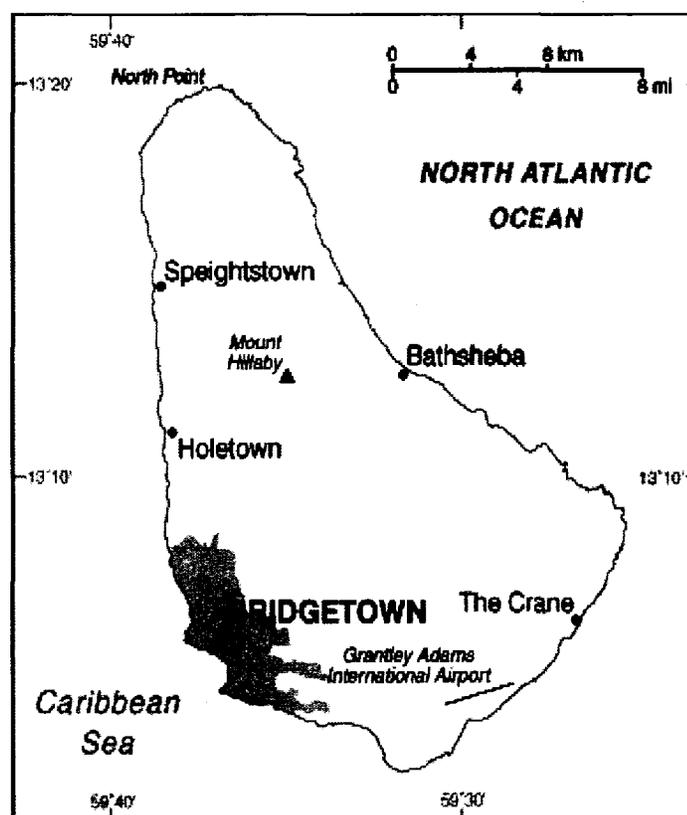
The overall purposes of this section is establish the context for EIA in Barbados and hence a detailed review of Barbados is not warranted, but rather an overview of the historic, geographic, and economic characteristics of Barbados is provided to assist in establishing the general context of Barbados for consideration throughout this study.

Historical overview

Some of the earliest inhabitants of Barbados include Venezuelan Amerindians, Carib Indians, Portuguese and Spanish explorers, though Barbados was formally settled by the British in 1627. The British exploited Barbados' agricultural potential and rapidly deforested much of the island in order to establish tobacco, cotton and sugar cane plantations (BTA, 2005). Barbados remained a plantation colony and sugar production was the predominant economic activity throughout much of the eighteenth and nineteenth centuries. Plantations were originally staffed by white indentured servant labourers from the UK until African slaves were imported by plantation owners to work as labourers. This remained the predominant economic structure until the abolition of slavery in all British colonies in 1834 (Downes, 2001). On November 30, 1966, Barbados obtained independence from Britain, and has since remained an independent member of the British Commonwealth of Nations.

Geography

Barbados, the most eastern Caribbean island, is located to the northeast of Venezuela between the Caribbean Sea and the North Atlantic Ocean (Figure 5). The country experiences a sub-humid climate with an average annual temperature of 26 degrees Celsius. The island, with a total land area of approximately 432 square kilometres, comprises a unique geological structure formed by the collision of oceanic plates and volcanic activity, which is almost completely covered by a terraced, coral limestone “cap” (Waterman, 2003). This limestone cap results in unique cave formations, and a coral rock aquifer system for freshwater supply. The island’s terrain is generally flat along the coast with a more hilly interior region.



Barbados has several small national parks and heritage and marine reserves. These include the Folkstone Park and Marine Reserve on the west coast of the island. Folkstone stretches a distance of 2.2 kilometers and extends up to 950 metres offshore at its widest point (Cumberbatch, 2001). The Reserve has well-developed coral reefs as well as terrestrial habitat for wildlife, including local and migratory bird species (Cumberbatch 2001). The Farley Hill National Park, located at the north of the island, comprises 17 acres and is home to the cultural ruins of the nineteenth century Farley Hill Great House. Recognizing the need for the preservation of the island's environment, places of natural beauty and cultural heritage the Government has established specific departments to carry the mandate of protecting these resources, as described in section 2.1.

Barbados has a relatively small population of approximately 280,000 (CIA, 2005), though it is considered the most densely populated island of the West Indies islands. The island is comprised of 11 parishes (administrative divisions), and the capital city is Bridgetown, located in the Parish of St. Michael. The country's primary language is English and the population's ethnic diversity is comprised of 90% black, 6% Asian and mixed, and 4% white population (CIA, 2005). Barbados has a 99.7% literacy rate and approximately 75% of the population works in the tourism and services sector (CIA, 2005).

Key environmental issues in Barbados

Land degradation and desertification are two environmental issues facing the island (MPDE, 2002). Land degradation and soil erosion have stemmed from

widespread clearing of land for development, the use of non-specific herbicides, and detrimental changes in agricultural practices. Desertification, while not as severe as in other parts of the world, has stemmed from extensive historic deforestation which was undertaken to develop agricultural lands (NCC, 2005). Barbados has a strong need for capacity-building with respect to desertification and drought, including increased funding, personnel and technical training to be able to better address the issues (UNCED, 2002).

As a small island state, there are many competing demands in Barbados for land and other resources (UNCED, 2002). Marine pollution caused by waste disposal and ballast water releases from ships, and illegal and inadequate solid waste disposal contribute to degraded water quality in Barbados. The tourism sector has also tolled heavily upon Barbados' natural environment, causing extensive damage to coral reef systems, coastal erosion and generally placing greater stress upon the island's natural resource base (UNCED, 2002). Barbados' natural beauty, its economic dependence on the tourism sector, and its significant environmental challenges are some of the key environmental issues that support the need for environmental legislation and an EIA process in Barbados.

Economic overview

Barbados is a small open economy and the present day economic structure is quite contrary to the country's historical economic dependence on sugarcane production and related agricultural activities. Dependence on the

tourism sector has increased significantly since the 1950s, and the tourism and services sector currently accounts for over 75% of the Barbadian economy (Ministry of Tourism, 2005; CIA, 2005). Other important sectors are the offshore finance and information services sectors; light industry (manufacturing operations, food and beverage, furniture and clothing, and petroleum production); and some agricultural activity (non sugar-related agricultural activity includes seed cotton, root crops and cut flowers) (CIA, 2005; Central Bank of Barbados, 2005). Barbados' GDP in 2004 is estimated at USD 4.5 billion, which represented a 2.3% growth rate over 2003 (CIA, 2005). The US, the UK, Trinidad and Tobago are Barbados' primary trade partners.

The tourism sector in Barbados is the leading foreign exchange earner and the leading source of employment in the country. In 2000, a total of 544,696 tourist arrivals were recorded in Barbados (Waterman, 2003). In addition, 533,278 cruise ship passengers visited the island in 2000 via 485 cruise ship calls (Barbados Statistical Services, 2003; Waterman, 2003). Approximately half of tourists in Barbados are from the UK, 20% are from the US and 11% from Canada (Waterman, 2003). The Barbadian Ministry of Tourism, in its most recent Policy Framework for Sustainable Development of Tourism in Barbados (2001), observed that the tourism sector, though a main catalyst for economic development in Barbados, has in the past contributed to the degradation of the island's natural environment. Tourism has significantly contributed to the pollution and erosion of the coastal and marine environment, destruction of coral reefs, and damage to flora and fauna. The Government of Barbados has

recognized the need to conserve its natural environment and is promoting the adoption of “responsible tourism” in recognition of the need to promote balanced and sustainable tourism with a focus on the development of environmentally positive tourism activity.

Political structure

Barbados is a parliamentary democracy closely modeled on the British political system and employs an English common law legal system. As a constitutional monarchy, the Governor General acts on behalf of the monarchy and is responsible for officially appointing the Prime Minister (GOB, 2005). The Prime Minister and the Ministers of Cabinet are collectively responsible to Parliament, which is comprised of the Monarch, a Senate and a House of Assembly. The key political parties are the Barbados Labour Party and the Democratic Labour Party. Local government for each parish was formerly in place until 1969, at which time the functions of the local parish governments were transferred to the central government. While the above has provided only a cursory overview of the political system in Barbados, a more in-depth review of the administrative organization in place to address environmental issues in Barbados is warranted for the purposes of this study.

4.2 Key environmental government departments

Though environmental issues may at times involve several different governmental departments, there are two key departments that are responsible

for regulating environmental issues and the EIA process. These are: the Ministry of Housing, Lands and Environment (Environment Division), and the Town and Country Development Planning Office.

The Ministry of Housing, Lands and Environment (Environment Division)

The Ministry of Housing, Lands and Environment (MHLE) is comprised of its three namesake departments. Of most relevance to environmental issues and the EIA process is the Environment Division, whose primary mission is to promote and facilitate the sustainable use of Barbados' resources by encouraging the involvement of all citizens and the integration of environmental consideration into all aspects of national development planning (MHLE, undated). The Environment Division is divided into five distinct departments: The Coastal Zone Management Unit (CZMU), the Environmental Protection Department (EPD), the National Conservation Commission (NCC), the Environment Unit (EU), and the Environmental Special Projects Unity (ESPU). The structure of the MHLE and the Environment Division is presented in Figure 4. The specific roles and functions of each of these departments, as well as their involvement in the EIA process, are described below.

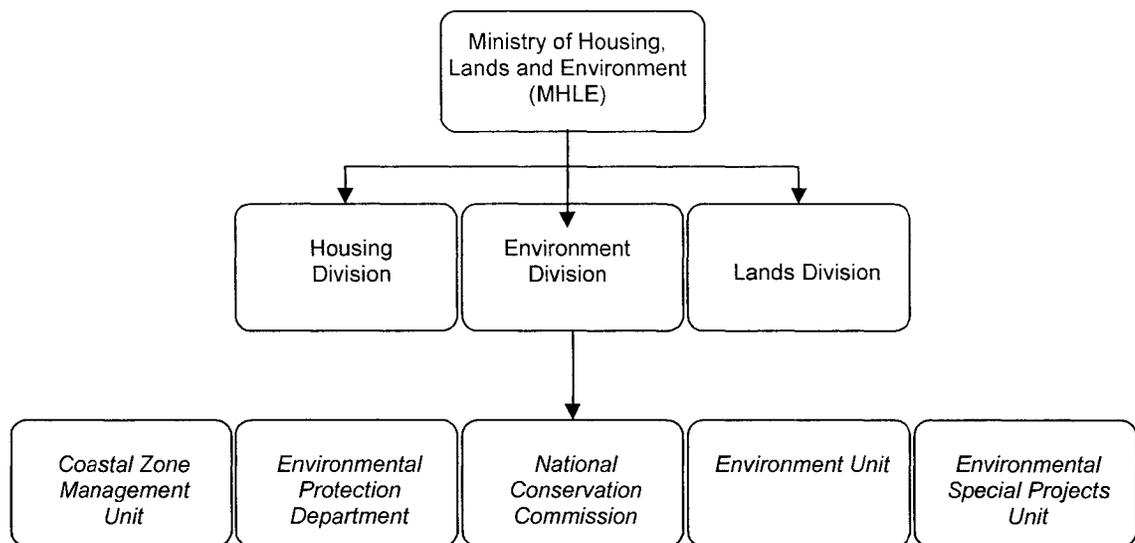


Figure 6. Structure of the Ministry of Housing, Lands and Environment and the Environment Division

Coastal Zone Management Unit (CZMU)

The CZMU is mandated to protect shorelines, conduct tide-level monitoring and coastal research, assess water quality and control beach erosion (MHLE, undated). The CZMU is the lead agency for the protection of coastal habitats, including coral reefs, sea grass beds, mangroves, beaches and cliffs. Further, the CZMU is responsible for assisting in the development of marine parks, reserves and restricted areas (MHLE, undated). The CZMU is comprised of three main sections: marine biology, coastal engineering and planning, and employs approximately 23 staff. When an application that is subject to the EIA process involves a coastal development or may potentially impact the coastal environment, the CZMU is represented on the EIA Review Panel and contributes to the development of the Terms of Reference for the EIA.

Environmental Protection Department (EPD)

The EPD, formerly referred to as the Environmental Engineering Department, is the central regulatory and enforcement department of the MHLE. It carries the mandate of promoting sustainable development through the control, regulation and enforcement to enable future generations to inherit an environment which is healthy, productive and enjoyable (MHLE, undated). The EPD is involved in marine pollution control, air and water quality monitoring and protection, noise pollution control, hazardous material management, and the protection of Barbados' network of natural springs (MHLE, undated). The EPD is involved throughout the EIA process, and contributes to the drafting of the Terms of Reference and participates in the review of EIA documentation. The EPD is responsible for recommending appropriate conditions (e.g. environmental standards, mitigation measures and monitoring) for proposed developments, and for monitoring and enforcing the application of such conditions.

National Conservation Commission (NCC)

Established by an Act of Parliament in 1982, the NCC is a quasi-governmental organization that is mandated to conserve the natural environment of Barbados; maintain and develop public lands and beaches; maintain and develop beach facilities, public beach accesses and provide lifeguard services at relevant beaches; and to develop a network of marine and terrestrial protected areas and heritage sites (NCC, 2005). The NCC is considered a department of the Ministry of Housing, Lands and Environment, though it is unique from other

departments in its ability to generate operating income from its various activities in Barbados. For example, the NCC charges an admission fee for access to national parks, and the NCC operates a commercial landscaping and maintenance department which provides competitive rates to both the public and private sectors. The NCC employs a staff of approximately 1000 employees (NCC, 2005). The NCC does not play a significant role in the EIA process, contrary to the CZMU and EPD, unless a development will impact public lands or beaches and the NCC's involvement is specifically required regarding an application.

Environment Unit (EU)

The EU carries the mandate of helping to make sustainable development a reality in Barbados (MHLE, undated). The EU is responsible for environmental policy development and is considered to be the public awareness department of the MHLE. The EU's policy objectives are focused on issues such as environmental education and public awareness programmes, climate change initiatives, the protection of biodiversity, as well as Barbados' various commitments under international conventions. The EU is directly involved in the EIA process via its participation in Review Panels and through its policy development mandate.

Environmental Special Projects Unit (ESPU)

The ESPU carries the mandate of “bringing together the natural and built environment through the recognition of past ideas and by using them to convert projects into workable prospects” (MHLE, undated). The ESPU works closely with the NCC, and carries out functions such as the development and maintenance of the National Botanical Gardens, development of natural tourism and recreation sites, beautification works for major highways, and the promotion of community and educational programmes regarding the Harrison’s Cave area (ESPU, 2005). The ESPU participates in the EIA process when its involvement is specifically required regarding an application.

The Town and Country Development Planning Office (TCDPO)

The TCDPO was established by law through the *Town and Country Planning Act, Cap. 240* (TCPA) in the 1960s, and is responsible for ensuring compliance with land use and physical development policies through the development control process (CSD, 2002). The TCPA establishes the planning process in Barbados and defines those developments for which an approval is required from the TCDPO prior to initiating the development. The planning process is further described in section 4.3.

The TCDPO is under the authority of the Minister of Economic Affairs, who is also the Prime Minister of Barbados. The TCDPO is comprised of four sections: General Administration; Development Control; Forward Planning; and Enforcement. The Development Control section carries out the main functions of

the TCDPO by reviewing and issuing decisions regarding planning applications. Responsibility within the Development Control section is organized according to five geographic regions, with individual Town Planners and Planning Assistants responsible for applications pertaining to developments in each of the designated regions. The Forward Planning Section is largely responsible for policy-related aspects such as the coordination of amendments to the National Physical Development Plan (NPDP), discussed in section 4.3. The Enforcement section holds responsibility for the enforcement of planning applications and related conditions and issuing certificates of compliance. The Enforcement section is also responsible for responding to public complaints. According to governmental employees, the total staff of the TCDPO is estimated at approximately 73 individuals, including the Chief Town Planner, 3 Senior Town Planners, 5 Senior Planning Assistants, 8 Town Planners, 21 Planning Assistants, and support staff.

The main functions of the TCDPO include: (i) responsibility for the development and implementation of national policy on land use and physical planning in Barbados; (ii) ensuring compliance with relevant land use and physical development policies (e.g. the TCPA and the NPDP); (iii) evaluating applications for new developments for compliance with relevant policies and standards; and (iv) overseeing the EIA process and inter-governmental EIA Review Panels for development applications that require submission of an EIA (UNCED, 2002).

The TCDPO is the main governmental agency with responsibility for implementing the EIA process in Barbados. The EIA process is embedded within

the TCDPO as per the TCPA and related EIA policy within the NPDP. Upon submission of applications for new developments in Barbados, The TCDPO will determine whether an applicant is required to submit an EIA report in support of an application. The TCDPO is also responsible for coordinating EIA Review Panels which are established to facilitate an integrated review of EIA reports by relevant government departments that may have involvement in or relevance to proposed developments. Further detail regarding the EIA process is provided in section 4.4.

4.3 Overview of key environmental legislation and policy

Barbados has in place several pieces of legislation and national plans and policies that address environmental issues. Barbados' key environmental legislation, regulations and policies are summarized in Table 6, followed by a more in-depth discussion of the legislation and policies most relevant to this research.

Environmental Legislation / Policy	Implementing Agency / Division	Date introduced or most recently revised
Legislation		
Town and Country Planning Act	TCDPO	1985
Marine Pollution Control Act	CZMU, EPD	1998
Coastal Zone Management Act	CZMU, EPD	1998
The Beach Protection Act	CZMU	1967
Barbados National Trust Act	Barbados National Trust	1961
Fisheries Act	Fisheries Division	1993

(continued)

(Table 6 continued)

Environmental Legislation / Policy	Implementing Agency / Division	Date introduced or most recently revised
Legislation		
Wild Birds Preservation Act	MHLE, NCC	1979
Barbados Water Authority Act	Barbados Water Authority	1980
Factories Act	Ministry of Labour; MHLE	1984
Pesticides Control Act	MHLE, Ministry of Agriculture	1974
Policy		
National Physical Development Plan	TCDPO, MHLE	1998 (draft only)
Barbados Sustainable Development Policy	MHLE	2004

Table 6. Overview of key environmental legislation in Barbados

Town and Country Planning Act

Land use planning was not controlled in Barbados until the introduction of the *Town and Country Development (Interim Control) Act* (TCPA) of 1959 which established a limited land use control system. The TCPA introduced a more comprehensive system of land use planning upon Barbados' independence from Britain, though the country's system of land use planning remains almost identical to that of the town and country planning process in England (Pugh and Potter, 1998). This similarity is one of a number of examples whereby Barbados has adopted or retained formal policies and administrative structures based on those found in England.

The TCPA and its subsidiary legislation, the Town and Country Development Planning Order of 1972, are the legislative base for the planning application process in Barbados (TCDPO, 2002). Under the TCPA, applications

for developments must be made to the TCDPO, which then reviews proposed plans, conducts a site visit to the proposed location, reviews corresponding documentation and issues final decisions on each application (TCDPO, 2002). During the application review, the TCDPO consults with other governmental agencies as relevant. For example, governmental employees stated that the CZMU is consulted when development applications involve the coastal environment. The TCPA, as noted previously, is central to the EIA process in Barbados as it provides the only existing legal mechanism for EIA. The EIA process is described in further detail in section 4.4.

Barbados National Physical Development Plan

It was not until 1970 that the first National Physical Development Plan (NPDP) was produced by the government in an attempt to establish a formal policy regarding planning and development (the 1970 NPDP came into operation in 1976). Potter and Hugh (1998) observe that there has been a continued maturing of physical development planning in Barbados since the introduction of the first formal NPDP in 1970. For example, a successive NPDP was produced in 1983 (formally adopted in 1988) which focused upon the government's intended goals for urban development planning for the urban corridor of Bridgetown. The NPDP of 1983 also introduced the first (limited) mechanisms for public participation in the country with respect to the planning process in Barbados.

In 1998, the GOB produced an amended draft version of the NPDP, which aimed to “provide a vision for the future growth and development of the Nation by setting out priorities to guide relationships among land use, community facilities and physical infrastructure” (MHLE, 1998:1-1). The 1998 draft NPDP promoted sustainable development as the basic principle around which the plan is designed. To date, the 1998 draft NPDP comprises the Government of Barbados’ general policy framework for the national EIA system. It must be noted that the 1998 draft NPDP is not considered to be legislation or a regulatory instrument; it is the Government’s main policy document for land use planning (MHLE, 1998; UNCED, 2002). The draft 1998 NPDP’s relevance to the EIA process is further examined in section 4.4.1.

Barbados Sustainable Development Policy

The Barbados Sustainable Development Policy was presented to Parliament in 2004. The Policy is intended to promote the development of economic and social capital within Barbados while ensuring the proper stewardship of Barbados’ environmental capital (NCSD, 2004). The Policy aims to address the current weaknesses in the present approach to planning which results in, for example, weak links among the various national plans that are already in place in Barbados (e.g. the NPDP, and the National Economic Plan). The Policy also defines various policy recommendations for sustainable land use and environmental management including specific recommendations for:

- the TCDPO to require EIAs to be conducted and submitted for consideration prior to approving or declining applications made to the TCDPO;
- the development, implementation and enforcement of comprehensive water resources management and regulations and legislation;
- the development of air quality standards that, at a minimum, meet international standards; and
- the development of a comprehensive policy and legislative measures for hazardous materials and chemicals management (NCSD, 2004).

It is envisaged that the Policy will be employed as a framework for the development of concrete action plans by various sectors, businesses, communities and individuals to achieve sustainable development (NCSD, 2004). At this time of this research, interview participants were unaware of any formal action plans or legislative measures that have been implemented to carry out the objectives of the Policy, with the exception of a proposed national Environmental Management Act, discussed below.

Gaps in environmental legislation

As evidenced, Barbados does not presently have in place a single, comprehensive environmental protection law. However, the MHLE indicated that a draft Environmental Management Act has been submitted for consideration by the Attorney General, who is responsible as the principal legal advisor to the government. Given that the legislation has not yet been passed and is not

available for public review, the content of the proposed legislation was not available for review at the time of this study. It is not known when the Environmental Management Act might be passed, though two governmental employees indicated that parliamentary approval could be obtained in late 2006 or 2007.

Currently, one of the other significant gaps with respect to environmental legislation is the absence of regulations regarding air and water quality, noise, waste management and other pollution control standards. Though efforts have been made to establish environmental quality standards under the Marine Pollution Control Act, the MHLE has indicated that the current absence of regulated environmental standards remains one of the EPD's greatest challenges with respect to monitoring and enforcement. This issue is further addressed in Chapter 5.

4.4 The EIA process in Barbados

There are no reports of EIAs conducted in Barbados until the 1980s, when it was reported that the former Coastal Conservation Project Unit, which was established to develop and protect coastal areas, conducted limited environmental assessments for coastal zone development applications through an informal arrangement with the TCDPO (IDB, 2001b). According to the IDB (2001b), this is the first evidence of the conduct of EIA within Barbados. Since that time, a more formal EIA process has developed and evolved within Barbados at the national planning level.

4.4.1 Legal framework for EIA

Town and Country Planning Act

EIA is not itself embedded within its own specific legislation. However, EIA is viewed as a legal requirement indirectly through the TCPA, which establishes the application and approval process for proposed developments on rural and urban lands in Barbados. While the TCPA does not explicitly define an EIA process or EIA report requirements, the TCPA affords the Chief Town Planner the ability to request an EIA for development applications indirectly via Section 17(1), which authorizes the Chief Town Planner to request applicants to provide information as deemed necessary in support of an application. EIA is therefore a requirement of the development planning process in Barbados indirectly through the TCPA.

National Physical Development Plan

As discussed previously, the draft 1998 NPDP establishes the general policy framework for EIA in Barbados. Section 16 (1) of the TCPA requires that when reviewing developing applications made to the TCDPO, the Chief Town Planner is to have regard to the National Physical Development Plan so far as material to the application and to any other material considerations when dealing with a planning application (TCDPO, 2002:2). Material considerations are defined by the TCDPO to include, among other issues, the potential for unacceptable adverse impact on the natural or man made heritage of Barbados

(TCDPO, 2002:3). Therefore, there is an indirect connection between the legal requirements of the TCDPO and the general policy guidance of the National Physical Development Plan with respect to the EIA process in Barbados.

Under the draft 1998 NPDP, there exist three key guidance aspects with respect to the EIA process in Barbados, as follows:

- I. Fifteen types of developments are identified as requiring an EIA. These developments are presented in Figure 7.
- II. The EIA, once completed, should be made accessible to the public; and
- III. The EIA shall be prepared in consultation with the EIA Panel which will oversee:
 - Formulation of the TOR for the EIA
 - Recommendations for staging of EIA decisions
 - Processing and evaluation of EIAs
 - Review and approval of detailed design of construction and operations mitigation and monitoring as required by the conditions of approval
 - Review of mitigating and monitoring of construction and operations as required by the conditions of approval
 - Advice to the Chief Town Planner on the need for enforcement proceedings (MHLE, 1998).

The above aspects represent the extent to which the draft 1998 report defines the EIA process in Barbados.

Types of developments required to submit an EIA in Barbados:

1. Special industry
 - a. A chemical or petroleum manufacturing plant other than a plan for the manufacturing of pharmaceutical drugs;
 - b. A desalination plant;
 - c. An electricity generating plant;
 - d. A cement plant or other plant for the burning of lime or bricks;
 - e. Any other industry where the process is potentially obnoxious or dangerous to health and amenity by reason of excessive smell, fumes, smoke, dust, grit, ash, noise or vibration;
2. Waste management facilities other than facilities for initial sorting or processing of source separated dry recyclables;
3. Waste disposal sites;
4. Golf courses;
5. Uses within:
 - a. Natural Heritage Conservation Areas;
 - b. The National Park Forest Area;
 - c. Agricultural Areas
6. Mining operations including quarries and sand mines;
7. Applications for initial construction of, or expansions to, major transportation infrastructure including highways, airports, seaports, wharves, marinas or jetties;
8. Sewage treatment facilities;
9. Crematoria and funeral parlours;
10. Amusement parks.

(Source: MHLE, 1998)

Figure 7. Types of developments required to submit an EIA in Barbados

Delays in the NPDP approval process

It should be noted that the 1998 draft NPDP remained under the review of the government for five years until an amendment to the draft 1998 version was requested by Cabinet in 2003 to address outdated data. The draft 2003 amended NPDP has also not yet received formal government approval and is not available to the public. However, governmental employees advised that no

changes have been made to the draft 2003 version with respect to the EIA process. Amendments to the draft 2003 NPDP reportedly pertain primarily to energy resource planning and to general statistics (e.g. tourism and housing statistics). It is estimated that the 2003 amended NPDP will be sent for review and approval by Cabinet within 2006. Upon Cabinet approval, the NPDP will be sent to Parliament and for Governor General approval and will then be published in the Government Gazette. It was estimated by governmental employees that the remaining approval process could take up to another two years, though the goal remains to receive approval as quickly as possible.

EIA Guidance in Barbados

In recent years, the TCDPO has published two key guidance documents which are intended to provide further clarification and instruction to planning applicants with regard to the EIA process. These guidance documents are: (1) The Applicant's Handbook and Guide to Town Planning (TCDPO, 2002); and (2) the Environmental Impact Assessment Guidelines for the Preparation of Terms of Reference (TOR) and Environmental Impact Assessment (TCDPO, 2005). The following presents an overview of each of these guidance documents.

The Applicant's Handbook and Guide to Town Planning

The Applicant's Handbook and Guide to Town Planning (herein referred to as the "Handbook") was produced by the TCDPO in November, 2002. According to two governmental employees, the Handbook was prepared in order to address

complaints by applicants and consultants that the TCDPO was not providing sufficient guidance regarding the requirements of the application approval process. The Handbook is a 62 page-long document which outlines the various stages and requirements pertaining to applications for new developments under the relevant sections of the TCPA, including application fees, forms, information requirements and requirements pertaining to EIA.

The Handbook states that the Chief Town Planner is guided by the policies outlined in the National Physical Development Plan in his/her assessment of planning applications (TCDPO, 2002:2). The types of developments that are required to submit an EIA under the Handbook are directly comparable to those identified under the draft 1998 NPDP, as presented in Figure 7. The Handbook also provides guidelines for the preparation of the TOR for an EIA, and the Handbook identifies the public consultation requirements associated with EIA in Barbados. Guidance with respect to public consultation comprises:

The applicant/developer also has to hold a public meeting in close proximity to the site and residents within a 300 metre radius should be notified in writing and by public advertisement (e.g. radio, newspaper) of the date and time of the meeting and the place/s where copies of the document may be obtained for perusal. The applicant/developer has to make the EIA document available for public scrutiny a minimum of twenty-eight (28) days prior to the public meeting (TCDPO, 2002:22).

Also of relevance is the Handbook's description of the TCDPO's ability to attach conditions to an approval of a development. Under the TCPA, the Chief Town Planner is authorized to grant application approvals subject to conditions deemed necessary to control and limit proposals in order to achieve a

satisfactory form of development (TCDPO, 2002). According to the Handbook, Section 21 of the TCPA stipulates that the Chief Town Planner should 'endeavour to give a decision within two (2) months of the date of the application' (TCDPO, 2002:48). In the event that the Chief Town Planner fails to issue a decision within this time limit, the applicant may request that the application be referred to the Minister of Economic Affairs (i.e. the Prime Minister) to render a decision on the application (TCDPO, 2002).

The Environmental Impact Assessment Guidelines for the Preparation of Terms of Reference (TOR) and Environmental Impact Assessment

The Environmental Impact Assessment Guidelines for the Preparation of Terms of Reference (TOR) and Environmental Impact Assessment (herein referred to as the "Guidelines") were prepared by the TCDPO in April 2005. According to two governmental employees, similar to the Handbook, the Guidelines were prepared in order to address complaints by applicants and consultants that the TCDPO was not providing sufficient guidance regarding the required content for TOR for applications requiring submission of an EIA report. Governmental employees also stated that the Guidelines were prepared in order to address common deficiencies in TOR and EIA reports submitted to the TCDPO.

The Guidelines comprise a five page-long document that define the required content of the TOR submitted for a proposed application. The Guidelines also provide a high-level outline of the suggested content of an EIA report (Figure 8), as well as the general public consultation requirements for

EIAs. The description of public consultation requirements is directly comparable to that provided under the Handbook; however, the Guidelines also state that an applicant is required to submit a report of the town hall meeting proceedings to the Chief Town Planner within 14 days of the town hall meeting (TCDPO, 2005).

Suggested format for an EIA report submitted to the TCDPO:

- Table of contents
- Glossary of terms / abbreviations / acronyms
- Non-technical summary
- Legislative and regulatory framework
- Description of the proposed project
- Description of the environment
- Significant environmental impacts
- Analysis of alternatives
- Mitigation measures
- Monitoring plan
- Inter-agency, public and any other involvement
- List of references
- Appendices
 - Terms of Reference
 - List of author/s who prepared the EIA
 - Survey questionnaires (sample copy)
 - Schematic drawings, site plans, elevations, etc.

(Source: TCDPO, 2005)

Figure 8. Suggested format for an EIA report as per the TCDPO Guidelines

4.4.2 The EIA process

When an application for a development is submitted by a proponent to the TCDPO, the TCDPO will advise the applicant as to whether an EIA will be required. Where the TCDPO determines that an EIA will be required for an

application, the TCDPO determines which government agencies should be involved in the application review and then establishes an EIA Review Panel that will be responsible for reviewing and overseeing the EIA process for the particular application (IDB, 2001b; TCDPO, 2002). The EIA Review Panel is typically comprised of members of the TCDPO, EPD, CZMU, Barbados Water Authority, and representatives from other governmental departments as deemed relevant to the approval of the proposed development (Governmental interview participants, 2005; TCDPO, 2002).

The applicant is then required to submit a draft TOR for review and approval by the EIA Review Panel. The TOR is distributed to each member of the Review Panel for individual review and then a meeting is schedule between the members to discuss recommendations for the TOR. According to several governmental employees, the TOR review period can commonly take up to two or three months before the applicant is informed if the TCDPO has approved the TOR and whether the TCDPO has any additional recommendations for issues to be addressed within the EIA.

Upon approval of the TOR, the applicant then conducts an EIA, prepares an EIA report, holds a public town meeting following a 28 day-long period for public review of the EIA report, and then submits the EIA report to the TCDPO. The TCDPO then distributes the EIA report to the members of the EIA Review Panel for individual review. According to several consultants, governmental employees and other interview participants, the EIA Review Panel often requires

a lengthy period of time, typically up to several months, for review of an EIA report.

Approval process, permits and conditions

Where the Chief Town Planner has determined that a development application has merit and conforms to the policies of the NPDP, he/she may grant an approval for the development application, subject to any conditions which may have been recommended during the review process (TCDPO, 2002). Section 16 of the TCPA provides the legal basis for the Chief Town Planner to attach conditions to an approval, and enables the Chief Town Planner to grant permission subject to conditions as he/she deems suitable (GoB, 1972; TCDPO, 2002). According to the Handbook, the purpose of attaching conditions to a planning permission is to control and limit proposals in order to achieve a satisfactory form of development (TCDPO, 2002). The conditions must serve a useful planning purpose, must be reasonably related to the development, and must not be manifestly unreasonable (TCDPO, 2002). According to the Handbook (TCDPO, 2002), the following are some of the types of conditions that may be attached to a planning permission:

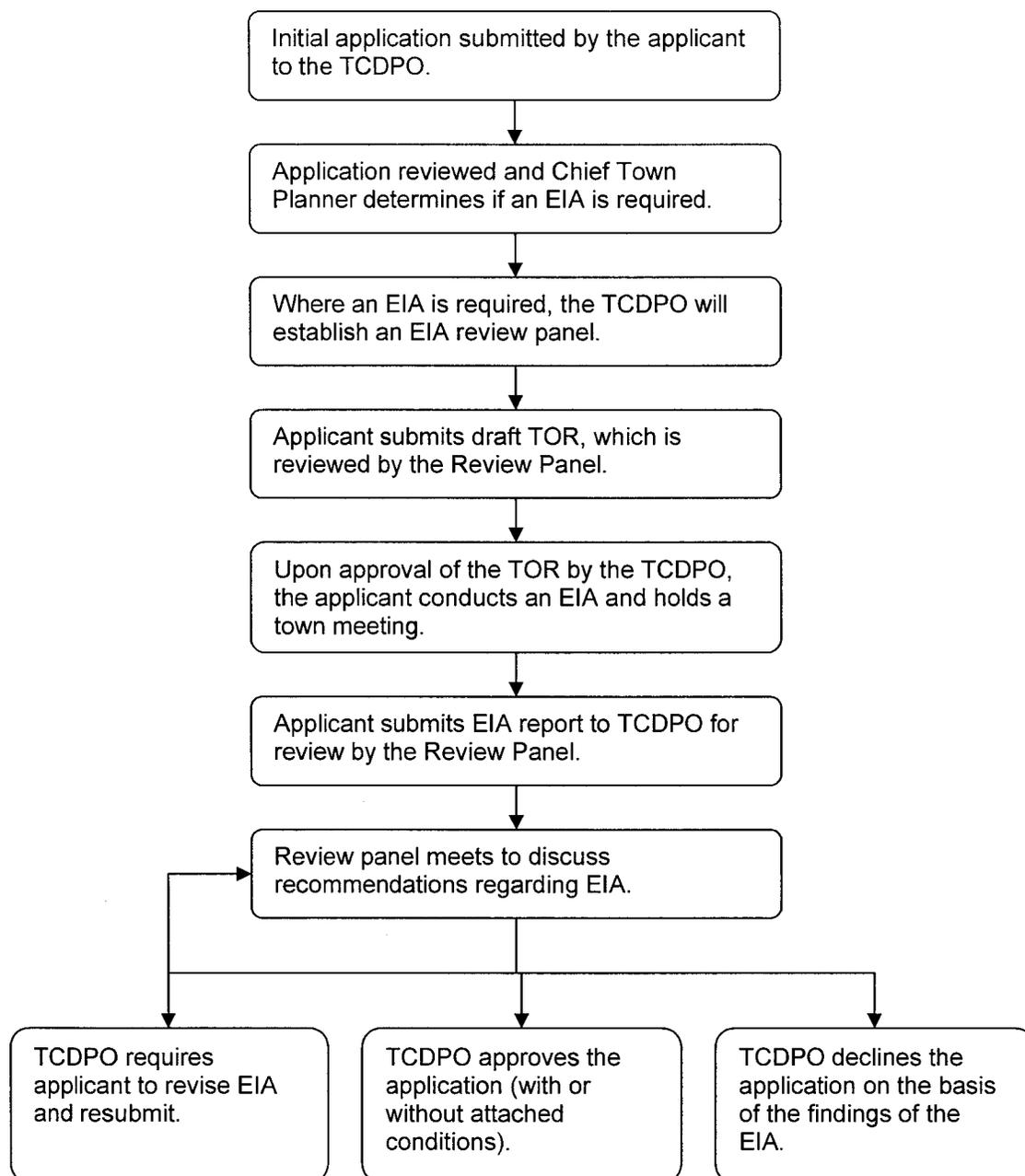
- Regulations of the development or use of land or requirements for carrying out works on such land (e.g. ensuring adequate waste water treatment capacity for a development);
- Requirements for removal of any buildings or works or the discontinuance of any land use at the end of a specified period and the re-instatement of land at the end of that period;
- Requirements for the completion of any development before a specified date;

- Requirements for the provision of proper services such as water, electricity, gas and roads before the sale or other disposal of land for which permission has been granted for housing, commercial or industrial purposes;
- Time limits for carrying out certain conditions attached to the planning permission (e.g. a condition must be met prior to the occupation of the building);
- Maintenance conditions for developments that involve the continuing use of land (e.g. landscaping); and
- Requirements for remediation of land upon completion of mining operations.

Application refusals

Where an application and supporting documentation, including an EIA report, has been reviewed, the Chief Town Planner may determine to decline the development application. Where an application is refused by the Chief Town Planner, the applicant is afforded the right under the TCPA to appeal the decision to the Minister of Economic Affairs (TCDPO, 2002). It is noted that the Minister of Economic Affairs is also the Prime Minister of Barbados. The procedure to be employed in the event that an applicant wishes to appeal the decision or appeal any condition attached to a planning permission is defined by the TCPA.

The general EIA process is summarized in Figure 9.



(Derived from: IDB, 2001b; Interview participants 2005; TCDPO, 2002; TCDPO, 2005)

Figure 9. Schematic overview of the EIA process with respect to TCDPO planning applications

Chapter 5: Evaluation of EIA Process and Outcomes in Barbados

5.1 Overview of the Evaluation Criteria

As discussed in section 3.2, the assessment is divided into two major components: (i) the EIA process in Barbados, and (ii) EIA reports as a means to assess EIA outcomes. This study evaluates the EIA process in Barbados against the 15⁶ criteria put forward by Wood (2003) which present a set of robust evaluation criteria for determining the strengths and weaknesses of the EIA process in developing countries (see Section 3.2, Table 2). For the process assessment, “Meets” is used to denote that the EIA process in Barbados satisfactorily meets all of the elements of a selected benchmark criterion. “Meets partially” is used to denote that the EIA process in Barbados generally meets the elements of a selected benchmark criterion but that there are some observed weaknesses, gaps or deficiencies. “Does not meet” is used to denote that the EIA process has substantial gaps or deficiencies and therefore does not satisfactorily meet the elements of a selected benchmark criterion. These evaluative ratings are employed in Table 7. This study assesses EIA outcomes in Barbados through the evaluation of the quality of the assessment evidenced in various EIA reports against the MFI-WGE evaluation criteria for EIA report content, presented in Table 3.

⁶ Wood’s paper presents 14 criteria; the criterion pertaining to “prescribed EIA report content and related checks” has been separated into two criteria for the purposes of this study.

5.2.1 Evaluation of EIA Process

Table 8 presents a summary of the results of the comparative analysis of the Barbados EIA process against Wood's evaluative criteria for EIA in developing countries. The specific criteria are then evaluated in further detail.

Criteria #	Criteria for EIA in Developing Countries	Barbados evaluation	Comments and key observations
1	EIA system based on clear and specific legal provisions	(√)	Lack of explicit legal requirement. Indirect requirement due to TCPA only; NPDP is governmental policy and not formal legislation.
2	Screening of actions for environmental significance	(√)	List of projects requiring submission of EIA exists, but this list may not be optimal and TCDPO determines EIA requirement on a somewhat ad hoc basis; observed criticism of inconsistency in EIA requirements.
3	Relevant environmental impacts of all significant actions must be assessed	√	Clear discussion that all anticipated significant impacts should be considered. List of projects requiring submission of EIA exists.
4	Scoping of the environmental impacts, and production of specific guidelines	(√)	Required, as outlined in the Guidelines. Also evidenced by review of TOR by EIA Review Panel. No formal mechanism for public involvement during scoping, and limited access to guidance materials.
5	The impacts of reasonable alternatives must be demonstrated	(√)	Requirement, as outlined in the guidance for establishing a TOR, though the Guidelines and Handbook provide limited detail.
6	Prescribed content requirements for EIA reports	√	High-level guidance provided in the TCDPO Handbook.
7	Checks against the prescribed content to prevent the release of inadequate EIA reports	(√)	EIA Review Panel established for each EIA. At least one governmental department employs a tailored EIA review checklist.
8	Mitigation of impacts	√	Requirement, as outlined in the Guidelines.
9	Public review of EIA reports, including proponent response to points raised	(√)	28-day EIA report availability; criticisms of the degree to which public comments truly influence the EIA outcomes.
10	Consultation and participation prior to, during and following EIA report publication	(√)	28-day EIA report availability; no explicit requirement for public consultation before and during the EIA.
11	EIA findings should be a central determinant of the decision (i.e. EIA must influence the decision)	(√)	EIA findings are a determinant in the decision-making process; no stated commitment to reject an application on the basis of inadequate EIA.

(continued)

(Table 7 continued)

Criteria #	Criteria for EIA in Developing Countries	Barbados evaluation	Comments and key observations
12	Project monitoring requirement	(√)	Yes, but follow-up and enforcement are weak.
13	Monitoring of the EIA system, and incorporate feedback from experience	X	No formal monitoring systems or commitments exist, and no studies have been conducted regarding EIA effectiveness. Monitoring and review only exists at the NPDP level and does not encompass EIA.
14	Financial costs and time requirements of the system should be acceptable to those involved and should not outweigh the discernable environmental benefits	(√)	Unable to draw conclusions regarding financial costs of the system, but evident that time requirements are not always efficient given the potential lengthy review and approval process.
15	EIA system application to programmes, plans and policies (as well as projects) – use of SEA	X	NPDP deemed a SEA, but arguably does not meet structure or objective of a SEA.

√ = Meets (√) = Meets partially X = Does not meet

Table 7. Overview of comparative analysis of the Barbados EIA process against Wood's evaluative criteria for EIA in developing countries.

1. Explicit legal requirement (Meets partially; see Table 7, item 1)

The draft 1998 NPDP establishes the general policy framework for EIA, but is not a national law. An indirect legal connection for EIA in Barbados exists only through Section 17 of the TCPA which authorises the Chief Town Planner of the TCDPO to request applicants to provide information as deemed necessary in support of an application (TCDPO, 2002). As noted by all governmental employees⁷, this is the section of the TCPA that can be used by the TCDPO to request EIA reports for relevant applications. If a proponent chooses to ignore the TCDPO's request for submission of an EIA, the TCDPO will typically decline to issue the required planning approval and the project will not be allowed to

⁷ In the remainder of this thesis, interviewees are divided into the following categories: governmental employees, consultants, and "other."

proceed. Explicit EIA regulations do not exist in Barbados but EIA is an indirect requirement under the TCPA, and hence this policy aspect is assessed to be partially met.

2. Screening (Meets partially; see Table 7, item 2)

The EIA process in Barbados does not differentiate between types of developments that may require comprehensive EIAs and developments that may be suitably addressed via an environmental screening. A screening-level environmental assessment may be a more limited environmental assessment that is narrower in scope in order to be more commensurate with the potential impacts of the development in comparison to a comprehensive EIA. According to the Handbook, a comprehensive EIA is required for all types of developments (TCDPO, 2002).

This issue is of particular relevance when examining the list of developments that require an EIA (Figure 7). The list does not incorporate any thresholds or other units of differentiation for projects that are expected to require a comprehensive EIA in comparison to other types of developments that might be suitably addressed by a screening-level environmental assessment that is more commensurate with the potential impacts of the development. For example, the Handbook states that “mining operations including quarries and sand mines” require an EIA (TCDPO, 2002:21). No threshold exists to capture smaller-scale quarry operations that could potentially be adequately addressed through an environmental assessment screening as opposed to a

comprehensive EIA. Indeed, the majority of consultants stated this creates an inefficient and unnecessary demand for comprehensive EIAs which requires more resources than what may be necessary to address the potential environmental impacts of certain developments. Though the Guidelines briefly indicate that the EIA report submitted to the TCDPO should be limited to significant environmental issues, greater emphasis should be placed on the need to refine the scope of EIAs to the relevant, significant issues.

It should also be noted that the list of the types of developments for which an EIA is required in Barbados is not inclusive of all major types of development that are relevant to the Barbadian economy. For example, although tourism comprises a significant component of Barbados' economic activity, hotels and major tourism developments are not included in the Handbook list of developments that are required to submit an EIA. While the Handbook states that developments other than those listed in the Handbook may require an EIA, this requirement is left to the overall discretion of the Chief Town Planner.

One of the most common criticisms of the EIA process from interview participants, particularly those of the consulting sector, is that there is an inconsistency in the way that the EIA process is applied to various applications. It is argued that this may be the result of a lack of clear implementation guidelines and a detailed list that clearly defines the types and scale of developments that require a comprehensive EIA. While the TCDPO has attempted to provide guidance via the Handbook, much ambiguity remains. Several consultants, government employees and other interview participants

stated that the lack of a detailed screening mechanism often results in the requirement for a comprehensive EIA for some developments, whereas other developments of a comparable scale may escape the requirement for submission of an EIA report. Consultants stated that one of the greatest concerns of their clients was the inability to accurately determine when an EIA would be required, which consequently impeded their client's abilities to successfully budget and determine resource requirements in advance of the application process.

Overall it is concluded that though the Handbook establishes a list of the types of developments for which an EIA is required, there are observed weaknesses with respect to inconsistency of the screening mechanism as well as insufficient guidance to ensure that the level of environmental review is commensurate with the potential impacts of a proposed development. Therefore, the EIA process in Barbados is assessed to partially meet the criterion for screening of actions for environmental significance.

3. Relevant impacts of all significant actions assessed (Meets; see Table 7, item 3)

The TCDPO will typically refer applicants to the new Guidelines for guidance on the content of the TOR and EIA report. Governmental employees noted however that this is a relatively new document, first released in draft form by the TCDPO in April 2005. The Guidelines define the potential impacts to be considered in the preparation in the TOR (and therefore to be subsequently considered in the EIA) which include, in particular, impacts to human beings, fauna, flora, soil, water, air, climatic factors, material assets, including the

architectural and archaeological heritage, and landscape (TCDPO, 2005:2). The Guidelines more specifically require consideration of the following impacts, though it is recognized that this is not an exhaustive list:

- Human beings:
 - Disruption of the traditional and current uses of the area by humans and other stakeholders for the duration of the activity;
 - Labour force (short and long term);
 - Archaeological and cultural resources (if applicable);
 - Potential to restrict or alter access to traditional users of the area;
- Flora and fauna:
 - Immediate and long-term effects (direct and indirect impacts) on existing fisheries, tidal habitats and marine flora and fauna (e.g. sea grass beds and spawning areas) of the proposed development due to the silt/sedimentation plumes from dredging activities;
 - Potential for loss of biodiversity;
 - Effects of activity on nesting, feeding and other animal behaviour such as migration (short and long term effects if applicable);
 - Impacts of chemical contamination;
 - The use of published and unpublished data is suggested;
- Physical environment:
 - The change in the aesthetic of the concerned area;
 - Impact of land clearing activities, erosion and surface runoff of sediment material on existing roadways and adjacent land users;

- Impact of dust during site preparation and construction activities on adjacent land users and fauna;
- Air:
 - Impact of vehicular and equipment emissions to ambient air quality during site preparation and construction;
- Changes in the availability or service of infrastructure and utilities (roads, bridges, water, electricity, services, waste disposal);
- Traffic:
 - During construction and operation of the development, to include impacts to the passage of land based traffic on relevant affected areas (TCDPO, 2005:3).

One of the strengths of the Guidelines is that they clearly indicate that all anticipated significant impacts should be considered, including “the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative impacts” (TDCDPO, 2002:4). The Guidelines establish that impacts should be considered as relevant to the proposed development, and that the impacts of both construction and operation phases must be considered. The Guidelines are silent on the decommissioning phase for proposed developments. Overall, the requirements of the Handbook and the Guidelines are deemed to meet the criterion for the relevant impacts of all significant actions to be assessed in the EIA process.

4. Scoping and specific guidelines (Meets partially; see Table 7, item 4)

Generally, applications are either not required to submit any environmental information or they are requested to submit a comprehensive EIA report. Where an EIA is required, the TCDPO has published detailed Guidelines that define the general content of a TOR to be submitted for approval by the TCDPO and the EIA Review Panel. The TCDPO will establish an EIA Review Panel comprised of governmental employees from relevant departments to the type of proposed development. The EIA Review Panel members are then requested to provide input into the TOR for the proposed development with the objective of providing a more robust scoping of the study area and the issues to be addressed in the EIA. However, the scoping stage is weak with regard to the fact that neither the Handbook nor the Guidelines include a mechanism for public involvement and input during the scoping stage. There is no clear statement within the Guidelines or the Handbook that the applicant should add to the scope of the EIA any Valued Ecosystem Components (VECs)⁸ or other relevant environmental issues that are later identified by the public during the EIA process.

With regard to the availability of specific guidelines, it is also observed that access to relevant EIA policy and guidance documentation appears to be exceptionally limited in Barbados. For example, copies of the Guidelines and the Handbook were not widely available; the TCDPO did not have any copies for

⁸ Valued Ecosystem Components (VECs) are defined as environmental components that are considered to be of importance by the project proponent, public, scientists or government involved in the EIA process (CEAA, 2003).

distribution upon request and the Handbook was available only through the Printery (where there was only one copy). Further, copies of the draft 1998 NPDP are no longer available via government sources given that the 1998 draft NPDP was officially deemed to be an out-dated version given the proposed 2003 amended NPDP (which is also not yet available to the public). The lack of readily available documentation regarding EIA policy in Barbados is deemed to be a significant weakness. Therefore, the criterion for the scoping of relevant environmental impacts and related guidelines is deemed to be partially met overall given the limited access to relevant EIA policy and guidance documentation and the absence of a clear mechanism to provide for public input during the scoping stage.

5. Alternatives assessment (Meets partially; see Table 7, item 5)

Both the Handbook and the Guidelines include a requirement for an outline of the “main alternatives” studied by the applicant, including a discussion of environmental effects, and an indication of the main reasons for the selected choice (TCDPO, 2002; TCDPO, 2005). The Handbook and the Guidelines do not explicitly require the consideration of the “no-go” alternative whereby the potential impact of each project alternative is compared to the baseline conditions that would exist without the proposed development. Further, the Guidelines and Handbook do not elaborate on the range of alternatives that should be considered during the EIA process. For example, there is no explicit requirement for the consideration of “main alternatives” to include alternative

means of carrying out the project such as different project processes, technologies, inputs, scheduling or alternative project locations; or alternatives to the project itself. The Barbados EIA process is therefore deemed to partially meet the criteria for consideration of the environmental impacts of reasonable alternative actions as further clarification could be provided in order to ensure that a range of appropriate alternatives are thoroughly considered to ensure that the best option for achieving the development's objectives are met while minimizing the potential environmental impacts.

6. Prescribed EIA report content (Meets; see Table 7, item 6)

Required EIA report content is prescribed by the Guidelines which include a detailed description of the expected content of TORs and subsequently define the suggested format for EIA report content (see Figure 8). The expected content for the TOR is considered to be sufficiently detailed. The prescribed format for EIA report content in the Guidelines is presented at a fairly general level with the intention of providing the applicant with a clear indication of the structure and organization of information to be presented within the EIA report. Overall, the Barbados EIA process is concluded to meet the requirement for prescribed EIA report content.

7. Checks to ensure adequate EIA reports (Meets partially; see Table 7, item 7)

The EIA Review Panel is established by the TCDPO to ensure that the relevant governmental departments are involved in the review of the TOR and

EIA report for a proposed development. According to governmental employees, establishing an EIA Review Panel allows the TCDPO to draw on the relevant expertise within other governmental departments that may not exist within the TCDPO. In the experience of governmental employees, it was believed that this process afforded for a higher quality level of review of EIA reports submitted to the TCDPO. An EIA Review Panel typically does not include non-governmental members.

Of the four governmental departments interviewed, only one department has an established “checks and balance” process to guide its employees through the review of EIA reports. This department has developed a detailed EIA review checklist to ensure the adequacy of EIA reports it is asked to review as a member of an EIA Review Panel. It is noted however that not all governmental departments that could potentially be asked to be a member of an EIA Review Panel were interviewed, and therefore it is possible that other departments have in place EIA review checklists or other mechanisms for reviewing the quality of EIA reports. It is concluded that the structure and function of the TCDPO as well as the fact that at least one governmental department employs an EIA review checklist generally meet the criteria for preventing the release of inadequate EIA reports.

It should also be noted that while an in-depth analysis with regard to EIA expertise within government agencies was not undertaken, it was observed that the TCDPO employs individuals with formal EIA or environmental planning backgrounds while several other departments were found to employ individuals

with other relevant backgrounds including the environmental sciences, engineering, marine ecology and planning. Governmental employees stated that relevant qualifications and expertise were not the limiting factor in the review of EIA reports and participation on EIA panels; rather, the limited number of staff within these departments and resulting strain of resources was believed to pose a more significant challenge. Several governmental employees observed that it has often been difficult to meet the commitments of an EIA Review Panel while maintaining and performing the regular responsibilities within the panel member's own departmental role.

8. Mitigation of impacts (Meets, see Table 7, item 8)

As prescribed by both the Handbook and the Guidelines, the TOR (and ensuing EIA report) must include a requirement for a description of the 'measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment' (TCDPO, 2002:22; TCDPO, 2005:5). The Handbook also states that an Environmental Management Plan (EMP) should be addressed within the TOR, and the Guidelines more clearly define the anticipated content of the EMP to be included within the TOR and EIA report. For example, the Guidelines state that the EMP should include feasible and cost-effective measures to avoid, reduce or mitigate identified impacts to acceptable levels. Also of importance is the fact that the Guidelines state that proposed mitigation measures should satisfy local environmental standards, or, in absence of regulated environmental standards, they should satisfy

internationally accepted standards or guidelines (TCDPO, 2005:4). The requirements of the Handbook and the Guidelines are therefore deemed to meet the criterion for the mitigation of impacts to be considered in the EIA process.

9. Public review of EIA reports (Meets partially; see Table 7, item 9)

The Handbook states that the developer must hold a public meeting in close proximity to the site and residents within a 300 metre radius should be notified in writing and by public advertisement (e.g. radio, newspaper) of the date and time of the meeting and the places where copies of the EIA may be obtained for perusal (TCDPO, 2002). Two weaknesses are identified with respect to this issue. First, it is argued that the Handbook's delineation of a 300 metre radius for public consultation may not necessarily be appropriate for all types of developments. For example, some industrial developments could generate potential environmental impacts (e.g. air quality, aesthetic, noise) to community residents beyond a 300 metre radius. Additionally, the Handbook does not provide clear guidance with respect to the timing of the public meeting. For example, the Handbook does not specify that the town meeting be held at a time and duration of optimal convenience to community members, such as evenings or weekends outside of normal business hours.

Under the Handbook, the applicant is also required to make the EIA document available for public scrutiny a minimum of 28 days prior to the public meeting (TCDPO, 2002). However, it is observed that neither the Handbook nor the Guidelines explicitly require the applicant to respond to the relevant public

concerns raised at the town meeting. Further, though the Handbook stipulates that the EIA report should include a non-technical summary of the report content, there is no formal statement that the materials presented to the public be done so in a manner that is clear and easy to understand, nor is there a public commitment by the TCDPO to facilitate the public's review of technical documentation that may be beyond the 'average' person's comprehension. Therefore, while the requirements of the Handbook are deemed to generally meet the criteria for public review of EIA reports, there are identified weaknesses with respect to the timing and location of public meetings as well as the lack of explicit requirements for the applicant to present understandable information and to respond to relevant public concerns following the public review period. These identified weaknesses lead to an assessment of "partially met" against the selected criterion.

10. Participation prior to, during and following EIA report publication (Meets partially; see Table 7, item 10)

As described above, the public must be afforded a 28 day-long review period of the EIA report, allowing for public participation *following* EIA report publication. However, the EIA process in Barbados is noticeably weak with respect to public participation *prior to* and *during* the EIA report publication. The Applicant's Handbook does not include public consultation as an issue to be addressed in the TOR, nor does it state that the public is entitled to submit comment on the EIA report (TCDPO, 2002). While the Applicant's Handbook contains a two page section entitled "Consultation Process," this section defines

only the requirements of the Chief Town Planner for consulting various government departments and other *optional* non-governmental organizations such as the University of the West Indies (TCDPO, 2002:28).

There appears to be somewhat of a dichotomy between the policy and practice of public consultation requirements in the EIA process. While the Handbook states that the developer must make the EIA report available for public review a minimum of 28 days prior to holding a public meeting, the vast majority of interview participants from all of the institution types stated that in practice, public consultation and town meetings, when held, are viewed by most parties as a “cosmetic” or a superficial “checklist” activity. The degree to which public consultation activities actually impact the outcomes of the EIA was questioned by a number of the interview participants. Several interview participants from all institutional categories opined that in their past experience, the degree to which the existing public consultation mechanisms add value to and ultimately influence the decision is typically minimal. Therefore, while the requirements of the Handbook are deemed to meet the criteria for public review *following* EIA report publication, there are significant weaknesses with respect to participation *prior to* and *during* EIA report preparation, leading to an assessment of “partially met” against the selected criterion. The degree to which public consultation has been addressed in EIA reports is further evaluated later in this chapter.

11. EIA influences decision (Meets partially; see Table 7, item 11)

According to the TCPA and the Handbook, the Chief Town Planner must give regard to the material considerations, including environmental issues, of proposed development applications. In addition to environmental issues, other material considerations that may be considered during the decision process may include factors such as conflicting development plans, existing land uses, and potential economic impacts. Therefore, there is an indirect policy commitment for EIA findings to be considered as a determinant in the decision regarding development applications. However, while governmental employees stated that the TCDPO will typically decline an application where a request for submission of an EIA is ignored, there is no clear policy statement in the TCPA or the Handbook that the failure to submit a satisfactory EIA report that adequately assesses all relevant impacts could lead to the rejection of an application.

The TCPA also provides a mechanism whereby an applicant may refer an application for a decision by the Minister where the applicant has a grievance with the decisions or requirements of the Chief Town Planner. Several interview participants stated that this mechanism could theoretically be used to evade EIA requirements or to overturn declined applications where the conclusions of an EIA report influenced the TCDPO to reject the development application. Interview participants from various institutions also indicated that the predominant view is that the EIA requirement for development applications in Barbados is considered by most applicants as a “checklist” activity or formality that must be met in order to receive an approval, rather than a process to be

undertaken with the objective of facilitating environmentally-sound decisions. Overall, the provisions of the TCPA and the Handbook are deemed to meet the requirement for EIA to influence the decision-making process though noted weaknesses are identified, leading to an assessment of “partially met” against the selected criterion.

12. Project monitoring (Meets partially; see Table 7, item 12)

The Guidelines do not require explicit inclusion of monitoring plans with TORs but the Guidelines clearly indicate that a Monitoring Plan should be included within the EIA report submitted to the TCDPO (TCDPO, 2005). At no time however are any of the requirements for environmental monitoring of proposed developments described. Further, project monitoring was considered to be a common weakness in the Barbados EIA process by all interviewees. Many interviewees indicated that while the TCDPO may issue monitoring recommendations via conditions attached to the application approval, the government rarely requires monitoring reports or follows up to ensure that adequate monitoring is being carried out for developments.

Governmental employees shared these views that monitoring and enforcement are one of the greatest weaknesses with respect to the EIA process in Barbados largely due to two key factors: (i) government departments do not have sufficient resources (e.g. budget, staff, technical capacity) to carry out monitoring and enforcement activities; and perhaps more significantly, (ii) the Government of Barbados has not yet formally enacted specific environmental

standards (e.g. air and water quality, noise, effluent discharge) against which approved developments can be monitored. Overall, the Guidelines indicate that a Monitoring plan is desirable but the clear absence of any elaboration as to what is to be included in this Plan coupled with a follow-up set of activities to enforce Monitoring Plans leads to a conclusion that the assessment criterion for project monitoring is partially met.

13. Monitoring of the EIA system (Does not meet; see Table 7, item 13)

No formal monitoring mechanisms or commitments exist with respect to the EIA process in Barbados. The National Sustainable Development Policy indicates that the Government of Barbados has not yet undertaken studies regarding effectiveness of the EIA process (NCSD, 2004). While the draft 1998 NPDP establishes a commitment to undertake comprehensive reviews of the NPDP every 5 years (MHLE, 1998), this commitment exists only at the NPDP level and is not specific to the EIA process. Governmental employees were not aware of any monitoring mechanisms in place to incorporate feedback from experience. Therefore it is concluded that this criterion is not met within the Barbadian EIA process.

14. Financial costs and time requirements (Meets partially; see Table 7, item 14)

An evaluation of the financial costs of the EIA process was not possible as data were not available regarding EIA budgets and therefore this assessment is confined to timing issues only. The Handbook states that “the Chief Town

Planner must allow not less than fourteen (14) days and not more than twenty-one (21) days for comments (from the EIA Review Panel) to be returned” regarding an EIA report submitted with a planning application (TCDPO, 2002:28). However, almost all interviewees from every institutional category commented on the lengthy time periods that exist within the EIA process, particularly with regard to the review of draft TORs and EIA reports by the TCDPO and EIA Review Panel. Though the Handbook clearly states that the Chief Town Planner should “endeavour to give a decision within two (2) months of the date of the application” (TCDPO, 2002:48); it is apparent that many applications that are required to submit an EIA often do not receive a decision until well past the intended two month deadline.

A large number of interviewees from various institutions were critical of the issue of timing requirements of the EIA process. For example, several consultants agreed that the amount of time required to receive approval for TORs and to receive feedback and/or approval regarding an EIA report is often far in excess of what may be deemed reasonable, often resulting in substantial project delays and increased expenses for project applicants. These participants largely concurred that the lengthy process was due to several factors, including:

- (i) that the TCDPO and EIA Review Panel member departments do not have a sufficient level of staff required to process applications in a timely manner;
- (ii) that the membership of EIA Review Panels can often be extensive, thus delaying the TOR and EIA review period given the larger number of persons requested to provide feedback;
- (iii) that the TCDPO does not provide sufficient guidance with respect to EIA requirements; and

- (iv) that the TCDPO often does not always follow a systematic, consistent application review process.

However, it must also be noted that while a number of governmental employees concurred that delays in the TOR and EIA review process are frequent, these delays may also be caused by inadequate and insufficient documentation (e.g. EIA reports or poor quality and/or with substantial information gaps that require elaboration or improvement). Governmental employees opined that this may be due to inexperience or deficiencies on behalf of the consultants involved in conducting the TOR and/or EIA report. All governmental employees observed that in their experience with the EIA process, delays in the TOR and EIA review process are also typically due to the fact that the members of the EIA Review Panel from various government departments are required to balance their TOR/EIA review commitments with their other work responsibilities. Several participants indicated that participation within an EIA Review Panel often may be viewed as a lower priority in comparison to other commitments, thus delaying the Review Panel members' ability to respond to the TCDPO's requests in a timely manner.

Overall the timing aspect of the EIA process in Barbados is assessed to be partially met. There are clear timelines for EIA Review Panels to review TORs and EIA reports but these are frequently not met. The reasons for this are complex and in this case, both consultants and governmental employees agree the deadlines are often breached but sometimes for differing reasons. There is agreement that EIA Review Panels must juggle many responsibilities and TOR

and EIA report review tasks can be low priority at times. In addition, governmental employees indicate that TORs and EIA reports are sometimes substandard and this lengthens review timelines. Consultants, on the other hand, note the complexity of the EIA Review Panel and initial lack of guidance as leading causes of delays. There was also agreement across all interviewees from all institutions that delays in the EIA approval process are not a unique occurrence within the context of governmental approval processes in Barbados. All interviewees indicated that delays in all aspects of the EIA process can often be somewhat attributed to the slower and more relaxed “island time” *modus vivendi* of Barbados.

15. Application of strategic environmental assessment (Does not meet; see Table 7, item 15)

There is no mechanism via legislation or governmental policy for strategic environmental assessment (SEA) within Barbados. One governmental interview participant indicated that the TCDPO is beginning to examine the application of SEA with regard to evaluating the National Physical Development Plan, but no efforts have yet been made to initiate an SEA. No interview participants were aware of any previous SEAs conducted within Barbados. It is concluded that the Barbados EIA process does not meet the criteria for the application of SEA.

5.2.2 Overall conclusions regarding EIA process

Overall, it is apparent that many components of a robust EIA process are at least partially met in Barbados but there are clearly some significant deficiencies at this time. More specifically, three particular aspects of the EIA process (relevant impacts of significant actions assessed, prescribed EIA report content, and mitigation of impacts) were found to clearly meet the defined criteria for EIA in developing countries; ten aspects of the EIA process were determined to partially meet the criteria with some identified weaknesses; and two aspects of the EIA process (monitoring and SEA) were found to not meet the relevant benchmark criteria. Particular identified strengths of the EIA process include the following:

- the TCDPO has attempted to address identified weaknesses in the EIA process by developing the Handbook and Guidelines;
- the Guidelines clearly indicate that all likely significant impacts should be considered for all relevant actions in an EIA report;
- the TCDPO has established a comprehensive scoping mechanism via the EIA Review Panel and the detailed Guidelines pertaining to expected TOR content;
- the Handbook and Guidelines clearly establish a requirement for consideration of the environmental impacts of reasonable alternative actions in the EIA process; and
- the public is afforded the ability to review EIA reports and developers are required to hold town meetings following the public EIA report review period.

Significant identified weaknesses include the following:

- a lack of clear, prescriptive regulations and legal requirements pertaining to EIA;

- a lack of a detailed screening mechanism to ensure that the level of environmental assessment undertaken for a proposed development is commensurate with the potential impacts of the development;
- frequent delays with respect to the time requirements of the EIA process, though timeframes are established by the Guidelines;
- a lack of prescriptive guidance to ensure public participation *prior to* and *during* the EIA process;
- a lack of appropriate monitoring mechanisms, including a lack of specific environmental standards to address issues such as air and water quality, effluent discharges and noise; and
- a lack of the application of SEA.

Generally it was found that there was substantial corroboration amongst all interview participants on the above areas of identified strengths and weaknesses of the EIA process in Barbados. Though some weaknesses are identified, overall, the EIA process in Barbados is deemed to compare favourably to the selected evaluative criteria.

5.3.1 Evaluation of EIA Outcomes

EIA reports conducted by various consulting agencies were obtained for four development projects in Barbados and represent the basis for assessing EIA outcomes in Barbados. As discussed in section 3.3.2, the four EIA reports do not constitute a representative sample of all EIAs conducted in Barbados over the past five years, they are rather considered to provide a foundation for reviewing and appraising the quality of EIA reports generated within Barbados. The content of each of the EIA reports was evaluated against the descriptions of each

of the MFI-WGE criteria for expected content for EIA reports discussed in section 2.1. The MFI-WGE criteria are intended to provide a framework for consistency in the essential elements of EIA reports submitted to various multi-lateral financial institutions for development project support. The framework provides a general description of the expected content for nine components of an EIA report, though the MFI-WGE recognizes that many operations financed by development institutions do not require a comprehensive EIA as the nature or scale of the potential impacts may not justify a comprehensive assessment (MFI-WGE, 2003).

For the EIA report quality evaluation, “Meets” is used to denote that the EIA report satisfactorily meets the selected criteria for EIA report content. “Meets partially” is used to denote that the EIA report generally meets the selected criteria for EIA report content but there are some observed weaknesses or deficiencies. “Does not meet” is used to denote that the EIA report has substantial deficiencies or information gaps and therefore does not meet the selected criteria for EIA report content. These evaluative ratings are employed in Tables 8-11. Ultimately, common strengths and weaknesses of the Barbados EIA reports are identified in comparison to the MFI-WGE report element descriptions as possible indicators of weaknesses that relate to EIA effectiveness in Barbados. These conclusions follow the four individual EIA report analyses.

5.3.2 *Generating station expansion*

Project summary:

The proposed project pertains to an expansion of an electricity generating plant (107 MW capacity) in order to increase base load capacity to meet the increase in demand for electricity in Barbados. The expansion comprises installation of an additional four 30 MW low sulphur generators to the plant site. The plant is located in an industrial coastal area. The proposed expansion will not require an expansion of the project's site area as an existing generating station component will be demolished to provide room for the proposed expansion.

The proposed expansion received Outline Approval from the TCDPO in 1993 subject to completion of a comprehensive EIA. An EIA report was therefore submitted to the TCDPO in 1994 for the proposed generating station expansion. The proposal received final approval from the TCDPO based on the findings of the 1994 EIA however the project design was later altered with regard to the cooling system. Instead of the original "once-through" cooling system which would require a deep ocean pipeline and near-shore outfall, the proposed cooling system was re-designed to utilize water from existing wells at the site and/or spent groundwater from a neighbouring desalination plant in a "closed-loop" cooling tower system. Accordingly, the revised design requires installation of a cooling tower for each of the four new generators. The TCDPO therefore required the project proponent to re-submit an amended EIA in 2001 which assessed the potential environmental impacts of the revised project design

elements. As the 1994 EIA report addressed the scope of the full expansion and the 2001 EIA report provides an addendum to the original EIA regarding the revised cooling system, both the 1994 and 2001 EIA reports are evaluated collectively in Table 8.

The following is an overview of the 1994 EIA report structure:

- Executive Summary
- Introduction
- Power System Expansion Planning Process
- Town and Country Planning Requirements and Process
- Site Selection and Design
- Project Description
- Environmental Baseline, Impacts and Remedial Measures
- Corporate Measures
- Recommendations
- Acknowledgements
- Bibliography

Evaluation against MFI-WGE EIA report elements:

EIA report content element	Evaluation	Comments
Executive summary	√	Each EIA report includes a general Executive Summary, though the 1994 report Executive Summary is much more high-level and could provide a more complete summary of the main findings and recommended actions.
Project description	√	The description of the project location and design was very thorough.
Policy, institutional, and legal framework	(√)	The EIA report describes the requirements of the TCDPO with regard to submission of environmental information. No identification of relevant environmental standards.

(continued)

(Table 8 continued)

EIA report content element	Evaluation	Comments
Analysis of alternatives	(√)	Separate studies were conducted to assess potential project site alternatives. A reference was provided for the full alternatives analysis study. A thorough summary of alternatives was not presented in the EIA, though each report provides an overview of the justification for the proposed option. No discussion regarding alternative energy sources or alternatives to reduce energy demand via improved efficiencies.
Baseline data	(√)	1994 report has minimal water quality baseline information and minimal socio-economic baseline information.
Impacts and risks	(√)	The key adverse impacts and risks of the project regarding water and air quality are identified and assessed in the reports (e.g. water and air quality). However, minimal detail is provided with regard to other environmental receptors (e.g. marine flora and fauna, land use, socio-economics, etc.). Weak identification of positive impacts.
Management plan	(√)	An explicit EMP was not included in the EIA report. Rather, the report states that monitoring and audit programs remain to be developed within the company's Environmental Management System.
Monitoring	(√)	Comprehensive monitoring plans were not included in the EIA report. Rather, the report states that monitoring and audit programs remain to be developed within the company's Environmental Management System.
Consultation	(√)	Public consultations were not held with the general public within the scope of the 1994 EIA. The 2001 EIA report provides a statement that consultations were held with government and other agencies, but no further clarification is provided. The 2002 TCDPO approval for the 2001 EIA report stated that a town meeting was held in June 2002. Public concerns raised at the 2002 town meeting were listed but not incorporated into the EIA process.

√ = Meets (√) = Meets partially X = Does not meet

Table 8. Evaluation of EIA report for proposed generating station expansion

Strengths:

- Though no formal EIA guidelines existed at the time of the 1994 EIA, the 1994 EIA report provides a thorough discussion of the TCDPO planning requirements and approval process. This section establishes the context for the EIA within the 1986 NPDP and the related national energy planning objectives. The EIA report clearly indicates that the EIA was required according to a request by the Chief Town Planner of the TCDPO in accordance with the TCPA.
- An addendum to the original EIA report was submitted after a substantial change was made to the original project design. The addendum provided a comprehensive EIA of the potential impacts associated with the revised cooling system proposal.
- The report provides a thorough project description, including maps and details of the location of the project site as well as a discussion of offsite ancillary infrastructure (e.g. marine pipeline and cooling water outfall).
- The 2001 EIA report, in particular, is clear, logical, and easy to comprehend.
- The stakeholder consultations undertaken during the 1994 EIA included consultations with a neighbouring tourism operator potentially impacted by the proposed marine pipeline and effluent outfall, as well as a national environmental NGO. However, this is the extent of public stakeholders consulted regarding the project; see weakness identified below.

Weaknesses:

- The project description comprises a significant proportion of the 1994 EIA report. This causes an imbalanced amount of information regarding the project description and insufficient detail in the remainder of the report regarding baseline conditions, environmental impacts and environmental management.
- The specific environmental standards (e.g. emissions and effluents standards) with which the project will comply are not provided. In both the 1994 and 2001 EIA reports, reference is only made to compliance with relevant international standards and guidelines on a sectoral basis; specific standards are not identified.

- While alternative project locations are assessed, there is no consideration of alternatives to the proposed project such as alternative energy sources or alternative options to reduce energy demand by increasing energy efficiency.
- 1994 report has minimal water quality baseline information and minimal socio-economic baseline information. The absence of detailed baseline information regarding existing water quality conditions is a particular weakness given the potential impacts of the marine pipeline (for cooling water intake) and effluent outfall (for cooling water discharge) that were proposed under the original project scope.
- The 1994 provides minimal analysis on potential impacts with regard to waste disposal, aesthetics, land use and socio-economic conditions; only one paragraph of cursory analysis is provided for each. Distinctions are not made between direct and indirect impacts.
- Though the 1994 EIA report indicates consultations were held with an NGO group and a neighbouring tourism operator, consultation of other public stakeholders (e.g. neighbouring residents) did not occur. The 2001 EIA report provides a statement that consultations were held with government and other agencies, but no further clarification is provided. The 2002 TCDPO approval for the 2001 EIA report stated that a town meeting was held in June 2002. Public concerns raised at the 2002 town meeting were listed but not incorporated into the EIA process.

Discussion and conclusions:

Overall, the collective content of the 1994 and 2001 EIA reports was found to meet the content requirements of the MFI-WGE EIA report framework, though some weaknesses were identified. The 1994 EIA report is an example of an EIA required prior to introduction of the 1998 NPDP and related EIA guidance. One of the significant strengths of the EIA reports is that an addendum to the original EIA report was produced after a substantial change was made to the original project design to address any potential environmental impacts resulting from the design amendments. Most weaknesses were minor though more significant weaknesses were identified with regard to a lack of identified environmental

standards, an absence of detailed baseline information regarding existing water quality conditions, and minimal public consultation activities.

5.3.3 Limestone quarry expansion

Project Summary:

The project that was the subject of the EIA involves a proposed expansion to an existing limestone quarry. The existing quarry has been in operation for 16 years and comprises 21 hectares. An EIA was not conducted for the existing quarry operation. The expansion included an additional 9.3 hectares of land to the north-west of the existing quarry, located between two water courses which converge at the south-east boundary of the proposed site. The proposed expansion is anticipated to extend quarry extraction operations over a 10-year period but demand for quarry products could alter this timeline. Surface areas will be stripped of overburden material which will be stored within the existing quarry. Extracted materials will be processed at a new crushing and screening plant to be located in the worked portion of the existing quarry and will be transported from the site via an existing access road.

The proposed site is currently used for sugar cane production, and the surrounding area is a mix of residential, agricultural and industrial uses. Key environmental concerns of the project identified in the EIA report include potential impacts to noise levels, air quality, surface water and groundwater, traffic and aesthetics, as well as quarry closure.

The following provides a brief summary of EIA report structure:

- Table of contents
- Synopsis
- Introduction
- Proposed development and site description
- Noise assessment
- Dust assessment
- Drainage and groundwater
- Traffic and road infrastructure
- Visual impact
- Management
- After Use
- Conclusions
- Appendices

Evaluation against MFI-WGE EIA report elements:

EIA report content element	Evaluation	Comments
Executive summary	√	A brief synopsis of the key findings is provided at the beginning of the report.
Project description	(√)	The project description is brief and provides only a high-level summary, though further details regarding the project description are found at the end of the report in the "Management" discussion. The site description is sufficiently detailed and two detailed maps of the site and surrounding area are provided.
Policy, institutional, and legal framework	√	The policy, institutional and legal framework is adequately described.
Analysis of alternatives	X	Project alternatives are not discussed. Justification for the selected proposal is not provided.
Baseline data	(√)	Baseline data is dispersed throughout the report. Data is weak or non-existent in a few cases (e.g. no baseline water quality analysis).
Impacts and risks	(√)	The key adverse impacts and risks of the project are identified and assessed throughout the report. Positive impacts are not explicitly identified. The report does not provide a clear measure of the significance of potential impacts. Key information gaps are not identified.

(continued)

(Table 9 continued)

EIA report content element	Evaluation	Comments
Management plan	(√)	An explicit management is not provided in the report. Rather, specific mitigation measures and recommendations are provided throughout the report and are summarized in the final chapter. Schedules and budgets are not discussed.
Monitoring	(√)	High-level monitoring recommendations are dispersed throughout the report and are summarized in the final concluding chapter. Reporting requirements are not discussed.
Consultation	X	The report does not include a discussion of any public consultation activities that may have been carried out.

√ = Meets (√) = Meets partially X = Does not meet

Table 9. Evaluation of EIA report for proposed quarry expansion project

Strengths:

Key strengths of the EIA report include:

- The report includes a discussion of EIA requirements of the TCDPO associated with the development application.
- The report includes a discussion of the key parties and report authors involved in the project EIA.
- The discussion of the policy, institutional, and legal framework includes a timeline of application activities, a brief discussion of the Terms of Reference and subsequent TCDPO approval, as well as the requirements for an EIA for the proposal within the context of the NPDP.
- The discussion of quarry closure activities and potential uses of the site upon closure is high-level given that it was not deemed possible to predict the demand or economic viability of closure activities and site uses at this stage. Therefore, the EIA report makes a clear recommendation that the planning approval incorporate a requirement for the operator to carry out further study regarding site uses as the quarry life nears completion.
- The final chapter of the report provides a thorough summary of the key recommendations, including recommended mitigation and monitoring

activities as well as recommendations for specific conditions to be included in the TCDPO application approval.

Weaknesses:

Key weaknesses of the EIA report in comparison to the MFI-WGE report elements include:

- The overall organization of the report is poor and difficult to follow in comparison to the explicit elements of an EIA report proposed by the MFI-WGE framework.
- Baseline conditions and assessment of impacts are dispersed throughout the report, rather than being presented in dedicated, systematic chapters. Some baseline data is incomplete; for example, the report recommends that baseline water quality analysis be undertaken at existing downstream wells to support biannual monitoring of water quality in order to confirm whether groundwater quality is being impacted by the quarry operations. The absence of baseline water quality information is a significant weakness.
- The specific environmental standards (e.g. emissions and effluents standards) with which the project will comply are not provided. The report does not include a discussion regarding commitments to other internationally-accepted standards.
- Project alternatives are not discussed and justification for the selected proposal is not provided.
- A bibliography is not provided. References are only provided mid-way through the report in relation to the chapter regarding drainage and groundwater.
- Though the report provides a recommendation to address closure plans as a condition of approval, the EIA report could provide further discussion regarding quarry closure activities, timelines and potential plans and uses of the site.
- Public consultation activities, if any, are not described in the report. There is no indication regarding TCDPO requirements for consultation activities.

Discussion and conclusions:

Overall, the majority of EIA report content elements were deemed to meet the content requirement of the MFI-WGE framework, though a number of weaknesses were identified. Most significantly, the EIA report did not include a thorough description of existing water quality baseline conditions which is of particular relevance to a quarry operation. Further, the report did not meet the MFI-WGE framework with respect to an analysis of project alternatives or a discussion of public consultation activities and/or requirements.

5.3.4 Petroleum distribution project**Project summary**

The EIA report⁹ pertains to a proposed petroleum distribution project, comprised of: a new oil storage terminal; a booster pumping station; three pipelines (10-12" diameter) along a single underground trench connecting the Bay and the new terminal (two for refined products and one for crude oil); and one underground pipeline (4" diameter) from an existing oil production facility to the new terminal (crude oil). The proposed storage terminal is to be located on an 11 hectare site north of the existing airport, approximately one kilometre inland from the coastline. The terminal will contain eight storage tanks for crude oil, gasoline, diesel and jet fuel. The booster pumping station will be located on

⁹ It should be noted that the EIA report for the proposed project is also supplemented by a Social Impact Assessment report as well as a Marine Impact Assessment report, which have not been reviewed within this research. These reports were not made available by the project proponent. The absence of these reports does not impede the assessment of the EIA report.

undeveloped land near an existing fuel storage facility at a Bay at which the Government of Barbados proposes to import transportation fuels and export crude oil. The majority of the pipeline routes will be installed along the right-of-way of existing roads. Key environmental issues identified in the EIA report include water use, wastewater discharge, chemical storage, waste management, atmospheric emissions and emergency preparedness.

The following is an overview of the EIA report content:

- Executive summary
- Introduction
- Review of relevant legislation and policies
- Approach and methodology for the EIA
- Project description
- Project environmental setting
- Valued ecosystem components
- Environmental effects assessment
- Conclusions and summary of recommendations
- Appendices

EIA report content element	Evaluation	Comments
Executive summary	√	A thorough, non-technical executive summary is provided at the beginning of the report. Key environmental issues, findings and recommended actions are summarized.
Project description	√	Each of the key components of the proposed projects is described in ample detail. Detailed maps, site plans, and schematic diagrams are provided. Project schedules, construction, operations and maintenance activities are also described.
Policy, institutional, and legal framework	√	The policy, institutional and legal framework is adequately described, including identification of relevant international environmental standards.

(continued)

(Table 10 continued)

EIA report content element	Evaluation	Comments
Analysis of alternatives	(√)	The report does not include a description of project alternatives; however, the report provides a discussion of the alternatives analysis previously conducted by the Government of Barbados.
Baseline data	√	Very thorough and relevant to the project context. Data is current and field methodologies for measuring baseline conditions are described. The section establishes a clear baseline against which potential environmental impacts can be evaluated.
Impacts and risks	√	The report clearly describes the process used to identify Valued Ecosystem Components (VECs).
Management plan	√	Recommendations to mitigate environmental impacts are identified throughout the report. A comprehensive Construction EMP as well as an Operations EMP are appended in the EIA report.
Monitoring	√	The monitoring, reporting and evaluation requirements for the project are identified in the Construction and Operations EMPs appended in the EIA report.
Consultation	√	Results of public consultation activities adequately described and addressed.

√ = Meets (√) = Meets partially X = Does not meet

Table 10. Evaluation of EIA report for proposed petroleum distribution project

Strengths:

Key strengths of the EIA report include:

- All sections of the EIA report are very thorough, and sufficient detail is provided where most relevant.
- Each of the key components of the proposed project is described in detail. Detailed maps, site plans, and schematic diagrams are provided and project schedules, construction, operations and maintenance activities are also described.

- The organization of the report is logical and easy to follow. The report structure is directly aligned to the EIA report elements of the MFI-WGE framework.
- The discussion of the policy, institutional and legal framework associated with the project is thorough. In the absence of relevant national environmental standards (e.g. water and air quality), the EIA report clearly identifies that the project will meet the air quality, noise, effluent discharge standards of the World Bank as well as the groundwater remediation criteria of the Ontario government.
- A comprehensive Construction EMP as well as an Operations EMP are appended in the EIA report. Both EMPs clearly identify the proposed monitoring plans for the project.
- The results of public consultation activities are adequately described and addressed.

Weaknesses:

No significant weaknesses are identified with respect to the MFI-WGE EIA report framework. Minor weaknesses associated with the alternatives analysis component are presented in Table 10. While the EIA report fails to provide a detailed alternatives analysis, a discussion is presented with respect to the key alternatives previously considered in a study by the Government of Barbados. This previous analysis led the Government to instruct the project proponent to proceed with the proposed development. This is not viewed as a significant weakness with respect to the MFI-WGE framework.

Discussion and conclusions:

Overall, the EIA report content elements were deemed to meet all of the content requirements of the MFI-WGE framework. While one minor weakness

was identified with respect to alternatives analysis, this was not found to be significant with respect to the inherent intent of the MFI-WGE framework.

5.3.5 Clay pigeon range

Project Summary:

The proposed development entails the construction of a greenfield clay pigeon shooting facility. The project location comprises a 10 hectare site located in a wooded gully system, located approximately 650 meters away from the nearest neighbouring residential developments. Originally, the facility was proposed for an alternate location but given conflicting land uses, the current site was proposed as an alternative location.

The proposed facility will include construction of a single-storey clubhouse and installation of a 15-foot high tower and will operate 30 shooting traps, 10 shotguns and related ammunition and clay targets. The facility will provide employment to approximately ten individuals. Though overall impacts are anticipated to be minimal given the limited amount of proposed construction activities, key environmental concerns of the project identified in the EIA report include potential visual and noise and impacts, safety issues, potential impacts to the gully system, and lead contamination.

The following provides a brief summary of EIA report structure:

- Table of contents
- Synopsis
- Proposed development description
- Ecological and economic aspects

- Water
- Discussion on the overall ecology in historical and social perspective and possible impact on neighbouring gullies
- Other impacts
- Summary and conclusions
- Addendum: innovative projects which could be considered to enhance the project
- Appendices

Evaluation against MFI-WGE EIA report elements:

EIA report content element	Evaluation	Comments
Executive summary	√	A short synopsis of the key findings is provided at the beginning of the report.
Project description	(√)	The project description is brief and provides only a high-level summary. A map is provided.
Policy, institutional, and legal framework	X	The policy, institutional and legal framework is not discussed.
Analysis of alternatives	(√)	Possible economic uses other than the proposed project are briefly discussed, though largely at a hypothetical level. Justification for the preferred proposal is not explicitly stated. Appendix A indicates that the project was originally proposed for an alternate location.
Baseline data	(√)	Detail provided with regard to: gully systems, soils, landscape, and water. Baseline data also included pre-1627 flora and fauna information with little relevance to the current status.
Impacts and risks	√	The key impacts and risks as well as positive benefits of the project are clearly identified and assessed throughout the report. The report does not provide a clear measure of the significance of potential impacts. Key information gaps are not identified.
Management plan	(√)	Though an explicit management plan is not provided, mitigation recommendations are incorporated throughout the report. Schedules and budgets are not discussed.
Monitoring	(√)	Monitoring recommendations are minimal. Monitoring of vegetation for potential lead contamination and monitoring of a landscaping scheme are the two key monitoring recommendations. Specific reporting and evaluation requirements throughout the project's lifetime are not discussed.

(continued)

(Table 11 continued)

EIA report content element	Evaluation	Comments
Consultation	X	The report does not include a discussion of any public consultation activities that may have been carried out.

√ = Meets (√) = Meets partially X = Does not meet

Table 11. Evaluation of EIA report for proposed clay pigeon shooting facility

Strengths:

Key strengths of the EIA report include:

- For the most part, the report focuses on relevant issues with the exception of pre-1627 flora and fauna baseline information, as discussed below.
- The report provides a thorough analysis of the existing gully system and the related potential impacts of the project.
- Given the sensitivity of water scarcity issues in Barbados, the report dedicates a detailed section to water issues. Volumes of catchment water as well as wastewater generated on site are assessed. Potential water contamination due to lead shot is also assessed thoroughly.
- Monitoring recommendations are proposed to monitor potential lead contamination.
- The report also meets each of the elements identified in the TOR submitted to and approved by the TCDPO. The TOR approved by the TCDPO is appended to the EIA report.

Weaknesses:

Key weaknesses of the EIA report in comparison to the MFI-WGE report elements include:

- Minimal detail was provided with respect to the project description, EIA methodology and impact significance.
- A bibliography is not provided.

- The policy, institutional and legal framework is not discussed. Moreover, the specific environmental standards (e.g. emissions and effluents standards) with which the project will comply are not provided. The report does not include a discussion regarding commitments to other internationally-accepted standards.
- Alternative sites were not discussed, though Appendix A indicated that a previous site had been considered but was rejected.
- Data regarding the baseline flora and fauna conditions included a lengthy section on pre-1627 flora and fauna in Barbados which has little relevance to the proposed development and related environmental impacts. Further, the report includes a lengthy discussion regarding historical land use changes though the project is not anticipated to significantly alter the land use of the proposed area of influence. Justification is not provided with regard to why this historic data is considered relevant to the proposed development.
- The overall organization of the report is poor and difficult to follow in comparison to the explicit elements of an EIA report proposed by the MFI-WGE framework. For example, information regarding baseline conditions and potential environmental impacts are dispersed throughout the entire report rather than being discussed in dedicated chapters.
- While the report touches on “perceptions” of the project, it is clear that no public consultation was undertaken, nor were TCDPO requirements for public consultation activities, if any, described.

Discussion and conclusions:

Overall, several of the EIA report elements are concluded to generally meet the MFI-WGE framework, though several weaknesses and specific gaps were identified. Most significantly, the EIA report did not include a discussion of the policy, institutional, and legal framework associated with the project or a discussion of public consultation activities and/or requirements. Though there are observed weaknesses of the EIA report content in comparison to the MFI-WGE framework, the report meets each of the elements identified in the TOR

submitted to and approved by the TCDPO. It is also observed that this EIA report could be considered to be a high-level screening rather than a comprehensive EIA.

5.3.6 Conclusions regarding EIA outcomes

The comparative analysis of the four selected EIA reports for proposed projects in Barbados against the MFI-WGE EIA report content framework concluded that all of the reports generally meet the MFI-WGE EIA report content criteria, though the reports have differing degrees of weakness. The EIA report for the petroleum distribution project was determined to most closely meet the MFI-WGE framework with no significant weaknesses. The EIA report for the proposed generation station expansion project was determined to meet the MFI-WGE framework with only a few, mostly minor weaknesses, whereas a few significant weaknesses and gaps were identified with respect to the quarry expansion and clay pigeon EIA reports.

Common strengths across the EIA reports generally include the following:

- The majority of EIA reports were generally focused on the key issues and environmental impacts of relevance to the proposed project.
- For the most part, project descriptions were generally sufficiently detailed to provide decision-makers an adequate ability to determine if all relevant environmental and social components and impacts have been considered (though it is noted that in at least one case the level of detail associated with the project description was not proportional to the remainder of the impact analysis).

Common weaknesses across the EIA reports generally include the following:

- The discussion of policy, institutional and legal frameworks was generally weak, particularly with respect to the lack of discussions regarding relevant environmental standards for each project.
- Alternatives analysis is commonly weak, particularly with regard to consideration of alternatives *to* the proposed project.
- Descriptions of existing baseline conditions for relevant environmental components (e.g. water quality, air quality, socio-economic conditions) were found to be cursory, insufficiently detailed, or absent with respect to some environmental components. In other instances, certain components of baseline information were overly-detailed and irrelevant.
- Overall, there is poor coverage of socio-economic conditions and potential impacts.
- Discussions and commitments regarding environmental monitoring were typically absent or inadequate.
- Overall, the EIA reports typically did not include discussions of public consultation requirements and/or related consultation activities. Further, records of consultations indicate that consultations have occurred primarily with governmental and industry stakeholders and have not significantly solicited input or incorporated feedback from the general public.

Overall, several of the common deficiencies and weaknesses identified within the selected EIA reports are consistent with the conclusions regarding identified weaknesses in the EIA process. For example, alternatives analysis was commonly weak in three of the EIA reports. In these cases, the alternatives analysis was either non-existent or was deficient with respect to consideration of alternatives *to* the proposed project. The absence of a requirement for consideration of alternatives to a proposed development was also identified during the evaluation of the EIA process.

Another common deficiency was the absence of discussion regarding public consultation activity within three of the EIA reports. This deficiency is also consistent with the conclusions regarding public consultation requirements in the EIA process. The EIA process was found to provide minimal guidance with regard to expectations for public consultation activities to occur *throughout* the EIA process, rather than solely at the end of the EIA process upon completion of the EIA report. Additionally, three of the EIA reports were found to provide either minimal baseline information or irrelevant and overly-abundant baseline information. This observation is consistent with the analysis of the EIA process which concluded that there are significant opportunities for refining the level of environmental assessments to be more commensurate with the anticipated environmental impacts.

Environmental monitoring plans were also found to be a common deficiency. While it is recognized that some of the projects did not call for comprehensive construction and operation EMPs, it is observed that in most cases the discussion of monitoring commitments could have been expanded to appropriately address the potential environmental impacts of the proposed development.

Accordingly, it is evident that there are some instances whereby the analyses have identified common weaknesses with respect to both EIA process and outcomes within Barbados. It is also observed that in comparison to the common challenges with respect to effective implementation of EIA in developing countries that were previously identified in section 3.2 during the EIA literature

review (Figure 3), many of the weaknesses identified in the Barbados assessment are aligned with those identified in Figure 3. These commonalities include a weak legal basis for EIA, criticisms regarding inconsistent application of EIA requirements, insufficient consideration of alternatives within EIA reports, weak environmental monitoring, and minimal public participation. Chapter 6 will explore recommendations to enhance the EIA process and address the identified gaps and inefficiencies.

Chapter 6: Advancing EIA in Barbados

This research has identified the strengths and weaknesses of EIA in Barbados in line with the objective of determining how the effectiveness of EIA in Barbados can be improved. Comparative analyses were made of the EIA process and outcomes within Barbados against international benchmarks for EIA within developing countries (i.e. Wood's evaluation criteria and the MFI-WGE framework for EIA report content). The conclusions drawn from these analyses confirm that overall, both the EIA process and outcomes in Barbados are deemed to compare favourably to the selected evaluative criteria and that many components of a robust EIA process are at least partially met in Barbados. The conclusions also confirm that a variety of enhancements and/or additions could be made to build on the existing foundation for EIA process and outcomes in Barbados in order to address the following issues:

- Lack of strong legal basis for EIA via national policy and EIA regulations;
- Limited access to EIA policy and guidance documentation;
- Minimal guidance regarding the screening process and consistency in EIA requirements;
- Minimal guidance regarding requirement for thorough alternatives analysis;
- Insufficient public consultation requirements;
- Minimal commitments to environmental monitoring and enforcement and an absence of relevant environmental quality standards;
- Lengthy EIA review process; and
- Absence of application of SEA.

In summary, key recommendations include:

- Formalizing the EIA process within the TCPA and the NPDP;
- Establishing specific environmental quality standards within environmental legislation;
- Increasing availability of existing EIA guidance materials;
- Refining the screening checklist of projects for which an EIA is required;
- Refining the screening process to ensure EIAs are commensurate with potential environmental impacts;
- Increasing guidance to ensure thorough alternatives analysis;
- Incorporating requirements for public participation prior to and during the EIA process; and
- Strengthening commitments to environmental monitoring and enforcement.

The above recommendations are addressed in further detail below. These recommendations are focused on areas where the EIA process and outcomes were determined to be weak in comparison to the selected international benchmarks. The proposed recommendations span a number of aspects of EIA, as follows:

National policy and EIA regulation

EIA needs to be embedded more firmly within legislation in order to establish a clearer, prescriptive requirement for EIA within the planning approval process. EIA should be formalized in future amendments to the Town and Country Development Act and the Town and Country Development Planning Order. In addition, the Government needs to explore avenues to expedite the

approval process for future National Physical Development Plans. The 2003 NPDP (i.e. the amendment to the 1998 NPDP) needs to receive government approval in order to provide a formalized government policy on EIA. This action will promote the NPDP to a formally approved policy and formally establish the national EIA framework for Barbados.

Furthermore, the Government should seek to establish specific environmental standards that are embedded within legislation, so that government agencies are afforded the ability to enforce environmental requirements upon projects and, as required, proceed with legal action as necessary when projects are found to be causing significant environmental degradation.

Availability of information

To address limited access to relevant EIA policy and guidance documentation, it is recommended that copies of the TCPA, the Guidelines and the Handbook be made readily available via the office of the TCDPO. It is also recommended that copies of the draft NPDP be made available via the TCDPO. These documents could also be made available to the public via the internet to further increase their accessibility. While the TCDPO and the Ministry of Lands, Housing and Environment do not yet have public websites, this information could

be made available through the website of the Government of Barbados Information Network¹⁰.

Given that applicants must rely on both the Guidelines and the Handbook in order to obtain guidance on the EIA process in Barbados, it is recommended that the TCDPO consider merging these two publications into one comprehensive guidance document. The Guidelines could readily be incorporated as an addendum to the section on EIA within the Handbook. At a minimum, it is recommended that the Guidelines and the Handbook reference the existence of each other so that applicants and consultants are aware of all existing guidance materials on the EIA process in Barbados.

Screening

To address the lack of guidance for applicants and consultants regarding when an EIA will be required and in order to increase the consistency of EIA requirements across various applications, the TCPDO should consider establishing a more developed list of projects for which an EIA is required. The list should also incorporate hotels and other major tourism developments. In addition, it is recommended that the TCDPO explore ways to ensure that the EIAs conducted for proposed developments are commensurate with the potential environmental impacts, rather than automatically requiring comprehensive EIAs. In the absence of the development of a mechanism for screening-level

¹⁰ The Government of Barbados Information Network (GBIN) is a repository of governmental information through which the Government of Barbados aims to increase the transparency of government operations. The GBIN website is accessible at: <http://www.barbados.gov.bb/index.htm>.

environmental assessments, it is recommended that the requirement for EIAs to be limited to significant environmental issues be made more prominent in the guidance provided to applicants, particularly within the Guidelines and the Handbook.

Alternatives Assessment

Further clarification should be provided in order to ensure that a range of appropriate alternatives are thoroughly considered to ensure that the best option for achieving the development's objectives are met while minimizing the potential environmental impacts. For example, the Guidelines should be revised to reflect that the "no-go" scenario as well as alternatives *to* the proposed development be considered during the alternatives analysis.

Public participation

A number of weaknesses were identified with respect to public participation in the EIA process in Barbados. Four recommendations are proposed to address these weaknesses:

First, it must be recognized by all participants within the EIA process in Barbados (both governmental and non-governmental) that it is imperative that actions be undertaken to inform and involve interested and affected stakeholders throughout the EIA process. Accordingly, it is recommended that the TCDPO devise a mechanism for public input *prior to* and *during* the EIA process (e.g. during scoping and elsewhere as relevant commensurate with the scale and

potential impacts of the development), in addition to the existing requirement for public input upon completion of the EIA report.

Second, the TCDPO should re-examine the “300 metre radius” limit for public notification in order to address the fact that some types of projects may have potential significant environmental impacts beyond a 300 metre radius. It is suggested that the 300 metre radius be eliminated and that the guidance materials instead include a requirement for public notification that would capture the public in all areas where there exists the potential for significant environmental impacts from a proposed development.

Third, the TCDPO should provide more prescriptive guidance with respect to the timing of town meetings. While it is assumed that the TCDPO would not find a town meeting held at an inconvenient time (e.g. the middle of the night) to be acceptable, the guidance materials could be clarified to ensure that town meetings are held at an optimal time for the general public.

Finally, it is recommended that the TCDPO incorporate an explicit requirement in its EIA guidance materials for applicants to respond in writing (e.g. within the EIA report) to all *relevant* concerns raised by the public and other stakeholders during town meetings.

Monitoring and enforcement

Commitments to environmental monitoring and enforcement should be strengthened and clearly conveyed to relevant departments such as the CZMU, the EPD and the TCDPO. To address weaknesses in environmental monitoring,

the following are recommended: (i) the enactment of relevant environmental quality standards to afford the ability to enforce environmental requirements upon projects, (ii) greater priority and clarity with respect to the mandate for agencies responsible for the task of monitoring and enforcement, and (iii) amendments should be made to the Guidelines in order to provide detail with respect to the expected content of Monitoring Plans to be included within EIA reports.

The environmental monitoring process should ensure that monitoring and follow-up activities are undertaken in order to complete the EIA process. Monitoring mechanisms should be established which provide for follow-up to the conclusions within EIA reports conducted for specific projects. Procedures should include the confirmation of the accuracy of predictions made during the EIA process for individual projects, and relevant activities to ensure that the mitigation measures that were proposed during the EIA process are being carried out effectively. Additionally, monitoring activities should carry the objective of ensuring whether individual projects are resulting in any unforeseen adverse environmental or social impacts. To better facilitate the environmental monitoring process, the TCDPO could enhance the Guidelines to more clearly convey the expected commitments of each applicant to conduct environmental monitoring activities. For example, the Guidelines could provide detail with respect to environmental monitoring reporting timelines and commitments (e.g. conditions pertaining to regular submission of monitoring reports).

Timing requirements

In addition to expediting the approval process for the NPDP and the forthcoming environmental management law, it is evident that there is a demand to expedite the EIA review process. This study has identified several potential causes for the incurred delays many of which are very different in nature and reason. It is recommended that a stronger commitment be made within the TCDPO to compel improved compliance with the established deadlines within the EIA process, particularly with respect to the EIA Review Panel. Efforts to improve the timeliness and efficiency of the EIA process should first be focused on the structure and coordination of the EIA Review Panel. This is because increases in the efficiency and reductions in timing delays stemming from the EIA Review Panel process could generate benefits across the EIA process such as reduced expenses and reductions in lost time for applicants. The mandate of participating in EIA Review Panels should therefore be more firmly established as a priority within other government agencies outside of the TCPDO who are typically asked to participate as members of an EIA Review Panel.

Application of strategic environmental assessment (SEA)

EIA and SEA literature identify numerous benefits of SEA, including enhanced environmental protection, increased promotion of sustainable development, and strengthened policy-making processes (Sadler, 1996b; UNDP, 2003). The Government of Barbados should explore opportunities for the application of SEA, particularly within the context of the National Physical

Development Planning (NPDP) process. The NPDP establishes Barbados' future plans and strategic objectives pertaining to land use, physical infrastructure, energy and transportation, and there are significant opportunities and benefits to be obtained from the application of the SEA. In particular, it is recommended that the SEA process be applied to the NPDP as well as any other future policies, plans or programmes pertaining specifically to the tourism sector within Barbados. Though tourism comprises a significant component of the Barbadian economy, the tourism sector has also realized significant adverse impacts on the environment. The application of SEA with respect to the tourism sector could be part of a larger initiative to review of the environmental sustainability of tourism policies, plan and programmes.

Conclusion

There has been significant change and progress with respect to the EIA process and outcomes in Barbados over the past eight years. The TCDPO has advanced the EIA process from the high-level policy text of the 1998 National Physical Development Plan to the specific directions of the 2005 Guidelines for preparing Terms of Reference and EIA reports. Overall, EIA in Barbados was found to partially meet the selected international benchmarks for EIA process and outcomes in developing countries. The EIA process was found to be particularly strong with respect to issues such as ensuring that the significant environmental impacts of all relevant activities are assessed, prescribed EIA

report content, and ensuring sufficient consideration of mitigation of adverse environmental impacts.

A number of recommendations have been proposed in order to address the identified weaknesses or deficiencies. Some of these recommendations require changes to policy text, some are ambitious and will require the involvement and cooperation of a number of individuals across several governmental departments, and some require longer-term commitments and/or additional resources. Ultimately it is believed that all of the proposed recommendations are feasible and, if carried out successfully, will lead to increased effectiveness and greater efficiency of EIA in Barbados.

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¹¹ EIA report titles have been modified to avoid identification of the specific project and/or project proponent.

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Appendix 1. Questions used to guide interview discussions

Interviews were unstandardized and did not follow an established order of set questions. Rather, lists of questions were used by the researcher to guide the general subject matter of the interview discussions. As per the following, questions were devised according to the type of institution in which participants are employed.

Example interview questions: All participants

- Please describe your experience with the EIA system in Barbados.
- In your opinion, what are the strengths of the EIA system in Barbados; and where do you believe both immediate and long-term improvements could be made to the system?
- In your opinion, how could the EIA process be made more effective and/or efficient?

Example interview questions: Government employees

- What are the TCDPO's procedures in carrying out the EIA process for proposed developments?
- Why is the EIA process "housed" within the TCDPO?
- What initially brought EIA to the policy agenda in Barbados? To what extent is the EIA process currently on the government's agenda?
- On what system was the Barbados EIA system structured/modeled? Why?
- Has an evaluation by the Barbadian government been undertaken of current legislation and policies pertaining to EIA in Barbados?
- Are you aware of plans to modify or revoke existing legislation and policies pertaining to the EIA process?
- How does your department approach the issue of development and technical and professional specialization of its personnel who work within the EIA process?
- Does your department have a standardized mechanism for reviewing EIA reports?
- Describe your (departments) role in the EIA process. Is your department always represented on EIA Review Panels?
- To what extent have SEA or Class Environmental Assessments been undertaken in Barbados?

- What are the relative budget sizes and staffing resources of the TCDPO and MHLE?

Example interview questions: Consultants

- How many EIAs has your institution conducted in the past few years? 5 years? 10 years?
- In your opinion, are there recognized centers of sectoral expertise (related to the EIA process) amongst consultancies within Barbados? If so, can you provide examples?
- How would you describe working relationships between (participant's institution) and the TCDPO and other governmental authorities involved in the EIA process?
- What has been your experience in relation to town meetings for EIAs for proposed developments in Barbados?
- In your opinion, how would you describe the ease of access to public information?
- Over the past decade, how would you describe changes in governmental attitudes towards environmental issues in Barbados?
- In your past experience, has there been sufficient within the Barbados EIA process to carry out comprehensive EIAs or are international experts relied upon? If so, could you provide specific examples of projects?
- In your experience, what are the key challenges for consultants working in the EIA process in Barbados?

Example interview questions: Project sponsors

- How many planning applications has your (firm) been required to submit to the TCDPO in the past few years? 5 years? 10 years?
- Does your (firm) typically rely on consultants to conduct EIAs for planning applications? If so, which firms have you worked with in the past?
- Please describe the environmental management structure within your (firm).
- In your experience, how would you describe the TCDPO planning process, particularly with respect to EIA?
- In your experience, what are the key challenges of working with the TCDPO regarding applications involving submissions of EIA?
- Over the past decade, how would you describe changes in governmental attitudes towards environmental issues in Barbados?
- In your experience, are there recognized centers of sectoral expertise (related to the EIA process) amongst consultancies within Barbados? If so, can you provide examples?
- In your past experience, has there been sufficient expertise within the Barbados EIA process to carry out comprehensive EIAs or are international

experts relied upon? If so, could you provide specific examples of projects and related consultants?

Example interview questions: Other participants (e.g. NGO, academic and financial institutions)

- What has been your experience in relation to town meetings for EIAs for proposed developments in Barbados?
- In your past experience, to what extent are NGOs involved in the EIA review process? What are their routes for participation?
- In your opinion, how would you describe the ease of access to public information?
- In your opinion, is the public allotted (sufficient) time to review relevant EIA information and provide comment?
- In your opinion, to what extent are public comments considered and reflected in the outcomes of the EIA process and TCDPO application process?
- How would you describe the performance of environmental consultants (e.g. independent EIA report authors) in conducting EIAs in Barbados?
- In your past experience, has there been sufficient within the Barbados EIA process to carry out comprehensive EIAs or are international experts relied upon? If so, could you provide specific examples of projects?
- Over the past decade, how would you describe changes in governmental attitudes towards environmental issues in Barbados?
- How would you describe working relationships between (participant's institution) and the TCDPO and other governmental authorities involved in the EIA process?

Appendix 2. Informed Consent Form for research participants

I, _____, am aware that I am participating in a research project being undertaken by Leah Gilbert, a graduate student in the Department of Geography and Environmental Studies at Carleton University. This research will become part of the researcher's master's thesis, tentatively entitled Improving Environmental Impact Assessment in Barbados.

The aim of this study is to undertake an evaluation of the current national environmental impact assessment ("EIA") process in Barbados. The research will attempt to identify the strengths and weaknesses of the EIA process, including a comparison to international EIA benchmarks. This research will first identify international best practice EIA policy and procedure, based on a review of internationally-accepted EIA benchmarks such as the World Bank and the International Association for Impact Assessment. The researcher will also undertake a review of the status of environmental issues in Barbados. This research will also undertake a review of the history and current status of EIA in Barbados, including a review of several EIA reports that have received approval for development projects within Barbados. Interviews will be conducted with key individuals who have experience with the EIA process, including representatives from government departments, private consultants, academia and various international development banks.

This interview is anticipated to last approximately 1 to 1.5 hours. I am aware that the researcher may take written notes during the interview, and that I may decline to answer any question. While there is no foreseen risk taken by participating in this interview, I am aware that if I feel risk or discomfort at any time, I may withdraw from the interview. Should I exercise my right to withdraw my participation, I will not give the researcher permission to use the data that I have provided to that point.

I am aware that my anonymity will be protected as much as possible by the removal of my name from interview statements, but that the general institutional category to which I belong (e.g. "government" or "consultant") may be linked to statements. I am also aware that the data collected in this interview will be kept locked in the researcher's office and will not be shared with any external parties. Upon completion of the master's thesis, this data will not be used for any other projects and will be destroyed by a confidential/secure shredder service.

I am aware that I have the option of access to summary research results as they are available, and that I may contact the researcher or her supervisor at any time by the attached contact information. I am aware that I may also contact the Carleton University Research Ethics Committee if I have any comments or complaints at any time at the attached contact information.

I am aware that by signing this consent form, I am in no way waiving any of my rights. This consent form is merely documentation that I have been informed about what the research entails, and therefore, what I have agreed to participate in.

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

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