



Environmental Impact Assessment in the Republic of Mauritius

Recommendations for Mainstreaming Climate Change into the EIA Process

Prepared by Coastal Zone Management Pty Ltd
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Introduction

This document synthesises work undertaken to integrate climate change into the Environment Impact Assessment (EIA) process for the Republic of Mauritius (ROM). This is one activity in a project exploring climate change integration into Mauritius’s existing integrated coastal zone management (ICZM) framework. The focus question for the broader project was:

‘How can the ICZM framework and Development Approvals Process (with specific focus on EIAs and EMPs) be improved to integrate climate change and build more resilient coastal zones in Mauritius?’

Here, recommendations to integrate climate change into EIA in ROM are outlined. The recommendations are built upon a review of international good practice in integrating climate change into EIA and a desktop scoping assessment of the current situation in respect to EIA implementation in ROM. Based on the review undertaken, the ROM’s EIA and PER guidelines have been updated. In addition, supplementary guidelines to incorporate climate change into the EIA for specific undertakings have been developed. The updated and newly developed guidelines are provided as additional deliverables; and their adoption in the EIA process is outlined below.

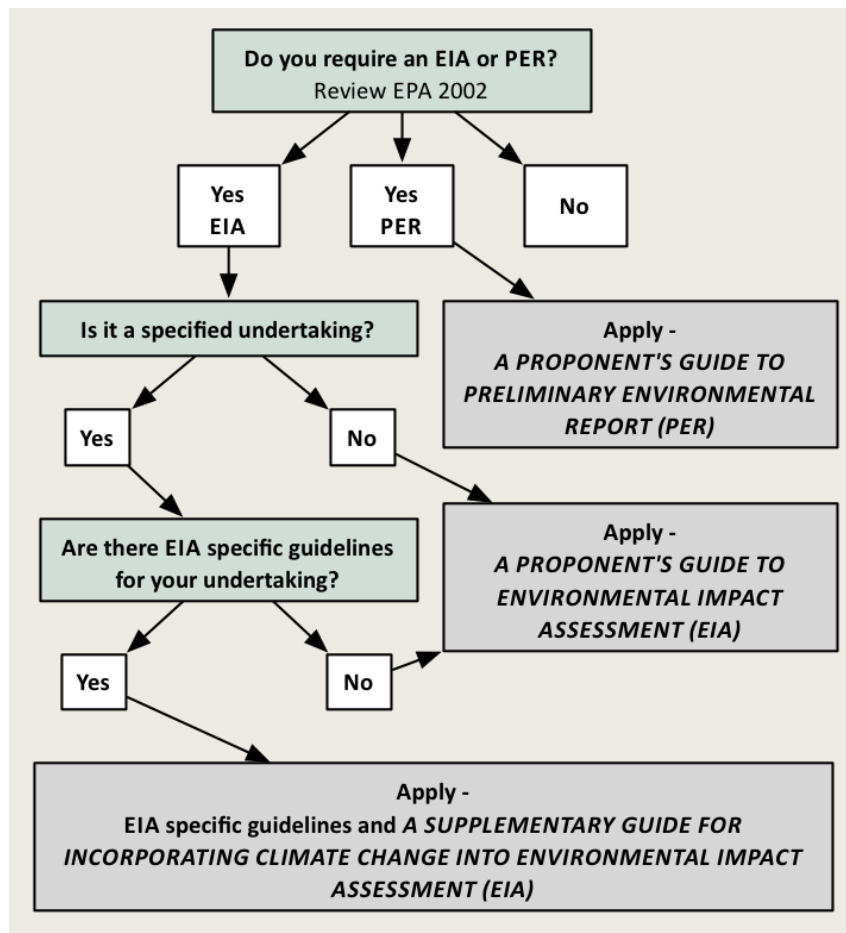


Figure 1: Decision tree guiding the adoption of updated EIA, PER and Supplementary Guidelines.

Integrating Climate Change Into EIA

WHAT IS EIA?

Coastal planners and managers can choose to use a number of technical approaches to plan and manage the coast. Environmental Impact Assessment (EIA) is one of the most frequently used tools in coastal management. EIAs are globally adopted and used in a variety of planning and management contexts. Within the EIA context, 'environment' refers not only to biophysical aspects, but also social and economic aspects. The general aim of the EIA process is to provide decision makers with the best available information that will help to minimise the costs (environmental and financial) and maximise the benefits of the proposed actions. Minimising environmental costs is often associated with managing environmental risk. EIA is an integral part of environmental planning and management of the coastal and marine environment of many coastal nations (Sorensen & West, 1992).

Some managers view EIA as both a political and a technical process (Gilpin, 1995, Thomas, 1996). EIA might be seen as a political process because it is based on society's value judgements; therefore decisions on whether a development should proceed are influenced by social politics. Furthermore, most governments have legislated for EIA, meaning that EIA decisions are also political judgements. Both social and political value judgements take place throughout the EIA process. Most governments have found that the best way to manage these judgements is through public participation. Depending on local legislative requirements, public participation can be an important element of many of the steps in the EIA process. The integral role of public participation in EIA also reflects its relatively recent evolution and the simultaneous rise of citizen interest and subsequent involvement in decision-making.

WHY INTEGRATE CLIMATE CHANGE INTO EIA?

It is now widely accepted that EIA should be considered as a tool to facilitate successful climate proofing of projects or to avoid maladaptation to climate change (Box 1). This is largely owing to the fact that EIA is a well-consolidated and publicly accepted process and that consideration of climate change issues through EIA might in turn improve the resilience of the project being assessed. From an implementation perspective, it is therefore more efficient and effective to broaden the scope of existing EIA modalities to include climate change and adaptation considerations, as opposed to establishing and implementing parallel procedures for screening projects for climate change risks.

The key aspect for consideration in the context of integrating climate change within EIA is to determine how and when climate change adaptation is triggered within an EIA process. Experience suggests that the earlier these considerations are made, the easier they can be incorporated into the project development process and at the least financial cost. Elements of a good practice approach to EIA are presented in Figure 2.

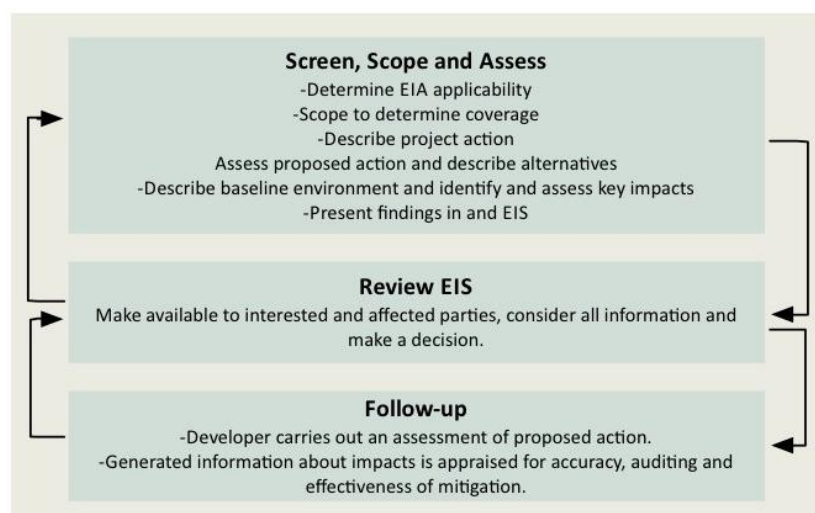


Figure 2: An effective EIA process (Macharia, 2005)

BOX 1: CONSIDERATIONS WHEN INTEGRATING CLIMATE CHANGE INTO EIA

Under the Kyoto Protocol articles 2.3, 3.14, and 12.3 – 12.5, and in the UNFCCC article 4(f), Environmental Impact Assessment (EIA) is considered as a tool to mitigate human influences on climate and adapt to future changes. However, there is limited use and application of EIA by countries in addressing climate change issues. EIAs provide a snapshot in time of the potential impacts of an activity on the environment and human wellbeing. Such a one-off assessment not only lacks the ability to capture temporal changes characterizing dynamic systems, but also fails in integrating emerging drivers of environmental change, such as climate change, as they evolve over time. In practice, this makes it difficult to quantify and subsequently evaluate the environmental impacts of a development post construction or project lifetime. As a result, risk is disproportionately distributed to the future, rather than the present.

There is also a challenge in capturing off-site impacts using place-based assessments. The downstream impacts of developments and any recommended remedial strategies (for example, sea wall construction) are often poorly captured in EIA assessments. Therefore, safeguarding public goods and enforcing public responsibility beyond the site location is limited. Capturing the aspects of governance and equity associated with environmental impacts in terms of who bears the burden now versus the future is also poorly underscored by present day EIAs. Thus for climate change to be represented and integrated into EIAs, there is the need to consider the following:

- The potential climate risks now or in the future that could result from the activity or be amplified by the activity
- The amount of GHG emissions associated with the implementation of the activity, the loss or creation of carbon sinks
- Equity, especially in risk burden and distribution

CRITERIA FOR EVALUATING EIA

Review criteria and guidelines ensure quality assurance and quality control in EIA. A review of literature describing good practice assessment and review of EIAs internationally confirmed key objectives for reviewing an EIA (Box 2), types of reviews and who conducts them (Box 3), review areas and subsequent checklists, minimum requirements and the importance of public consultation (Box 4 and 5). The standard process to review EIAs is outlined in Figure 3.

BOX 2: OBJECTIVES FOR REVIEWING EIA

- Assess the adequacy and quality of an EIA report;
- Take account of public comment;
- Determine if the information is sufficient for a final decision to be made; and
- Identify, as necessary, the deficiencies that must be addressed before the report can be submitted

UNEP EIA Training Manual: UNEP (2002)

BOX 3: EIA REVIEW TYPES

EIA reviews can fall into two categories (UNEP, 2002):

- Internal review - undertaken by technical staff of the EIA Division and/or an inter-governmental committee
- External review – undertaken by an independent body separated from government agencies such as a multi-stakeholder committee and external reviewers.

Internal reviews are generally characterised by an absence of documentation and results and a lack of transparency. External reviews are more formal and are characterised by use of review criteria and methodology with a documented, transparent outcome.

BOX 4: PRINCIPLES OF EIA

Purposive – should inform decision-making and result in appropriate levels of environmental and community protection.

Focused – the process should concentrate on environmental impacts and making decisions to overcome these.

Adaptive – the process should be able to adapt to the realities, issues and circumstances of proposals under review without compromising on the integrity. This could include lessons learnt from other proposals and projects.

Cost-effectiveness – the process should fulfil EIA objectives within the available limits of resources, costs, information and time.

Participative – the process should inform and involve interested and affected parties with their inputs and concerns addressed explicitly in documentation and decision-making.

Transparent – the process should be clear and easy to understand; the public should be ensured access to the information; identify the factors that are to be taken into account in decision-making; and acknowledge limitations and difficulties.

Rigorous – best practice science should be used that employs methodologies and techniques appropriate to address the problems being investigated.

Practical – the process should result in information and outputs that assist problem solving and are acceptable to and able to be implemented by proponents.

Credible – the process should be carried out with professionalism, rigor, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification.

Efficient – the process should impose minimal time and finance costs for proponents and participants whilst still fulfilling EIA requirements and objectives.

BOX 5: PROCESS COMPONENTS OF EIA

Screening - determine whether or not an EIA should be undertaken and at what level of detail.

Scoping – to identify the issues and impacts that are likely to be important to establish terms of reference of EIA.

Examination of alternatives – investigate the most preferred and environmentally sound options for achieving proposed objectives.

Impact analysis – identify and predict the likely environmental, social and other related effects of the proposal.

Mitigation and impact management – establish the measures that are necessary to avoid, minimize or offset predicted adverse impacts and, where appropriate, incorporate these into an environmental management plan or system.

Evaluation of significance – determine the importance and acceptability of impacts that you cannot mitigate.

Preparation of environmental impact statement (EIS) or report – to document clearly and impartially, the impacts of the proposal, the proposed measures for mitigations, the significance of effects and the concerns of the interested public and the communities affected by the proposal.

Review of the EIS – review whether the report meets its terms of reference, provides a satisfactory assessment of the proposal and contains the information required for decision-making.

Decision-making - to approve or reject the proposal and to establish the terms and conditions for its implementation.

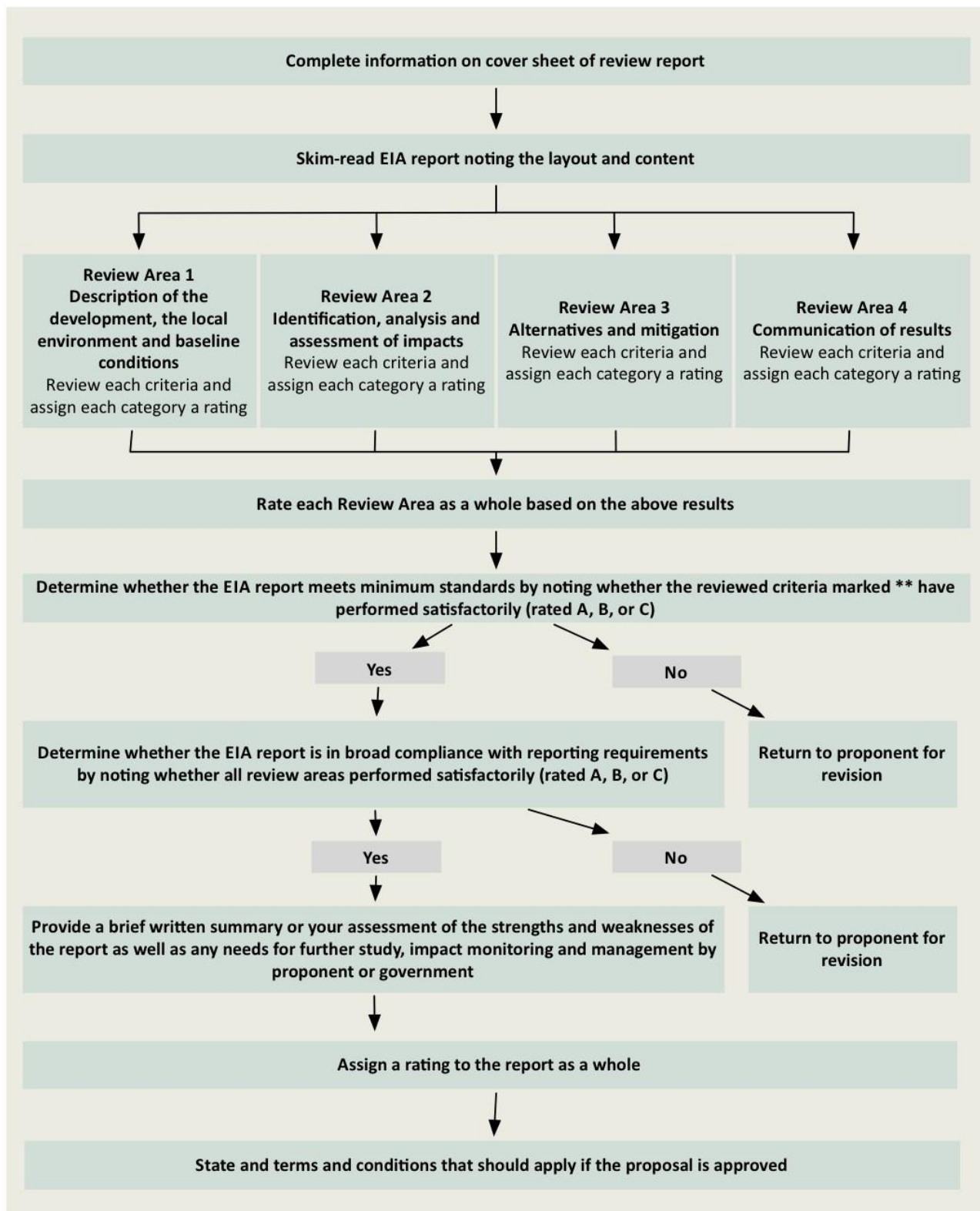


Figure 3: EIA Review Process (UNEP, 2002)

EIA in the Republic of Mauritius

THE ROLE OF EIA IN THE REPUBLIC OF MAURITIUS

Mauritius first adopted formal procedures for EIA in June 1993 following the enactment of the Environment Protection Act (EPA) 1991. In 2002, the EPA 1991 was repealed and replaced by the EPA 2002 (which has subsequently been amended in 2008). In addition to the EIA, which remains the key instrument for the evaluation of environmental impact, the EPA 2002 introduced the concept of preliminary environmental report (PER). PER is a shorter form of an EIA that applies to less polluting activities. The PER mechanism was introduced in Environment Protection Act 2002 with effect from 5 September 2002.

To date, the EIA and the PER are the pivotal instruments in the development process in Mauritius. Indeed, approval of these instruments conditions the grant of other authorisations, licences, or permits required under other legislation. It should be emphasized that, due to a lack of human resources, local authorities rely principally on the EIA licence or the PER approval to issue Building and Land Use Plans (BLUPs) for undertakings listed under the 5th Schedule of the EPA. In principle, no development should be commenced for undertakings listed under the 5th Schedule of the EPA by the proponent without having obtained an EIA Licence or PER Approval.

CURRENT GUIDELINES FOR EIA IN ROM

The current EIA procedures established under the EPA 2002 provide a mandatory approach to address and manage environmental and social issues in development projects. ROM has eight guidelines for EIA, covering a range of sectors, including: agriculture, utilities (water management) and tourism (Box 6). In addition, two guidelines offer more general guidance for proponents in preparing an EIA and a Preliminary Environmental Report (PER). These guidelines provide the context of the target industry/sector and outline the report requirements for preparation and submission of the report (e.g. environmental parameters, regulatory constraints) as stated in the EPA 2002. The primary difference between the general EIA and PER guidelines and the guidelines for specific undertakings, is the incorporation of Climatic Conditions and Associated Impacts within the EIA guidelines for specific undertakings.

BOX 6: EXISTING EIA/PER GUIDELINES

EIA Specific:

1. A Proponent's Guide to Environmental Impact Assessment (2004)
2. EIA Guidelines for Proposed Desalination Plants (2005)
3. EIA Guidelines for Fish Farming in the Fish Farming Zones (2009)
4. EIA Guidelines For Proposed Stone Crushing Plants (2005)
5. EIA Guideline for Proposed Coastal Hotel Projects (2004) (Under review)
6. EIA Guideline For Proposed Residential Morcellement Projects (2004) (Under review)

PER Specific:

7. A Proponent's Guide to Preliminary Environmental Report (PER) (2009)
8. PER Guideline for Rearing of Poultry Above 5000 Heads

Undertakings that require an EIA licence and PER approval are listed under Part A and Part B of the Fifth Schedule of EPA. PER is a shorter form of an EIA and this applies to less polluting activities. The PER is a short form version of the EIA, acting as a preliminary analysis of impacts associated with the proposed project and the identification of mitigating measures. Project proposals that warrant more in-depth analysis of potential environmental harm require an EIA, for example: construction of breakwaters, seawalls, dykes, hotels, desalination plants and municipal wastewater treatment plants (Hamilton & Associates 2012). Undertakings that require an EIA licence or PER Approval are also listed under the Part A and B of the Fifth Schedule of the Environment Protection Act 2002.

The Environment Assessment Division processes and reviews all EIA and PER applications in consultation with relevant government authorities. There are five broad steps involved in the processing and evaluation of EIA license applications (Table 1).

Table 1: Steps in the review of EIA licence applications (Environmental Protection Act 2002)

Step	Activity
1	The Director (a) Reviews an EIA submitted by a proponent and determines its scope and contents; and (b) Subject to subsection (5), refers the EIA, other than the EIA relating to an exempt undertaking, with such comments and observations as he thinks appropriate, and with any public comment submitted under section 20, to the EIA Committee for examination
2	The Director may for the purpose of the review (a) Request any public department, an enforcing agency, any non-governmental organisation or any other person, to submit their observations in writing on the EIA; (b) Set up a technical committee to advise him on the EIA or on any aspects of the undertaking; (c) Require the proponent to carry out further study or to submit additional information for the purpose of ensuring that the EIA is as accurate and exhaustive as possible.
3	Subject to subsection (5), any observation made pursuant to a request made under subsection (2)(a) shall be made not later than 14 days after the expiry of the time limit set for submission of public comments under section 20(3)(d), after which date it shall be presumed that the person does not have any observation to make.
4	Where in respect of an EIA, other than one submitted through the Board of Investment, it appears to the Director that the time limit set out in subsection (1)(b) cannot for any reason be met, he may, after consultation with the proponent, refer the EIA on a date not later than 28 days after the expiry of that time limit, and shall inform the proponent accordingly.
5	Where an EIA is submitted through the Board of Investment - (a) The observations requested under subsection (2)(a) shall be made not later than 7 days after the request; (b) The Director shall refer the EIA to the Committee not later than 14 days after the expiry of time limit set for the submission of public comments under section 20(3)(d).

The guidelines provide guidance for proponents and consultants to prepare an EIA report, which help proponents review their EIA submissions to ensure prescribed contents are included. However, the evaluation criteria used by the EA Division, the Director, the Minister or the EIA Committee to determine the suitability of the proposed project are not currently captured within the EIA guidelines.

Limitations of existing EIA process

A number of issues have emerged with regard to processing of EIA and PER applications within ROM. These issues align to areas of EIA compliance and enforcement, the institutional framework and staff resourcing (for further details, refer to Landell Mills, 2009).

Recommendations to address these issues have been provided through previous work to deliver an ICZM framework for ROM in 2009 (see Figure 4). While these issues are not directly related to the integration of climate change into the EIA process, they highlight elements of the EIA application and approval process that need to be addressed in conjunction with integration of climate change considerations and indeed as a pre-requisite for effectiveness of any mainstreaming efforts.

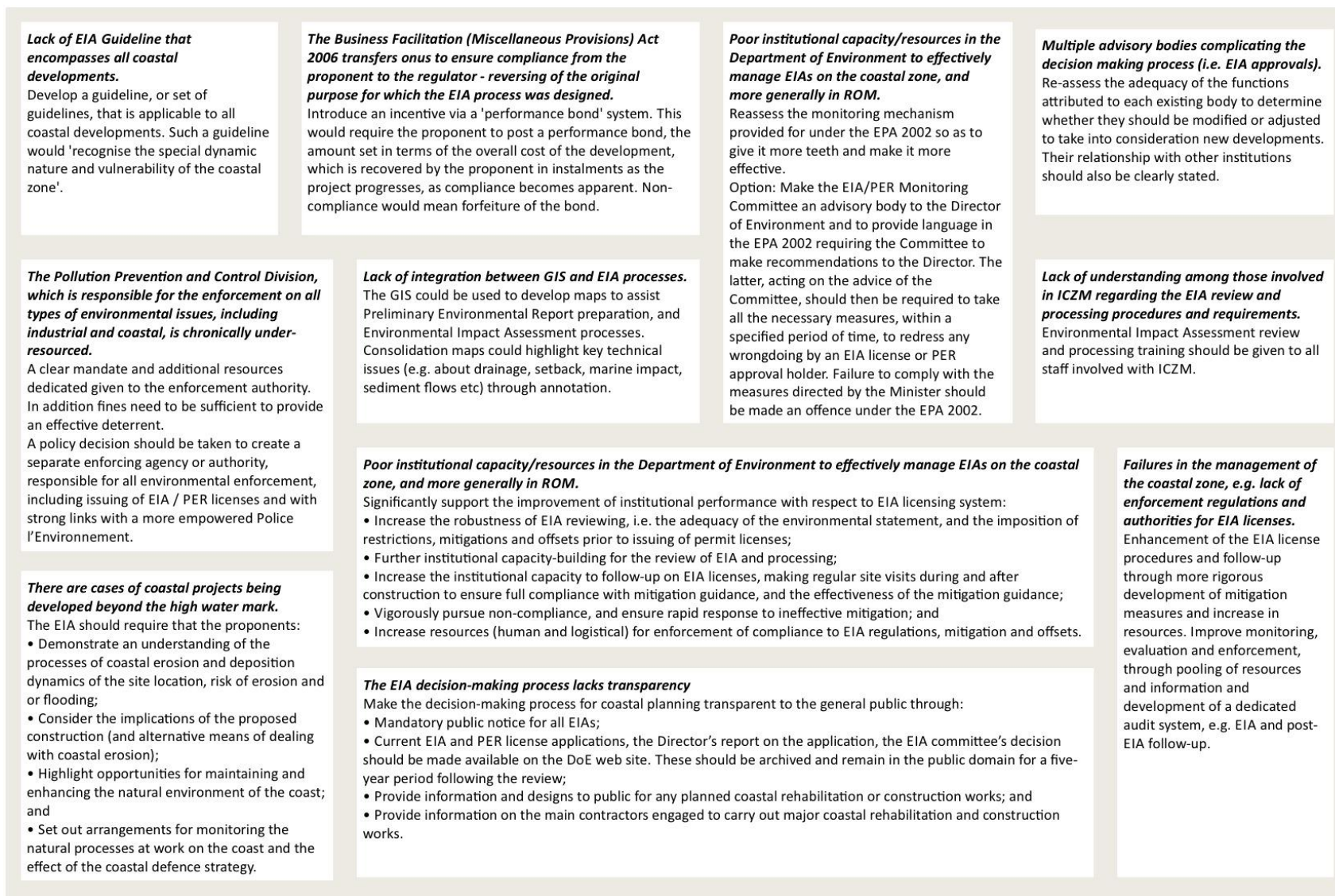


Figure 4: Recommendations to address existing issues with EIA processing in the ROM.

What is Happening Elsewhere?

A recent review of progress in mainstreaming climate change into EIA was undertaken by OCED (OECD 2011). The review revealed few examples of climate change mainstreaming, particularly at the policy and implementation levels. Furthermore, a recent workshop on mainstreaming climate change adaptation into EIAs, outlined progress in developing and developed nations, lessons learnt and common challenges in integrating climate change into EIA (AECN 2011) (Box 6). This analysis confirmed that mainstreaming climate change into EIA is at an early stage of development. Despite this, the United States has demonstrated advanced progress. EIA became part of United States' mainstream coastal management in 1970 with the passage of the Federal National Environmental Policy Act (NEPA) (1969) (Black 1981). The NEPA Act laid the foundations for all subsequent EIAs; and requires consideration of the relationship of climate change effects to a proposed action or alternatives, including the relationship to proposal design, environmental impacts and mitigation and adaptation measures. Further, the Massachusetts Environmental Policy Act (MEPA) amended an existing statute to explicitly require climate change adaptation in environmental assessments. The United States is at the forefront of integrating climate change into EIA.

Climate change considerations can be integrated in EIA regulation, policy and guidance to ensure the process promotes sustainable development despite a changing climate. Entry points for climate change integration into the EIA are highlighted in Figure 5.

Operational guidance resources for mainstreaming climate change into EIA, including the Canada Environmental Assessment Agency (CEAA) and the Caribbean Community (CARICOM), provide practical integration and process steps required to guide proponents through the process of climate proofing proposed developments (Box 7). The guidelines provide a base from which to develop recommendations to integrate climate change into EIA in the ROM.

BOX 6: CHALLENGES AND LESSONS LEARNT

Common Challenges:

- Limited technical capacity - limitations in climate change forecasts; climate impact assessments are constrained by inappropriate indicators (e.g. lack of indicators to evaluate resiliency, adaptive capacity, effectiveness of adaptation measures)
- Institutional capacity - weak institutions, regulatory standards and communication channels between departments.
- Lack of suitable practitioners with working experience in both EIAs and climate change risk assessments.
- Limited availability and uncertainties of climate observations and projections at the project scale constitute a major obstacle
- Limited methodology and guidelines result in inconsistent EIAs, complicating integration of climate change considerations.
- CC-EIA integration is most critical for projects with long lifetimes (e.g. infrastructure)

Lessons Learnt:

- Globally there is a need for a clear methodology for climate risk assessment and vulnerability mapping.
- Clear guidance and adjustments of the legal and regulatory framework are necessary to bridge the gap between intention to mainstream climate change in EIA and actions
- EIA can be considered as an ideal tool for integrating climate change adaptation into new infrastructure projects.

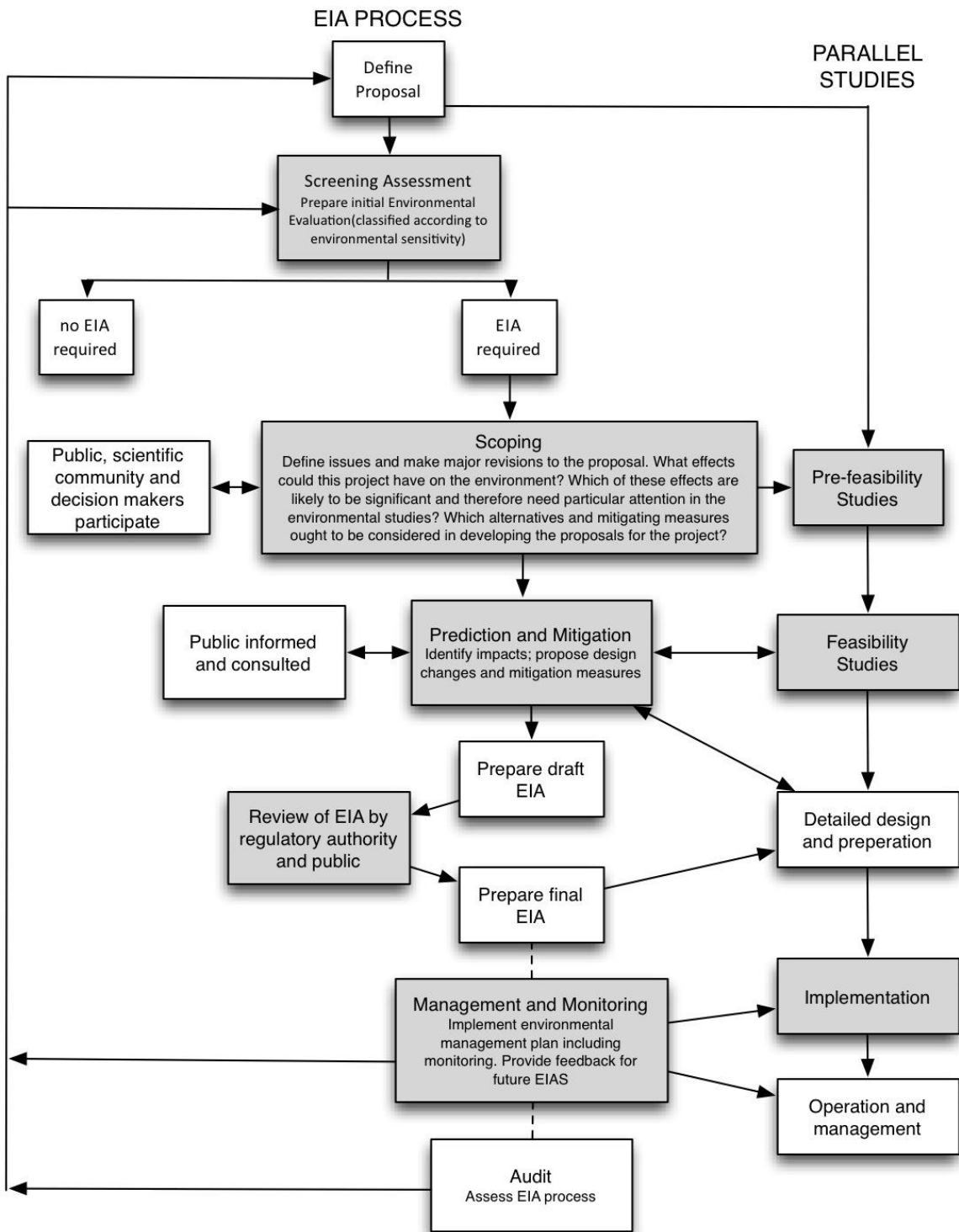


Figure 5: Entry points to integrate climate change into EIA (modified from Dougherty and Hall 1995). Note: Shaded boxes represent climate change entry points

BOX 7: COMPARISON OF TWO OPERATIONAL CLIMATE CHANGE MAINSTREAMING GUIDELINES

Comparison of two operational guidelines was conducted to determine the resource most suitable as a reference for ROM. The most significant similarities between the guidelines include: initial assessment of climate change risks prior to conducting the EIA study; the development of adaptation measures to reduce vulnerability to identified risks (direct or cumulative impacts); the need for ongoing monitoring of climate change impacts and adaptation measures to make appropriate adjustments.

Broadly, the CARICOM guideline provides greater detail, outlining how climate change considerations occur in the EIA study. For example, prescribed process steps for assessing climate change risks in the screening and scoping phases are detailed, and a vehicle for conducting this assessment is also referenced (i.e. the Caribbean Risk Management Guidelines for Climate Change Adaptation Decision Making). In contrast, the CEAA guideline provides a summary of the required steps for the integration; however, lacks guidance on specific processes, e.g. there is no guidance on how the proponent should approach the development and assessment of potential adaptation options, or criteria for appraising the EIA application.

Similarities

Guidance resources recommend a preliminary qualitative assessment of climate change considerations (i.e. change specific climate parameters and how this might affect the project) – occurs within the screening and/or scoping stages.

Highlight the need for the proponent to make an assessment of the likelihood/consequence associated with climate risks (e.g. for a specific climate parameter). Therefore, both adopt a risk-based approach.

Emphasis on using existing/available climate change projections and scenarios (e.g. IPCC GCMS) for the preliminary risk assessment stage.

Recommend ongoing monitoring of climate change impacts on the project, and readjustment of adaptation/mitigation measures where necessary – adaptive management.

Neither resources outline specific indicators to be used when assessing potential adaptation options, or indicators for determining the effectiveness of adaptation measures during monitoring – key knowledge gap.

Differences

CARICOM

Regional approach, aimed at countries within the Caribbean Community.

Generally more detailed, provides numerous examples of process steps and case studies.

More detailed guidance is provided with regard to conducting preliminary assessment of climate risks.

Inclusion of Cumulative Effects Assessments (CEAs) – separate to, or as a subcomponent of the EIA – which aims to evaluate the ‘impacts that are additive or interactive (synergistic) in nature and result from multiple activities over time, including impacts from the project/activity’.

A process for categorizing EIA studies is proposed (Category A, B, C). Helps the proponent determine extent of the EIA study (quantitative analysis).

Outlines specific focus areas where adaptation should be considered, and provides principles for adaptation strategies.

Includes a number of examples useful for proponents (e.g. examples of climate change risks and adaptation measures).

Inclusion of sample EIA appraisal criteria.

CEAA

Aimed at the Canadian context only.

Lacks detail with regard to specific EIA process steps the proponent should follow.

Alternate approach to identifying and assessing impact considerations

Provides broad approaches to integrating climate change consideration - mitigating GHG emissions and/or taking into account impact considerations.

Lack of detail regarding approach to developing adaptation options.

Lack of detail regarding contents/approach to developing a monitoring plan.

No procedural advice regarding climate change risk assessment is provided.

Proponent	Government (e.g. EIA Administrators, relevant Ministries)
Resources / Information Needs	
<p>Understanding of prevalent hazards in the project's zone of influence (frequency, magnitude, distribution)</p>	<p>Provision of climate change projection data.</p> <p>Provision of climate change risk assessment guidance/ procedures</p> <p>Potentially, the capacity to develop downscaled climate change projections specific to project areas.</p>
Skills	
<ul style="list-style-type: none"> • Ability to assess climate change risks associated with undertaking. • Potentially, the capacity to develop downscaled climate change projections specific to project area. • Ability to develop adaptation measures based on outputs of climate change risk assessment. • Capacity to monitor project response to changes in specific climate parameters (e.g. sea level rise), and to adjust adaptation measures accordingly. 	<ul style="list-style-type: none"> • Ability to assess the effectiveness and legitimacy of adaptation/mitigation measures proposed by the proponent. Ability to assess projects in the screening stage for potentially significant impacts on environment/ significant climate change impacts on the project. Ability to provide sound recommendations to proponent if EIA inadequately addresses climate change (e.g. adaptation measures). Potentially, the capacity to develop downscaled climate change projections specific to project area.

Figure 6: Resource and Skills Requirements for CC-EIA Integration

Recommendations to Integrate Climate Change Into EIA in ROM

There are a number of integration points to mainstream climate change into EIA in ROM (Figure 7). Mauritius has a well-established framework for EIA, supported by the Environmental Protection Act 2002. The EPA 2002 outlines the formal procedures regulating, administrating and managing EIAs and PERs. It also specifies clear obligations and duties of the Ministry of Environment as the agency responsible for administrating the EIA process.

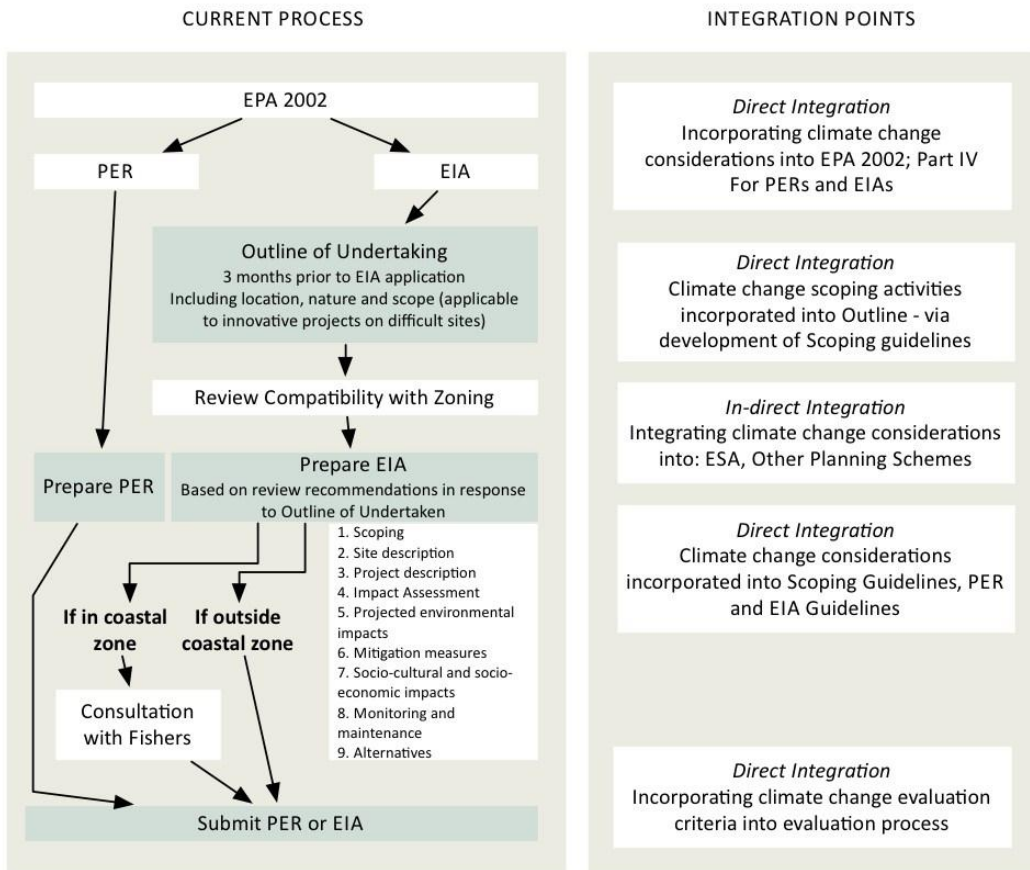


Figure 7: Entry points to integrate climate change into EIA in ROM

The Environmental Protection Act 2002 provides the regulatory backing for EIAs in Mauritius and prescribes elements mandated for incorporation within an EIA. Part IV of the Act outlines the requirements for EIA; however, the guidelines do not incorporate climate change considerations or issues of risk equity and distribution. Therefore, it is critical that the Act incorporates additional elements to address climate change issues (i.e. consideration of climate adaptation and GHG emissions mitigation). Recommendations to integrate climate change within Part IV of the EPA 2002 Act are presented in Annex 1. The recommendations build on the listed requirements for PER and EIA, providing mandate for the consideration of:

- Projected environmental changes during the life of the undertaking;
- Data and information necessary to identify and assess the effects that a change in climate may have on the undertaking;
- An estimation of GHG emissions attributes to the undertaking and associated activities;
- Assessment of the inevitable adverse environmental effects that the undertaking and any associated remedial strategies (i.e. seawalls), are likely to have on the adjoining environment, people and society, in locations surrounding the site of implementation in the manner proposed by the proponent; and

- Measures that the proponent proposes to take to avoid, reduce and where possible, remedy any significant effect that changes in the environment is likely to have on the undertaking.

The recommendations drafted in Annex 1 are based on document review and may be validated by a Legal Expert prior to adoption.

EIA AND PER GUIDELINES

Entry points to mainstream climate change into EIA and PER were identified drawing on good practice approaches (CARICOM 2004; Bell et al. 2003, European Commission 2001), and include the (i) Scoping phase (ii) Impact Assessment (within the EIA study) and (iii) Monitoring and Evaluation (Figure 5).

ROMs General EIA Guidelines specify that the EIA process should involve the following steps:

- *Screening*: process that assists in deciding whether the project requires an EIA
- *Scoping*: ensures that the study addresses all the issues important for decision-making. It involves setting terms of reference for the EIA, selecting a consultant and review of existing legislation.
- *The EIA Study*: incorporating a collection of baseline data, public participation, identification of impacts, socio-economic analysis, mitigating measures, review of alternatives and the development of a monitoring programme and environmental management plan.

However, the ROM guidelines exclude instructional guidance to complete screening or scoping and in turn, do not specify elements to incorporate within the screening and scoping phase. Further, there is no reference to Screening or Scoping within the EIA guidelines for specific undertakings.

Given the important role that the Scoping phase plays in integrating climate change into EIA, recommended guidelines to direct Scoping activities have been created (Annex 2). Climate change considerations have been mainstreamed into these guidelines. While Figure 7 suggests that Scoping may be undertaken during the Outline of the Undertaking, a recent amendment to the EPA (2002) has been proposed in which:

“The Director may request a proponent to submit at least 3 months before submitting his application for an EIA license under section 18, an outline of his proposed undertaking, including –

- (a) its location on any difficult and sensitive site such as cliffs, mountain slopes, islets;*
- (b) its nature , including innovative technology; and*
- (c) its scope”*

The amendment has been proposed as EIA applications are no longer received via the Board of Investment and therefore it is deemed appropriate to provide the Director the prerogative to request the Outline of Project (*pers comm.* EIA Division July 2012). This suggests Outlines are only undertaken upon request and are not a standard component of EIA reporting. Consequently, the optimum point for integrating climate change into the EIA process is within the Scoping phase of the EIA itself. The Scoping phase guidance has been provided as an appendix to the updated General EIA and PER Guidelines (refer to updated guidelines for details).

In the Scoping phase, climate change considerations are captured via the proponent proceeding through a list of questions. The Scoping phase questions incorporate both climate related and general EIA assessment questions. By progressing through this list of questions, the proponent will identify matters that are of highest importance to be addressed in detail within the EIA assessment. The proponent will undertake a preliminary vulnerability assessment within the Scoping phase, adopting a qualitative analysis approach. This will involve making judgements in regards to the level of interaction between climate change and the proposed undertaking. The qualitative assessment of climate risk will involve the proponent considering a series of questions regarding:

- The potential climate risks now and in the future that could result from the activity or be amplified by the activity;
- The amount of GHG emissions associated with the implementation of the activity, the loss or creation of carbon sinks; and
- Equity considerations in relation to risk distribution.

Qualitative and quantitative approaches have been advocated to incorporate climate change into the Scoping phase (CARICOM 2004; Bell et al. 2003). The approach advocated herein is a learning centred

approach that caters for a range of capabilities. The questions can be answered via qualitative or quantitative assessment approaches, depending on the resources, skills and capacity of the proponent. It is recommended that in subsequent phases of work, detailed guidelines be prepared, following CARICOM (2004), to provide proponents with the necessary tools to progress from qualitative to quantitative approaches.

The General EIA and PER Guidelines have been updated to integrate climate change considerations, drawing on the review of good practice in integrating climate change into EIA (i.e. CARICOM 2004; Bell et al., 2003; Government of Nova Scotia, 2011). The updated guidelines are presented in two separate documents – *A Proponent’s Guide to Environmental Impact Assessment (EIA): Incorporating Climate Change* and *A Proponent’s Guide to Preliminary Environmental Report (PER): Incorporating Climate Change*. In addition, a supplementary guide to incorporate climate change into EIA specific undertakings has been developed. This guide provides additional information tailored to specific undertakings to assist the proponent in developing a proposal that minimises environmental impact, whilst also taking into account changing environmental conditions (e.g. climate change). The supplementary guide is also intended to assist ROM authorities incorporate climate change considerations into EIA guidelines they will develop in the future. This guide is also available as a separate document – *A Supplementary Guideline for Incorporating Climate Change into Environmental Impact Assessment (EIA)*. Green text indicates additional content added to the original guidelines to incorporate climate change. Utilisation of the updated guidelines in EIA assessment is presented in Figure 8.

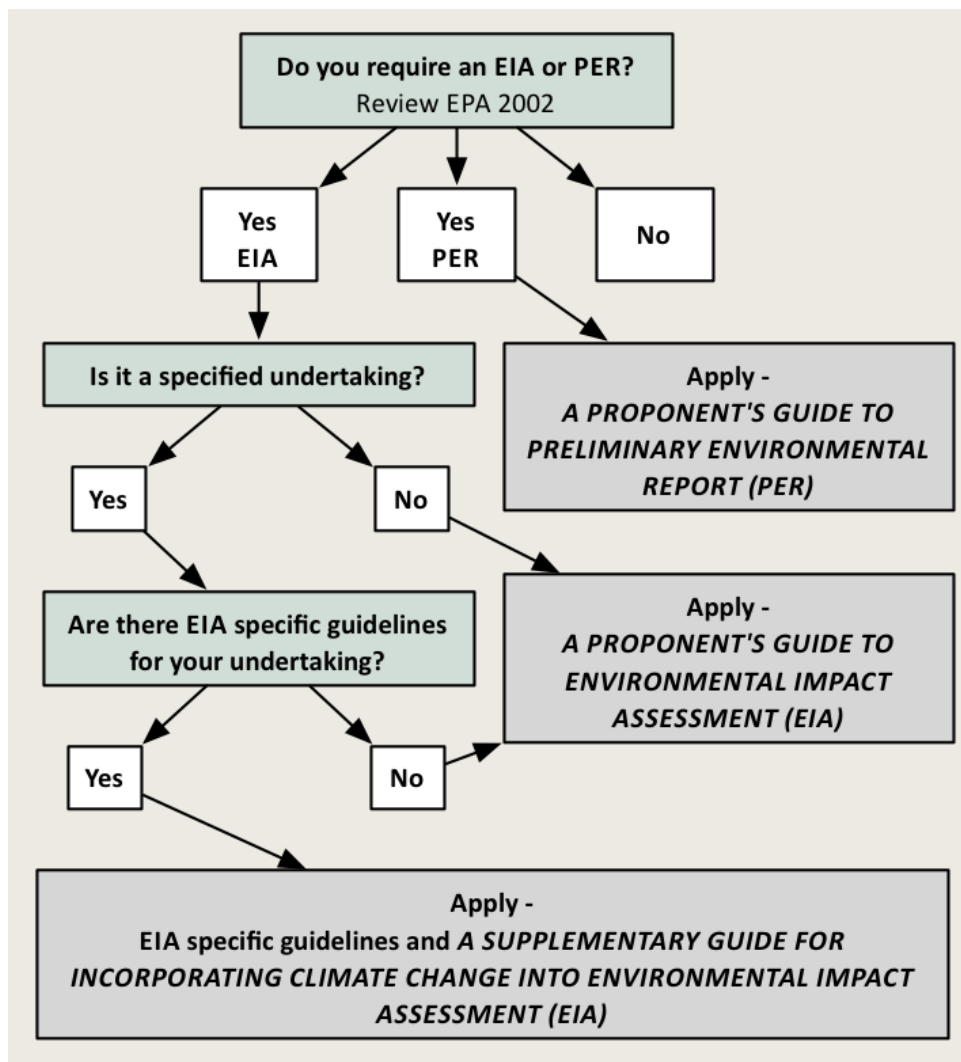


Figure 8: Decision tree guiding the adoption of updated EIA, PER and Supplementary Guidelines

EVALUATION

A comprehensive set of evaluation criteria facilitates consistent and detailed assessment of EIA submissions. Moreover, by including climate change considerations within this criterion, EIA assessors can be certain that climate change risks, adaptation and/or GHG mitigation measures have been appropriately examined. Currently, the following criteria are applied to assess the technical quality of submitted EIAs in ROM (*pers. comm*, EIA Division, July 2012)¹:

- Direct and indirect impacts
- Social, economic and cultural impacts
- Mitigating measures
- Inevitable adverse environmental impacts
- Irreversible & irretrievable commitment of resources
- Decommissioning of the project (if any)
- Rehabilitation Measures
- Percolation test

Whilst providing a sound basis for evaluation, the existing criteria do not provide a mechanism to evaluate the effectiveness of adaptation and mitigation measures outlined within EIAs. CARICOM (2004) provides a comprehensive checklist that the EIA Committee and Minister of Environment, may consider when assessing development proposals. The checklist specifically incorporates criteria to evaluate the climate change considerations within the EIA application (highlighted as grey cells within the checklist). The checklist is proposed as a baseline for evaluation criteria to be adopted by the EIA committee and others in reviewing EIA and PER applications. If adopted, technical capacity of the review panel to evaluate the quality of the proposed adaptation measures must be assured (Figure 9).

It is recommended that proponents be granted access to the evaluation criteria so as to better align the EIA study with the expectations of the review panel. The evaluation criteria may be presented as an appendix to both the EIA and Supplementary Guidelines.

¹ Please note that detailed subsections, or targeted questions, were not provided during consultation.

1. DESCRIPTION OF THE DEVELOPMENT, THE LOCAL ENVIRONMENT AND THE BASELINE CONDITIONS		
1.1	Policy, Legal and Administrative Framework: The adherence to national policies and legislation where necessary should be clearly outlined in the report	<input type="checkbox"/>
1.1.1	The regulations, standards, policies and guidelines applicable to project should be referred to in the report.	<input type="checkbox"/>
1.2	Description of the development: The purpose of the development should be described as should the physical characteristics, scale, design and where appropriate a description of the production process should be included.	<input type="checkbox"/>
1.2.1	The purposes and objectives of the development should be explained.	<input type="checkbox"/>
1.2.2	The design and size of the development should be described including diagrams, plans or maps	<input type="checkbox"/>
1.3	Baseline conditions: A description of the affected environment	<input type="checkbox"/>
1.3.1	Apply local land use plans, guidelines and policies and the other data to determine baseline conditions (biological and social) i.e., the future state of the environment in the absence of the project	<input type="checkbox"/>
1.3.2	Include historical review of climate conditions (temperature, rainfall, storm exposure), and anticipated climate change scenarios and impacts affecting the area of the proposed development. Refer to EIA guidelines for details	<input type="checkbox"/>
1.4	Environment description: The area and location of the environment likely to be affected by the development proposals should be described.	<input type="checkbox"/>
1.4.1	The area of the environment expected to be affected by the development should be indicated with the aid of a suitable map – for example does the study area fall within a Conservation Area/ Protected Area/ vulnerable area. Include hazard and/or vulnerability maps.	<input type="checkbox"/>
1.4.2	The affected environment should be defined broadly to include any effects occurring away from the immediate construction site. For example the dispersion of pollutants, etc.	<input type="checkbox"/>
1.4.3	The boundaries of the development site should be defined and its location clearly shown on a map.	<input type="checkbox"/>
1.4.4	The duration of construction, operation, and where appropriate, decommission phase should be estimated. Climate change impacts should be determined for each phase of the project.	<input type="checkbox"/>
1.5	Wastes:* The types and quantities of wastes produced should be estimated, and the proposed disposal routes to the environment described, including a description of the vulnerability of the proposed route to natural hazards associated with climate change. (*Wastes include all residual process materials, effluents and emissions.)	<input type="checkbox"/>
1.5.1	The types and quantities of waste matter and the rate at which these will be produced should be estimated.	<input type="checkbox"/>
1.5.2	Proposed approach to treat wastes and residuals should be outlined. If waste is to be recycled the process should be outlined.	<input type="checkbox"/>
2. IDENTIFICATION AND EVALUATION OF KEY ENVIRONMENTAL (INCLUDING CLIMATE CHANGE) & SOCIO-ECONOMIC IMPACTS		
2.1	Identification of Environmental Impacts: Methods adopted to identify all significant impacts of the project on the environment and impacts on the project from climate change should be outlined.	<input type="checkbox"/>
2.1.1	A brief description of the impact (including climate change impacts) identification method should be given, as should the rationale for using them.	<input type="checkbox"/>
2.2	Describe environmental impacts: Potential impacts of the development on the environment as well as the potential impact from climate change on the development should be investigated and described. Cover all potential effects of the development on the environment, and climate change impacts on the development and surrounding area.	<input type="checkbox"/>
2.2.1	Include: i) the direct and indirect effects of the project on the environment. Distinguish between positive and negative effects. ii) the direct and indirect effects of climate change on the project. Distinguish between positive and negative effects.	<input type="checkbox"/>
2.2.2	The above effects on biodiversity, soil, water, air, climate landscape, material assets, human health risk and the interactions between these, should be investigated and described.	<input type="checkbox"/>

Figure 9: Evaluation Criteria Checklist

2.2.3 The magnitude of the predicted impact should be identified. Where possible predictions of impacts should be expressed in measurable quantities with ranges and or confidence limits as appropriate.

2.3 Assess socio-economic and environmental impact significance: Estimate the significance of the projected impacts for society and the environment.

2.3.1 The climate change models, if any, applied in the assessment should be identified. The quality standards, together with the rationale, assumptions and value judgments used in assessing significance should be fully described.

2.3.2 Where mitigation or adaptation measures for impacts have been proposed, the significance of any impact remaining after mitigation or appropriate adaptation measures should be described.

2.5 Definition and identification of socio-economic impacts: The effect of the development on the socio-economic characteristics of the project area should be investigated and described.

2.5.1 The socio-economic characteristics of the existing location should be identified

2.5.2 The impacts of: (a) the proposed project; and (b) climate change, on the socio-economic environment should be analysed including, but not limited to, the use of land, the main economic activities (tourism etc.), employment levels and existence of archaeological and historical sites.

3. ALTERNATIVES

3.1 Alternatives: Feasible alternatives to the proposed project should be considered. The socio-economic and environmental implications of each presented, and the reasons for their rejection briefly discussed

3.1.1 Alternative sites should be considered where these are practicable, available and cost-effective to the developer. The advantages and disadvantages of these should be discussed and the reasons for the final choice given.

3.1.2 Where available, alternative processes, designs and operating conditions should be considered at an early stage of the project planning and the socio-economic and environmental implications of these investigated and reported where the proposed project is likely to have significant adverse environmental impacts.

3.1.3 The analysis of alternatives should include the "no-action" alternative.

4. MITIGATION & ADAPTATION

4.1 Mitigation Measures: All significant adverse impacts of the project on the environment and vice versa should be considered for mitigation. Evidence should be presented to show that proposed mitigation measures will be effective when implemented.

4.1.1 Where feasible, mitigation measures should be put forward. The cost of the mitigation action should be assessed and included in the Report.

4.1.2 Assess the effectiveness of the mitigation methods. Where the effectiveness is uncertain data should be introduced to justify the assumptions made.

4.1.3 Any unmitigated impacts should be indicated and justified.

4.1.4 In the case of beneficial impacts it should be demonstrated how these can be maximized.

4.3 Adaptation measures: Consider how climate change impacts could be addressed through the formulation of appropriate adaptation measures.

4.3.1 It should be clear to what extent adaptation measures will be effective when implemented. Where the effectiveness is uncertain, data should be introduced to justify the assumptions made.

4.3.2 The cost of the adaptation measures should be assessed and included in the Report.

4.3.3 Any significant climate change impacts that cannot be addressed through adaptation measures should be indicated and justification provided.

- | | | |
|-------|--|--------------------------|
| 4.3.4 | In the case of beneficial impacts, demonstrate how these can be maximized. | <input type="checkbox"/> |
| 4.3.5 | Proponents should be committed to, and capable of carrying out the proposed adaptation measure. Plans should be presented outlining how adaptation measures will be implemented. | <input type="checkbox"/> |

5. MONITORING

- | | | |
|-------|--|--------------------------|
| 5.1 | Monitoring programme: Proponents should include a monitoring plan. | <input type="checkbox"/> |
| 5.1.2 | A detailed environmental monitoring plan should be outlined, specifying the actions, costs and responsibility for the monitoring activities. | <input type="checkbox"/> |
| 5.1.3 | The plan should clearly state the institutional arrangements for carrying out the work, the parameters to be monitored, methods employed, standards or guidelines to be used, evaluation of results, schedule and duration of monitoring, format and frequency of reporting. | <input type="checkbox"/> |
| 5.2 | Environmental management and training: Proponents should include a management plan. | <input type="checkbox"/> |
| 5.2.1 | The proponent should include a detailed management plan outlining how the environment and any significant impacts from climate change will be managed or addressed during the construction and operational phases of the project. | <input type="checkbox"/> |
| 5.2.2 | The training programme for employees of the facility, where applicable, should be outlined. | <input type="checkbox"/> |

6. PUBLIC / COMMUNITY INVOLVEMENT

- | | | |
|-------|--|--------------------------|
| 6.1 | Details of the public engagement strategy during EIA, construction and operational phases should be outlined. | <input type="checkbox"/> |
| 6.1.1 | The methods employed to obtain public/community input should be described and assessed for appropriateness depending on size of audience, expertise required and issues and concerns should be documented. | <input type="checkbox"/> |

7. COMMUNICATION OF RESULTS

- | | | |
|-------|---|--------------------------|
| 7.1 | Layout: The layout of the Report should enable the reader to find and assimilate data easily and quickly. External data sources should be acknowledged. Refer to EIA guidelines for further guidance. | <input type="checkbox"/> |
| 7.1.1 | Where climate change models and scenarios are used, the source of such models and scenarios should be identified. The risk management regime used to address any scientific uncertainty should be identified. | <input type="checkbox"/> |
| 7.2 | Presentation: Care should be taken in the presentation of information to make sure that it is accessible to the non-specialist. | <input type="checkbox"/> |
| 7.3 | Emphasis: Information should be presented without bias and receive the emphasis appropriate to its importance in the context of the environmental report. | <input type="checkbox"/> |
| 7.4 | Executive Summary: There should be a clearly written executive summary of the main findings of the study and how they were reached. | <input type="checkbox"/> |
| 7.4.1 | The summary should cover all main issues discussed in the Report and contain at least a brief description of the project and the environment, a brief summary of anticipated significant climate change impacts affecting the development, an account of the main mitigation and adaptation measures to be undertaken by the developer and a description of any significant residual impacts. | <input type="checkbox"/> |
| 7.4.2 | A brief explanation of the method by which these data were obtained, and an indication of the confidence that can be placed in them should also be included. | <input type="checkbox"/> |

MONITORING

EIA proponents monitor the effectiveness of their mitigation measures as a component of their monitoring plan (presented within the submitted EIA) and government representative's monitor developments post approval to ensure compliance with EIA review specifications. Recommendations to integrate climate change within the monitoring plan are incorporated within the updated guidelines that accompany this report, while recommendations to enhance enforcement and compliance are presented in Table 2.

The recommendations are drawn from Landell Mills (2009). Consultation undertaken during project implementation suggests that the recommendations are yet to be implemented. Nonetheless, they remain valid and where feasible, should be implemented to support the integration of climate change in EIA and the EIA system more generally.

Table 2: Recommendations to enhance enforcement of EIA (adapted from Landell Mills, 2009)

Issue	Recommendation
<p>The Pollution Prevention and Control Division is responsible monitoring of PER Approval, EIA Licence and exercising ex-post control of environmental guidelines. The division is chronically under-resourced.</p>	<p>A clear mandate given to the enforcement authority and additional resources dedicated to checking compliance and enforcement of compliance, timely prosecution of non-compliance and enforcement of restitution. In addition, fines need to be sufficient to provide an effective deterrent (change in law and training awareness of judiciary).</p> <p>A policy decision should be taken to create a separate enforcing agency or authority responsible for all environmental enforcement, including issuing of EIA / PER licenses and with strong links with a more empowered Police l' Environnement.</p>
<p>Due to poor institutional capacity there are failures in the management of the coastal zone, e.g. lack of enforcement regulations and authorities for EIA licenses.</p>	<p>Enhancement of the EIA license procedures and follow-up through:</p> <ul style="list-style-type: none"> • More rigorous development of mitigation measures. • Increase in resources dedicated to follow-up with regards to mitigation measures and unforeseen impacts during and after project development and construction. <p>Improve monitoring, evaluation and enforcement across the relevant institutions and authorities dealing with coastal zone issues, through pooling of resources and information and development of a dedicated audit system, e.g. EIA and post-EIA follow-up.</p>
<p>Poor institutional capacity/resources in the Ministry of Environment to effectively manage EIAs on the coastal zone and in ROM more generally.</p>	<p>Significantly support the improvement of institutional performance with respect to EIA licensing system:</p> <ul style="list-style-type: none"> • Increase the institutional capacity to follow-up on EIA licenses, making regular site visits during and after construction to ensure full compliance with mitigation guidance and the effectiveness of the mitigation guidance; • Vigorously pursue non-compliance and ensure rapid response to ineffective mitigation; and • Increase resources (human and logistical) for enforcement of compliance to EIA regulations, mitigation and offsets. <p>Failure to comply with a term or condition of a PER Approval/EIA licence is an offence under Section 16(10) and 23(9) of EPA 2002, respectively. Thus the EIA/PER Monitoring Committee may be empowered through the Minister to direct the competent authority to take enforcement action in respect of breach of an environmental law falling directly under its purview. The latter would then report to the Committee on actions taken to remedy the contravention. The Minister may report the failure of the competent authority to the Chairperson of the National Environment Commission for consideration (<i>pers comm</i> Policy and Planning Division October 2012).</p>
<p>The Business Facilitation (Miscellaneous Provisions) Act 2006 provides for a legal framework, which allows businesses to start operations</p>	<p>To encourage compliance to environmental standards it is recommended that ROM introduce an incentive - via a 'performance bond' system. This system would require the proponent to post a performance bond, the amount set in terms of the overall cost of the development, which is recovered by the proponent in instalments as the project progresses, as compliance becomes apparent. Thus the overall cost of the project is not affected, but there is a strong incentive for full compliance, as non-compliance</p>

on the basis of self-adherence to comprehensive and clear guidelines and allow the relevant authorities to check for compliance by exercising ex-post control. This provision was introduced to reduce impediments to development.

would mean forfeiture of the bond.

Where to from here?

INTEGRATING CLIMATE CHANGE INTO EIA GUIDELINES

The climate change recommendations captured within the updated guidelines match the level of detail (i.e. associated processes) contained within existing EIA/PER guidelines. For example, proponents are requested to conduct a climate change impact/vulnerability assessment to evaluate the undertaking's exposure and sensitivity to climate impacts (e.g. sea level rise); however, detailed guidance on the approach to conduct a vulnerability assessment is not provided.

In subsequent work on climate change integration within EIA, more detailed analysis may be undertaken to develop a feasible risk assessment approach that aligns to existing institutional and regulatory conditions in ROM. The risk assessment approaches outlined in the CARICOM and Canadian guidelines provide a useful starting point for future work. Both advocate a qualitative risk assessment of climate change impacts early in the EIA process. Since the cost of developing climate change projections for the project site may be prohibitive or inappropriate, a qualitative assessment of risk is believed to achieve a balance between affordability and managing uncertainty associated with climate change. Separate guidelines are recommended to conduct this assessment (below).

CEAA recommends:

- CAN/CSA-Q634-M91 Risk Analysis Guidelines Requirements and Guidelines (CSA, 1991)
- CAN/CSA-Q850-97 Risk Management: Guidelines for Decision Makers (CSA, 1997)

CARICOM recommends:

- Caribbean Risk Management Guidelines for Climate Change Adaptation Decision Making (CARICOM, 2003)

In developing an equivalent support tool it is important to ensure that EIA guidance is aligned to the institutional and legislative context and the associated human and technical capacities. Existing standards may be leveraged when developing a climate change risk assessment tool (i.e. Risk management principles and guidelines – MS ISO 31000:2009, Risk assessment techniques – MS ISO 31010:2009) (see Mauritius Standards Bureau 2012) (Box 8).

BOX 8: AVAILABLE STANDARDS TO SUPPORT INTEGRATION OF CLIMATE CHANGE INTO EIA

MS ISO 31000:2009: Risk Management – Principles and guidelines

MS ISO 31010:2009: Risk Management – Risk assessment techniques

MS ISO 14066:2011: Greenhouse gases – Competence requirements for greenhouse gas validation teams and verification teams

MS ISO 14064-1:2006: Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

MS ISO 14064-2:2006: Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements

MS ISO 14064-3:2006: Greenhouse gases – Part 3: Specification with guidance for the validation and verification of

greenhouse gas assertions

MS ISO 14066:2011: Greenhouse gases – Competence requirements for greenhouse gas validation teams and verification teams

MS ISO 16813:2006: Building Environment Design – Indoor Environment – General Principles

MS ISO 23045:2008: Building Environment Design – Guidelines to assess energy efficiency of new buildings

A number of entry points for assessment, mitigation and monitoring of GHG emissions have been identified and highlighted within the EIA and PER guidelines. However, the actions required to deliver GHG recommended outputs, such as a GHG Monitoring Plan, are not elaborated. ROM may utilise the expertise and leadership of existing authorities (i.e. Climate Change Division and Energy Efficiency Management Office) to assist proponents conduct GHG mitigation effectively.

EVALUATION

The proposed criteria for evaluating EIA and PER applications align with ROM's General EIA guidelines. In subsequent stages of implementation, relevant ROM authorities may conduct a review of the criteria to ensure consistency with existing policies and internal processes. This will refine the evaluation criteria and ensure relevance to local context.

The recommended criteria offers a comprehensive set of questions that a review panel may consider when assessing the merits of a proposed development and include climate change considerations. Review of ROM's existing EIA evaluation suggests determinants of a good EIA are not substantial. Adopting CARICOM's evaluation criteria, or a version of it, will strengthen ROM's existing evaluation process whilst supporting effective analysis of climate change factors. The review panel may have limited technical capacity to account for climate change and therefore, existing authorities be leveraged to remedy this resource (including members of the Climate Change Division or Energy Efficiency Management Office on the review panel). Future work may focus on developing measures and strategies to enhance ROM's technical and human capacity in assessing and monitoring climate change impacts associated with coastal developments.

CAPACITY BUILDING

Recommendations to integrate climate change into EIA/PER guidelines and other supporting regulations (i.e. the Environmental Protection Act 2002), as outlined herein, provide a starting point for considering climate change in the development approvals process. As outlined in the Section: What is Happening Elsewhere?, there are a number of resource and skill requirements to support effective integration of climate change considerations into EIA. Entry points to address the identified resource and skill requirements for EIA proponents and line ministries are outlined in Figure 10; and include:

- Providing the necessary supporting resources (such as specified scenarios for climate change and guidelines for adoption of analysis tools such as Cost Benefit Analysis) that may be adopted by proponents in the EIA assessments;
- Training and capacity building of EIA staff in critical evaluation of climate change adaptation and mitigation strategies;
- Adoption of existing spatial information datasets and continued development of spatial data resources, to support evaluation.

	Resources and Information		Skills	
	Required	Entry Points	Required	Entry Points
Proponent	Understanding of prevalent hazards in the project's zone of influence (frequency, magnitude, distribution)	Leverage available IPCC/ Second National Communication climate change impact projections.	Provision of climate change projection data. Provision of climate change risk assessment guidance/procedures Potentially, the capacity to develop downscaled climate change projections specific to project areas.	Develop, or use existing, Cost Benefit Analysis guideline to assist proponents in appraising potential adaptation options. Provide proponents with training/guidance on interpreting the effect climate change projections will affect components of the project (supplementing EIA Guideline recommendations).
Government (e.g. EIA Administrators, relevant Ministries)	Ability to assess climate change risks associated with undertaking. Potentially, the capacity to develop downscaled climate change projections specific to project area. Ability to develop adaptation measures based on outputs of climate change risk assessment. Capacity to monitor project response to changes in specific climate parameters (e.g. sea level rise), and to adjust adaptation measures accordingly.	Make climate change projection data available to proponents (e.g. factsheets).	Ability to assess the effectiveness and legitimacy of adaptation/mitigation measures proposed by the proponent. Ability to assess projects in the screening stage for potentially significant impacts on environment/ significant climate change impacts on the project. Ability to provide sound recommendations to proponent if EIA inadequately addresses climate change (e.g. adaptation measures). Potentially, the capacity to develop downscaled climate change projections specific to project area.	Provide all relevant EIA staff with training in basic climate science and related issues (i.e. appropriate adaptation measures, consequences of climate change impacts on development/ society). Leverage available spatial data outlining sensitive environmental areas and coastal areas (habitats, coastal areas subject to increased erosion).

Figure 10: Resource and skill requirements for climate change-EIA integration

Conclusion

Recommendations to incorporate climate change into ROMs EIA process have been provided, based on a scoping assessment of current practice and review of international good practice. The recommendations will assist ROM decision-makers and EIA practitioners integrate climate change considerations into EIA processes. Outputs include recommended entry points for climate change considerations in EIA and PER guidelines and legislation (i.e. EPA 2002). As a planning mechanism, EIAs are an ideal tool to address climate change within proposed developments. Climate integrated EIA can assist proponents in identifying climate risks early in the development and design process; thereby ensuring appropriate measures are implemented to enhance the resilience.

ROM EIA, PER and Supplementary Guidelines that have climate change integrated within them are available as separate documents:

- *A Proponent's Guide to EIA: Incorporating Climate Change*
- *A Proponent's Guide to PER: Incorporating Climate Change*
- *A Supplementary Guideline for Incorporating Climate Change in EIA*

The resources outline specific stages in the EIA process where proponents can consider climate change factors, such as: scoping of significant environmental impacts (criteria provided); evaluating significant climate change risks and how these might affect the proposed development; developing measures that address or remove associated climate risks (via adaptation and GHG mitigation measures); and finally, developing monitoring programmes to assess changing environmental conditions, the impact this has on the development, as well as the effectiveness of adaptation/mitigation measures.

Enhancements to EIA/PER guidelines are intended as signposts for additional processes required to incorporate climate considerations. Recommended enhancements should be evaluated to determine where additional process guidance is required – an example being the development of a climate change risk assessment methodology tailored to ROM. Outputs of that assessment may form the basis of future work, which would require more detailed in country consultation with proponents, EIA practitioners, assessors and relevant committees.

EIA is a one tool within a broader suite of tools and mechanisms that enhance sustainable development in the coastal zone. In isolation, the EIA process offers an approach to climate proof new developments. To progress towards a more holistic approach to sustainable development in the ROM, other supporting environmental policy, plans and legislation must also be cognisant of climate change. Recommendations captured within the accompanying ICZM report² will be integral in this regard.

² Refer to *Integrating Climate Change into Coastal Planning and Management in the Republic of Mauritius: Recommendations for mainstreaming climate change into the current ICZM framework*.

Bibliography

- Asian Environmental Compliance and Enforcement Network (AECN) (2011) *Outputs from the Regional Workshop on Mainstreaming Climate Change Adaptation in Environmental Impact Assessment in Asia*, Bangkok, Thailand - 25-26 October 2011: Available from: <http://www.aecen.org/events/regional-workshop-mainstreaming-climate-change-adaptation-environmental-impact-assessment-asi>
- Bell, A., Collins, N., and Young, R (2003). *Practitioner's Guide to Incorporating Climate Change into the Environmental Impact Assessment Process*. Canadian Environmental CAFTA-DR and U.S. Country EIA, 2011. EIA Technical Review Guidelines: Tourism-Related Projects Volume I, Regional Document prepared under the CAFTA DR Environmental Cooperation Program to Strengthen Environmental Impact Assessment (EIA) Reviews.
- Black, P.E (1981). *Environmental Impact Analysis*. University of New York, Syracuse, USA
- CARICOM (2003). Caribbean Risk Management Guidelines for Climate Change Adaptation Decision Making. Caribbean Community & South Pacific Regional Environmental Programme (SPREP).
- CARICOM (2004). Guide to the Integration of Climate Change Adaptation into the Environmental Impact Assessment (EIA) Process. Caribbean Community & South Pacific Regional Environmental Programme (SPREP).
- CEAA (2012) 'Canadian Environmental Assessment Act, 2012', Canadian Environmental Assessment Agency. Available from: <http://www.ceaa.gc.ca/default.asp?lang=En&n=16254939-1>
- CSA (1991). Risk Analysis Requirements and Guidelines CAN/CSA-Q634-91. Canadian Standards Association, ON, Canada.
- CSA(1997). Risk Management: Guideline for Decision Makers CAN/CSA-Q850-97. Canadian Standards Association, ON, Canada.
- Dougherty, T.C. and Hall, A.W. (1995) Chapter 3: EIA Process, In: *Environmental impact assessment of irrigation and drainage projects*. Natural Resources Management and Environment Department, Food and Agriculture Organisation (FAO) of the United Nations.
- European Commission (2001) *Guidance on EIA: Scoping*, Environmental Resources Management, Office for Official Publications of the European Communities, Luxembourg.
- Gilpin, A (1995). *Environmental Impact Assessment: Cutting Edge for the Twenty-First Century*. Cambridge University Press, Cambridge.
- Government of Nova Scotia (2011). Guide to Considering Climate Change in Environmental Assessments in Nova Scotia. Nova Scotia Environment, Government of Nova Scotia, Canada: Available from: <http://www.gov.ns.ca/nse/ea/docs/EA.Climate.Change.Guide.pdf>
- Hamilton & Associates (2012) Draft Report for the Formulation of Climate Resilient Policy and Legislation and Capacity Building in the Context of the Africa Adaptation Programme (AAP) Prepared by Hamilton, Brown - Hamilton and Associates Attorneys-at-law and Business Advisors, June (2012).
- Landell Mills (2009). *Institutional Strengthening and Capacity Building: The Institutional Framework Requirements for Integrated Coastal Zone Management*. Landell Mills Development Consultants.
- Macharia, S. N (2005). *A framework for best practice environmental impact assessment follow-up: A case study of the Ekati Diamond Mine*. Department of Geography University of Saskatchewan, Canada.
- Mauritius Standards Bureau (2012). 'Standards Catalogue'. Republic of Mauritius. <http://www.gov.mu/portal/sites/msb/index.htm>
- OECD (2011). Incorporating climate change impacts and adaptation in Environmental Impact Assessments: Opportunities and Challenges. *OECD Environmental Working Paper No. 24*, OECD Publishing.
- Sorensen, J.C, & West, N (1992). *A Guide to Impact Assessment in Coastal Environments*. Narragansett, RI: Coastal Resources Center, University of Rhode Island, New York.
- Thomas, I. (1996). *Environmental Impact Assessment in Australia*. Federation Press, Sydney
- UNEP (2002). *Environmental Impact Assessment Training Resource Manual*. United Nations Environmental Programme, Division of Technology, Industry and Economics.

Annex 1: Draft Recommended Amendments to EPA 2002

This Annex contains text drawn from Part IV of the EPA 2002. The content in 'green' is draft content recommended to be incorporated into the EPA 2002 to ensure that climate change risks are considered as a component of the EIA process. For the purpose of this report, the EPA 2002 has been updated to reflect changes outlined in the Environmental Protection (Amendment) Act 2008.

Part IV -ENVIRONMENTAL IMPACT ASSESSMENT

15. Prohibition to carry out an undertaking
16. Preliminary environmental report
17. Non-listed activity
18. Application for an EIA licence
19. Consultancy
20. Public Comment
21. Review of EIA
22. EIA Committee
23. Decision on EIA
24. EIA approval
25. Submission of fresh EIA
26. Transfer of undertaking
27. Effect of EIA licence
28. Exemption

15. Prohibition to carry out an undertaking

(1) Subject to subsection (2) and section 17, no person shall be required to provide a preliminary environmental report or an EIA in respect of any activity or project other than an undertaking.

(2) No proponent shall commence or cause to be commenced;

(a) a proposed new undertaking specified in Part A of the First Schedule, without an approval of a preliminary environmental report in accordance with section 16;

(b) a proposed new undertaking specified in Part B of the First Schedule, without an EIA licence;

(c) any undertaking, more than 3 years after the issue of an EIA license or PER approval unless the Minister, in circumstances beyond the control of the proponent, otherwise determines in respect of that undertaking.

(3) A proponent, other than a proponent applying through the Board of Investment, shall, at least 3 months before submitting his application for an EIA licence under section 18, provide the Director with an outline of his proposed undertaking, including its location, nature and scope.

(4) On the basis of the outline submitted under subsection (3), the Director may impose the terms of reference for the EIA report, the fields of study that are required to be covered, and the levels of expertise and the qualifications of the consultants signing the report.

(5) The Director may -

(a) refuse to consider an application for an EIA in respect of which an outline in terms of subsection (3) has not been submitted;

(b) dispense a proponent with the requirement under subsection (3).

(6) Notwithstanding subsection (2), a proponent may prepare a feasibility study, or do any research, or any other act in furtherance of an application for an EIA licence or a submission of a preliminary environmental report in respect of an undertaking.

(7) A proponent shall inform the Director of any act proposed to be undertaken under subsection (6).

(8) Any proponent who contravenes subsection (2) shall commit an offence.

16. Preliminary environmental report

(1) A preliminary environmental report in respect of an undertaking specified under Part A of the First Schedule shall be -

(a) in conformity with such policy or environmental guidance as may be published in respect of an undertaking and in such form as may be approved by the Director;

(b) duly signed by the proponent of the undertaking or his duly appointed legal representative; and

(c) deposited at the Director's office in 10 copies or in such additional copies as the Director may request.

(2) A preliminary environmental report shall contain a description of the undertaking with particulars of

(a) its location and its surroundings;

(b) its process, design and size;

(c) any data or information necessary to identify and assess the effects which the undertaking is likely to have on the environment, people and society, **incorporating a consideration of projected environmental changes during the life of the undertaking;**

(cii) any data or information necessary to identify and assess the effects that change in climate may have on the undertaking.

(ciii) an estimation of greenhouse gas emissions attributed to the undertaking and associated activities within the physical boundary of the undertaking, over its life cycle (construction to decommissioning).

(di) the measures which the proponent proposes to take to avoid, reduce and, where possible, remedy any significant effect that the undertaking is likely to have on the environment; and

(dii) the measures which the proponent proposes to take to avoid, reduce and, where possible, remedy any significant effect that changes in the environment is likely to have on the undertaking; and

(e) such other aspects of the undertaking as the Director may require.

(3) A preliminary environmental report shall be accompanied by -

(a) a site plan indicating the location of the undertaking;

(b) a non-technical summary, where the report is prepared by a consultant;

(c) a certificate issued by a notary expressing his opinion as to the ownership of the land on which the undertaking is to be executed, or where the proponent is not the owner of the land, by a written evidence of the permission of the owner, and a certificate issued by a notary expressing his opinion as to the owner's title.

(4) The Director may request -

(a) such additional information from the proponent as he thinks necessary;

(b) any public department, an enforcing agency, any non-governmental organisation or any other person, to submit its or his observations in writing on the preliminary environmental report within not more than 14 days from such request.

(5) After examination of a preliminary environmental report and such additional information and observations;

- (a) The Director shall, within 14 days of receiving such information or observations as he may have requested under subsection (4), review the PER submitted by the proponent and refer it to the PER Committee.
- (b) The PER Committee shall examine the PER in the light of the Director's review and make such recommendations to the Minister as it thinks fit.
- 5A) (a) There shall be set up a PER Committee consisting of –
- (i) the Director or his representative, who shall be the Chairperson;
 - (ii) a representative of each of the Ministries responsible for the subject of–
 - (A) agriculture;
 - (B) health;
 - (C) wastewater;
 - (D) water resources;
 - (iii) the Chief Executive of the relevant local authority.
- (b) An officer of the Department designated by the Director shall act as Secretary to the Committee.
- (c) The Committee may, with the approval of the Permanent Secretary and where the examination of a PER so requires, co-opt an officer of the Department or a representative of the Ministry responsible for the subject of fisheries, housing and lands, tourism or public infrastructure or of the Irrigation Authority or any other public officer to attend and participate in a meeting of the Committee.
- (d) At a meeting of the Committee, 5 members including the Chairperson shall constitute a quorum.
- (e) No co-opted member shall have the right to vote.
- (f) Subject to this section, the Committee shall conduct its proceedings in such manner as it thinks fit.
- (6) On being referred a preliminary environmental report under subsection (5), the Minister may -
- (a) approve the report with such conditions as he deems appropriate;
 - (b) reject the report; or
 - (c) request submission of an application for an EIA licence in respect of the undertaking to which the report relates.
- (7) Where a request is made under subsection (6)(c), the application for an EIA licence shall be in the same form and be processed in the same manner as if the undertaking were an undertaking under Part B of the First Schedule.
- (8) Where a preliminary environmental report contains any false or misleading information or any material omission, the Minister may revoke an approval granted under this section.
- (9) Any proponent who gives false or misleading information, or fails to disclose any material fact or information in a preliminary environmental report, shall commit an offence.
- (10) Any person who fails to comply with a term or condition attached to an approved PER shall commit an offence.
- (11) Notwithstanding the approval of a PER under subsection (6), the Minister shall, in respect of that PER, have the same powers as those conferred upon him by section 24 (3) in respect of an EIA licence, and any person who fails to comply with a direction or requirement issued under this subsection shall commit an offence.

17. Non-listed activity

- (1) Notwithstanding section 15, where in his opinion a project or an activity not specified as an undertaking under the First Schedule is likely, by reason of its nature, scope, scale and sensitive location, to have an impact on the environment or on the zoning of an area, the Minister may request the person

carrying out or proposing to carry out the project or activity to submit a preliminary environmental report or an application for an EIA licence.

(2) Where a request for submission of a preliminary environmental report or an application for an EIA licence is made, the project or activity shall be deemed to be an undertaking specified under the First Schedule in respect of which a preliminary environmental report or an EIA licence is required, as the case may be.

18. Application for an EIA licence

(1) A proponent applying for an EIA licence in respect of an undertaking specified in Part B and Part C of the First Schedule, or in accordance with a request under section 16(6)(c) or 17(1), shall submit to the Director an EIA report -

(a) in electronic form, and in 15 printed copies, and such additional copies as may reasonably be required by the Director;

(b) signed by the proponent or his duly appointed legal representative and countersigned by the consultant referred to in section 19 who prepared the report;

(c) accompanied by -

(i) satisfactory proof of ownership of the undertaking;

(ii) a site plan prepared and signed by a land surveyor;

(iii) a non-technical summary of the report;

(iv) a certificate issued by a notary expressing his opinion as to the ownership of the land on which the undertaking is to be executed, or where the proponent is not the owner of the land, by a written evidence of the permission of the owner, and a certificate issued by a notary expressing his opinion as to the owner's title.

(2) The EIA report shall contain a true and fair statement and description of the undertaking as proposed to be carried out by the proponent, and shall include-

(a) the name and address of the proponent;

(b) the ownership of the undertaking and of the land on which it is being conducted;

(c) the name, address and qualifications of the consultant who prepared the EIA;

(d) the precise location and surroundings of the undertaking, the zoning of the site, **including proximity to Environmentally Sensitive Areas (ESAs)**, and the number of similar undertakings in the area;

(e) the principle, concept and purpose of the undertaking;

(f) the direct or indirect effects that the undertaking is likely to have on the environment, **incorporating a consideration of projected environmental changes during the life of the undertaking;**

(fi) an estimation of greenhouse gas emissions attributed to the undertaking, and associated activities within the physical boundary of the undertaking, over its life cycle (construction to decommissioning).

(XX) any data or information necessary to identify and assess the effects that change in climate may have on the undertaking.

(g) an assessment of the social, economic and cultural effects which the undertaking is likely to have on the people and society;

(h) any actions or measures which the proponent proposes to take to avoid, prevent, change, mitigate or remedy, as far as possible, the likely effects of the undertaking on the environment;

(i) an assessment of the inevitable adverse environmental effects that the undertaking **and any associated remedial strategies (i.e. seawalls), are** likely to have on the environment, people and society, where it is implemented in the manner proposed by the proponent;

(XX) an assessment of the inevitable adverse environmental effects that the undertaking and any associated remedial strategies (i.e. seawalls), are likely to have on the adjoining environment, people and society, in locations surrounding the site of implementation in the manner proposed by the proponent;

- (j) an accurate assessment of the irreversible and irretrievable commitment of resources which will be involved in the undertaking, where it is implemented in the manner proposed by the proponent;
- (k) any alternative manner or process in which the undertaking may be carried out so as to cause less harm to the environment;
- (l) an environmental monitoring plan;
- (m) information pertaining to the decommissioning of the project at the end of its life cycle and associated impacts, proposed measures to return the site as far as possible to its former state, or rehabilitation measures;
- (n) in the case of a new infrastructure proposal, an environmental management plan to be implemented during the construction phase; and
- (o) such other information as may be necessary for a proper assessment and review of the potential impact of the undertaking on the environment, people and society.

19. Consultancy

(1) An EIA shall -

- (a) be signed by the proponent and all principal consultants who prepared or assisted in the preparation of the EIA;
 - (b) enclose particulars of the schedule of works undertaken by the proponent and his consultants in the preparation of the EIA, including particulars of any consultation held with the public in the area where the undertaking is to be located.
- (2) Notwithstanding the Copyrights Act, no intellectual property rights in an EIA submitted under subsection (1) shall be opposable to a public officer or a Government Department or agency dealing with an EIA in the discharge of his duties or exercise of his functions.

20. Public Comment

(1) An EIA submitted under section 18 shall be open for public inspection during working hours at-

- (a) the office of the Department;
- (b) the main office of the municipal council or district council for the area where the undertaking is to be carried out; and
- (c) such other places as may be specified in a notice under subsection (2).

(2) The Director shall, not later than 14 days after the submission of an application for an EIA licence under section 18, give notice of the public inspection specified in subsection (1) in the Gazette and in 2 consecutive issues of 2 daily newspapers.

(3) A notice published under subsection (2) shall -

- (a) give a summary description of the undertaking;
- (b) state the address where the undertaking is to be carried out;
- (c) state the place where the EIA may be inspected;
- (d) specify the time limit for the submission of public comment in writing which shall be not less than 10 days and not more than 21 days after the date of the publication of the notice in the Gazette.

(4) The Director may in respect of an EIA, other than one submitted through the Board of Investment, extend the time limit specified in subsection(2) to afford reasonable opportunity for any person to submit public comments on the EIA.

(5) The Director may cause to be published an EIA or an extract of an EIA on the internet for public inspection.

21. Review of EIA

(1) The Director shall -

- (a) review an EIA submitted by a proponent and determine its scope and contents; and
- (b) refer the EIA, with such comments and observations as he thinks appropriate, and with any public comment submitted under section 20, to the EIA Committee for examination not later than 42 days after the expiry of the time limit set for submission of public comments under section 20(3) or (4), as the case may be.

(2) The Director may for the purpose of the review under subsection (1)(a) -

- (a) request any public department, an enforcing agency, any non-governmental organisation or any other person, to submit their observations in writing on the EIA;
- (b) set up a technical committee to advise him on the EIA or on any aspects of the undertaking;
- (c) require the proponent to carry out further study or to submit additional information for the purpose of ensuring that the EIA is as accurate and exhaustive as possible.

(3) Subject to subsection (5), any observation made pursuant to a request made under subsection (2)(a) shall be made not later than 14 days after the expiry of the time limit set for submission of public comments under section 20(3)(d), after which date it shall be presumed that the person does not have any observation to make.

(4) Where in respect of an EIA, other than one submitted through the Board of Investment, it appears to the Director that the time limit set out in subsection (1)(b) cannot for any reason be met, he may, after consultation with the proponent, refer the EIA on a date not later than 28 days after the expiry of that time limit, and shall inform the proponent accordingly.

(5) Where an EIA is submitted through the Board of Investment -

- (a) the observations requested under subsection (2)(a) shall be made not later than 7 days after the request;
- (b) the Director shall refer the EIA to the Committee not later than 14 days after the expiry of time limit set for the submission of public comments under section 20(3)(d).

22. EIA Committee

(1) There is established for the purposes of this Act an EIA Committee which shall consist of -

- (a) the Permanent Secretary, as Chairman;
- (b) the Permanent Secretaries of the Ministries having responsibility for the subjects specified in the Sixth Schedule, or their representatives;
- (c) the Director, but he shall have no voting right.

(2) The EIA Committee shall examine applications for an EIA licence referred to it after review by the Director and shall make such recommendations to the Minister as it thinks fit.

(3) At a meeting of the EIA Committee, 5 members including the Chairperson shall constitute a quorum.

(4) The EIA Committee may-

- (a) establish any sub-committee for the purpose of examining the whole or any specific aspect of an EIA;
- (b) with the approval of the Minister, co-opt any person as member.

(5) A co-opted member shall not-

- (a) by virtue of his designation as member of the EIA Committee, be deemed to be a public officer;
- (b) have any voting right.

(6) Subject to this section, the EIA Committee shall regulate its meetings and proceedings in such manner as it thinks fit.

(7) The Chairman may request the attendance of any officer of the Department at a meeting of the EIA Committee to provide such information it may require, but the officer shall not have any right to vote at the meeting.

(8) The EIA Committee shall, except in a case of 'force majeure' or where further consultation is required, give its recommendations to the Minister not later than 14 days after the date the application was referred by the Director under section 21(1)(b).

(9) Where the EIA Committee is examining an EIA submitted by a Ministry, the Permanent Secretary of that Ministry or his representative shall not take part in the proceedings.

23. Decision on EIA

(1) Subject to subsections (3) and (4), the Minister shall after taking into consideration the recommendations of the EIA Committee make his decision on the EIA within 7 days of the receipt of the recommendations.

(2) The Minister may-

(a) subject to section 24, approve the issue of an EIA licence on such terms and conditions as he may deem appropriate; or

(b) disapprove the EIA and reject the application.

(3) Where the Minister is unable to make a decision, he shall refer the EIA to a technical advisory committee set up under section 12 with instructions to advise him within 14 days on such issues as are set out in the terms of reference.

(4) The Minister shall, within 14 days of receiving the advice of the technical advisory committee and in the light of the advice of that committee, approve the EIA subject to such terms and conditions he deems fit to impose, or disapprove the EIA and reject the application.

(5) The Director shall as soon as possible but not later than 7 working days after the day on which the Minister makes his decision, give notice in the Gazette and in the newspapers in which notice of application was given pursuant to section 20(2), of a summary of the decision of the Minister to approve or to reject the EIA stating the place where the full decision may be available.

(6) Subject to an appeal under sections 56 and 57, the decision of the Minister shall be final and binding.

(7) The Director shall comply and give effect to the decision of the Minister under subsection (2) or (4).

(8) Where an EIA is approved by the Minister, the Director shall issue an EIA licence on the terms and conditions specified by the Minister.

(9) Any person who fails to comply with a term or condition attached to an EIA licence shall commit an offence.

24. EIA approval

(1) In considering approval of an EIA, account shall be taken of –

(a) such policy or environmental guidance as may be published in respect of an undertaking;

(aa) the environmental factors considered in the EIA;

(b) the measures proposed to avoid or minimise adverse effects on the environment, people or society;

(c) the alternatives proposed in the EIA;

(d) such other matters that may be relevant in weighing the significance or insignificance of the potential environmental impact of the undertaking.

(2) Where an EIA is approved or a direction is given by the Minister under subsection 3(b), the EIA and the directions shall be deemed to be conditions of the EIA licence issued under section 23(8).

(3) Notwithstanding the approval of an EIA, the Minister may at any time -

(a) revoke an EIA licence, or amend the conditions of an EIA licence, where he has reason to believe that -

(i) circumstances reasonably justifying such revocation or amendment of the conditions have arisen since the granting of the EIA licence;

(ii) the proponent is contravening the conditions attached to his licence;

(iii) the proponent had failed to disclose any material information or had provided false or misleading information in the EIA report;

(b) give the proponent such directions as he considers necessary in relation to-

(i) the methods of execution and the phasing of the undertaking;

(ii) works or actions required to prevent, reduce or eliminate the adverse effects of the undertaking on the environment, people and society;

(iii) research, investigation, and monitoring programmes related to the undertaking;

(iv) any other aspect of the undertaking or of the execution of the undertaking which is reasonably expected to have adverse environmental effects;

(c) require the proponent to submit at such interval as he may determine, reports on the impacts of the undertaking on the environment, people and society.

(4) Any person who fails to comply with a direction or requirement under subsections (3)(b) and (c), shall commit an offence.

25. Submission of fresh EIA

(1) The Minister may, at any time after the issue of an EIA licence, issue a direction to the licensee requiring him to submit a fresh EIA in respect of his undertaking within such time as may be specified.

(2) A direction under subsection (1) may be issued where, in the opinion of the Minister -

(a) the undertaking is, or is likely to be, a source of pollution to the environment;

(b) there is a substantial change or modification in the undertaking, or in the manner in which the undertaking is being operated;

(c) the undertaking poses a threat to the environment; or

(d) the circumstances of the undertaking with regard to its surrounding environment so require.

(3) A licensee who fails to comply with a direction issued under subsection (1) shall commit an offence and the Court may, on conviction, in addition to the penalty provided in section 85, cancel his EIA licence or suspend it for a period not exceeding one year.

26. Transfer of undertaking

(1) Where the ownership, control and management of an undertaking is transferred, whether before or after the grant of an EIA licence or a PER approval, the transferor shall by registered post -

(a) notify the Director of the transfer and communicate to the Director a copy of the document witnessing the transfer; and

(b) send a copy of the notification under paragraph (a) to the transferee.

(2) Unless a notification is given under subsection (1), it shall be presumed for the purposes of this Act or any other enactment or rule of law, that the person applying for an EIA licence or a PER approval or the

holder of the EIA licence or a PER approval, as the case may be, is the proponent and shall have all the responsibilities and liabilities of the proponent.

(3) Where a notification is given under subsection (1), the transferee mentioned in the notice under subsection (1) shall, in the absence of any protest by him within 28 days after the notification, be presumed as from the date of the notice, for the purposes of this Act or any other enactment or rule of law, to be the owner or the person having the charge, or management or control of the undertaking.

(4) A transfer of an undertaking or of the land where the undertaking is conducted shall not affect the application of the EIA licence and its conditions to the undertaking.

(5) Any person who contravenes subsection (1) shall commit an offence.

27. Effect of EIA licence

(1) No civil or criminal liability in respect of an undertaking or consequence resulting from an undertaking shall be incurred by the Government of Mauritius, the Minister, or any public officer by reason of the approval of an EIA or the grant of an EIA licence, or by reason of any conditions attached to an EIA licence.

(2) The fact that an EIA licence is issued in respect of an undertaking shall afford no defence to any civil action or to a prosecution under any enactment, other than section 15(2), concerning that undertaking or the manner it is operated or managed.

28. Exemption

(1) The Minister may declare an undertaking specified in Part B of the First Schedule; by a public department, which, in his opinion, is urgently needed in the national interest or for the economic development of Mauritius, to be an exempt undertaking.

(2) The EIA of an exempt undertaking shall be submitted to the Director, who after examination, shall refer it, together with any public comments received, to the EIA Committee for any comments or recommendations.

(3) The EIA Committee shall refer an EIA in respect of an exempt undertaking, together with its comments and observations to the Minister for his decision.

(4) The Minister may approve the EIA on such conditions as he thinks fit, having regard to the matters specified in section 24.

(5) Where the Minister approves an EIA under subsection (4), the Director shall cause a notice to be published in the Gazette and in 2 daily newspapers stating -

- (a) a summary description of the undertaking and its location;
- (b) the proponent of the undertaking;
- (c) a declaration that the undertaking is an exempt undertaking;
- (d) the approval of the

28A. EIA/PER Monitoring Committee

(1) There shall be an EIA/PER Monitoring Committee which shall consist of –

- (a) the Director or his representative, who shall be the Chairperson;
- (b) a representative of each of the Ministries specified in the Sixth Schedule;
- (c) one or more officers of the Department, designated by the Director, one of whom shall be the Secretary to the Committee;
- (d) an officer of the 'Police de l'Environnement'; and
- (e) the Chief Executive of the relevant local authority.

- (2) The Committee shall –
- (a) set up and lay down programmes for the purpose of following up progress after the grant of an EIA licence or the approval of a PER;
 - (b) coordinate the implementation of a programme referred to in paragraph (a);
 - (c) conduct such monitoring exercise as may be necessary to ensure that the conditions of an EIA licence or those imposed on the approval of a PER are complied with;
 - (d) determine appropriate enforcement measures where it finds that any condition referred to in paragraph (c) is not complied with; and
- (e) prepare and submit to the Minister, not later than 31 July and 31 January in every year, a report on its activities for every half year.
- (3) (a) The Committee shall meet at least once monthly at such time and place as the Chairperson may determine.
- (b) At a meeting of the Committee, 5 members including the Chairperson shall constitute a quorum.
 - (c) Subject to paragraphs (a) and (b), the Committee shall conduct its proceedings in such manner as it thinks fit.

Annex 2 Recommended Content for Scoping Guidelines

Following the European Commission (2001), the purpose of scoping is to identify matters that should be covered in the environmental information submitted by the proponent to the relevant authority and, in particular to identify the matters that are of highest importance so that these can be addressed in most detail. Scoping should ensure that all the relevant issues are identified and addressed in an appropriate manner in the environmental assessments conducted in the full EIA submission.

Three key questions should be answered:

1. What effects could this project have on the environment?
2. Which of these effects are likely to be significant and therefore need particular attention in the environmental studies?
3. Which alternatives and mitigating measures should be considered in developing the proposals for the project?

While ROM's general EIA Guideline makes reference to a Scoping phase, no clear guidance material has been identified that outlines targeted questions for the proponent. Scoping is critical to the EIA process as here the proponent establishes issues and impacts that are likely to be important, thereby establishing a terms of reference for the EIA. Hence, this stage provides an opportunity for the proponent to consider how climate change will affect the undertaking, in addition to the affect the project will have on the environment.

In developing recommendations for this phase of the EIA process, the European Commission (EC) *Guidance on EIA: Scoping* has been adopted (EC 2001). Developed by the Environmental Resources Management (ERM), this resource draws upon experience from Europe and internationally. It offers practical and transferrable 'best practice' guidance, such as matrices and checklists to provide a systematic way of thinking through the potential interactions between an activity and its environment. Nonetheless, the EC guideline does not explicitly address mitigation or adaptation. As a result, information from both the CARICOM and CEA guidelines has been used to embed mitigation and adaptation focused scoping questions into the EC scoping process (see CARICOM 2004; CEA 2012; Bell et al. 2003)

The recommended approach to scoping and the activities associated with each step have been summarised in the following table. The results of this process (completion of 'Scoping Checklist 1') will provide a list of significant issues that should be considered in detail in the environmental study. As per the recommendations of this report, the output of the scoping phase should be submitted in partnership with the full EIA application.

Table 3: Overview of Tools and Activities used in Scoping

Stage	Tool	Step
1	Scoping Checklist 1: Undertaking Characteristics (See Table 2)	Provides a detailed list of characteristics of undertakings that could give rise to significant effects on the environment. 1. Determine if one of the listed activities* is likely to occur (yes, no) 2. If yes, consider which aspects of the surrounding environment could be affected by that activity, or how changes in the environment might affect the activity - using 'Scoping Checklist 2' as a guide. 3. Determine the significance of the associated impact using 'Scoping Checklist 3' as a guide. *Activities listed are suggestions only. The Ministry of Environment may develop/incorporate additional activities relevant to select undertakings (e.g. stone crushing) to enhance the scoping tool.
2	Scoping Checklist 2: Characteristics of the Environment (See Table 3)	Provides a list of characteristics of the environment in which the undertaking or activity is implemented that could be susceptible to significant adverse effects.
3	Scoping Checklist 3: Criteria for Evaluating the Significance of Environmental Effects (See Table 4)	Provides a list of factors to be considered in deciding whether or not an impact is likely to be significant.

Note:

- Information required to complete the checklist may require preliminary data collection and fieldwork. It is important for the proponent to provide as much information as possible to inform the requirements of the EIA study.
- Where an activity is marked as 'not significant' the proponent should provide an explanation as to why the impact is 'not significant'.
- The Scoping phase should be revisited if major aspects of the undertaking are changed later in the EIA process (e.g. change of site, change in project design etc.).

Table 4: Scoping Checklist 1, Characteristics of the Undertaking. Adapted from European Commission (2001).

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
Will construction, operation or decommissioning of the Undertaking involve actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)?				
	Permanent or temporary change in land use, land cover or topography including increases in intensity of and use?			
	Clearance of existing land, vegetation and buildings?			
	Creation of new land uses?			
	Pre-construction investigations (e.g. boreholes, soil testing)?			
	Construction works?			
	Demolition works?			
	Temporary sites used for construction works or housing of construction workers?			
	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations?			
	Reclamation works?			
	Dredging?			
	Coastal structures (e.g. seawalls)?			
	Offshore structures?			
	Production and manufacturing processes?			
	Facilities for storage of goods or materials?			
	Facilities for treatment or disposal of solid wastes?			
	Facilities for long term housing			
	New road, rail or sea traffic during construction or operation?			
	New road, rail, air, waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc.?			
	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?			
	New or diverted transmission lines or pipelines?			
	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourse or aquifers?			
	Stream crossings?			

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
	Abstraction or transfers of water from ground surface water?			
	Changes in water bodies or the land surface affecting drainage or run-off?			
	Transport of personnel or materials for construction, operation or decommissioning?			
	Long-term dismantling or decommissioning or restoration works?			
	Ongoing activity during decommissioning which could have an impact on the environment?			
	Influx of people to an area, either temporarily or permanently?			
	Introduction of alien species?			
	Loss of native species or genetic diversity?			
	Any other actions?			
Will the physical changes in the locality as a result of the undertaking amplify climate change impacts (e.g. coastal erosion)?				
	For example, construction or activities that will result in:			
	Change in topography			
	Change in land use			
	Change in water bodies or hydrology			
	Change in natural coastal buffers (i.e. mangroves, sand dunes)			
Will the Undertaking be exposed or sensitive to climate change impacts over its lifecycle (construction to decommissioning)? Consider a range of climate change scenarios.				
	Site of operation proximity to climate change impacts:			
	Areas vulnerable to flooding during storm events?			
	Areas vulnerable to coastal inundation?			
	Areas vulnerable to landslides?			
	Areas vulnerable to erosion?			
	Areas vulnerable to other natural hazards?			
Will construction or operation of the Undertaking use natural resources such as land, water, materials or				

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
energy, especially any resources which are non-renewable or in short supply?				
	Land especially undeveloped or agricultural land?			
	Water?			
	Minerals?			
	Aggregates?			
	Forests and timber?			
	Energy including electricity and fuels?			
	Any other resources?			
Will the Undertaking involve use, storage, transport, handling or production of substances or materials that could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?				
	Will the undertaking involve use of substances or materials that are hazardous or toxic to human health or the environment (flora, fauna, water supplies)?			
	Will the undertaking result in changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)?			
	Will the undertaking affect the welfare of people (e.g. by changing living conditions)?			
	Are there especially vulnerable groups of people who could be affected by the undertaking (e.g. hospital patients, the elderly)?			
	Any other causes?			
Will the Undertaking produce solid wastes during construction or operation or decommissioning?				
	Spoil, overburden or mine wastes?			
	Municipal waste (household and or commercial wastes)?			
	Hazardous or toxic wastes (including radioactive wastes)?			
	Other industrial process wastes?			

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
	Surplus product?			
	Sewage sludge or other solid wastes from effluent treatment?			
	Construction or demolition wastes?			
	Redundant machinery or equipment?			
	Contaminated soils or other material?			
	Agricultural wastes?			
	Any other solid wastes?			
Will the Undertaking release Greenhouse Gas (GHG) emissions, pollutants or any hazardous, toxic or noxious substances to air? If yes, provide an estimate of the emissions (CO2e/year) associated with the following activities.				
	Emissions from combustion of fossil fuels from stationary or mobile sources?			
	Emissions from production processes?			
	Emissions from materials handling including storage or transport?			
	Emissions from construction activities including plant and equipment?			
	Dust or odours from handling of materials including construction materials, sewage and waste?			
	Emissions from incineration of waste?			
	Emissions from burning of waste in open air (e.g. slash material, construction debris)?			
	Emissions from any other sources?			
Will the Undertaking cause noise and vibration or release of light, heat energy or electromagnetic radiation?				
	From operation of equipment (e.g. engines, ventilation plant, crushers)?			
	From industrial or similar processes?			
	From construction or demolition?			
	From blasting or piling?			
	From construction or operational traffic?			

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
	From lighting or cooling systems?			
	From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)?			
	From any other sources?			
Will the Undertaking lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters, groundwater, coastal waters or the sea?				
	From handling, storage, use or spillage of hazardous or toxic materials?			
	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?			
	By deposition of pollutants emitted to air, onto the land or into water?			
	From any other sources?			
	Is there a risk of long term build up of pollutants in the environment from these sources?			
Will there be any risk of accidents during construction or operation of the Undertaking that could affect human health or the environment?				
	From explosions, spillages, fires etc. from storage, handling, use or production of hazardous or toxic substances?			
	From events beyond the limits of normal environmental protection (e.g. failure of pollution control systems)?			
	From any other causes?			
	Could the undertaking be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslip, etc.)?			
Will the Undertaking result in social changes, for example, in demography, traditional lifestyles, or employment?				
	Changes in population size, age, structure, social groups etc.?			
	By resettlement of people or demolition of homes or communities or community facilities (e.g. schools, hospitals, social facilities)?			
	Through in-migration of new residents or			

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
	creation of new communities?			
	By placing increased demands on local facilities or services (e.g. housing, education, health)?			
	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?			
	Any other causes?			
Are there any other factors that should be considered such as consequential development that could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?				
	Will the undertaking lead to pressure for consequential development that could have significant impact on the environment (e.g. more housing, new roads, new supporting industries or utilities, etc.)?			
	Will the undertaking affect residents surrounding the project sites in terms of their ability to adapt to climate change (e.g. access to sheltered areas, increased erosion further along the coast)?			
	Will the undertaking lead to development of supporting facilities, ancillary development or development stimulated by the undertaking which could have impact on the environment, e.g.: <ul style="list-style-type: none"> • Supporting infrastructure (roads, power etc.) • Housing development • Extractive industries • Supply industries • Other? 			
	Will the undertaking lead to after-use of the site that could have an impact on the environment?			
	Will the undertaking set a precedent for later developments?			
Could the impacts from combinations of climate change events (e.g. sea level rise, more intense storms) interact among themselves, or interact with other existing or known future stressors (e.g. increased population)? How will these synergistic or additive impacts affect the undertaking over its life cycle?				
	Building design/materials/orientation			

No.	Questions to be considered in Scoping	Yes /No	Which characteristics of the environment and/or undertaking could be affected and how?	Is the effect likely to be significant? Why?
	Location			
	Socio-economic activities			
Have alternatives in the design, construction and operation of the undertaking been considered, which may mitigate: social and environmental impacts; exposure/sensitivity to climate change; cumulative impacts associated with climatic and non-climatic stressors?				
	Modification of design and/or building materials?			
	Alternative site?			
Will the design, construction and operation of the undertaking reduce the proponents' ability to adapt to predicted climate change impacts?				
	Building design (materials, orientation)			
	Associated infrastructure (e.g. wastewater management system)			

Table 5: Scoping Checklist 2, Characteristics of the environment associated with the undertaking. Adapted from European Commission (2001)

No.	Question	Examples
1	Are there features of the local environment on or around the undertaking location that could be affected by the undertaking?	<ul style="list-style-type: none"> • Areas that are protected under international or national or local legislation for their ecological, landscape, cultural or other value. • Sensitive ecological areas e.g. Wetlands, sand dunes • Areas used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration. • Areas or features of high landscape or scenic value? • Routes or facilities used by the public for access to recreation or other facilities. • Transport routes which are susceptible to congestion or which cause environmental problems. • Areas or features of historic or cultural importance.
2	Is the Undertaking in a location where it is likely to be highly visible to many people?	<ul style="list-style-type: none"> • Exposure to residential areas, public open spaces
3	Is the Undertaking located in a previously undeveloped area where there will be loss of greenfield land?	
4	Are there existing land uses on or around the undertaking location which could be affected by the undertaking?	<ul style="list-style-type: none"> • Homes, gardens, other private property • Industry • Commerce • Recreation • Public open space
5	<p>Are there any plans for future land uses on or around the undertaking location that could be affected by the Undertaking?</p> <p>Will these future developments (e.g. expansions) be sensitive or exposed to climate change impacts?</p>	<ul style="list-style-type: none"> • Areas that are sensitive to sea level rise • Areas prone to flooding
6	Are there any areas on or around the location that are densely populated or built-up, which could be affected by the undertaking?	<ul style="list-style-type: none"> • Residential areas
7	Are there any areas on or around the location that are occupied by sensitive land uses that could be affected by the undertaking?	<ul style="list-style-type: none"> • Hospitals, • Schools, • Places of worship • Community facilities
8	Are there any areas on or around the location that contain important, high quality or scarce resources that	<ul style="list-style-type: none"> • Groundwater resources

No.	Question	Examples
	could be affected by the undertaking?	<ul style="list-style-type: none"> • Surface waters • Forestry • Agriculture • Fisheries
9	Are there any areas on or around the location of the undertaking that are already subject to pollution or environmental damage (e.g. where existing legal environmental standards are exceeded, which could be affected by the undertaking)?	<ul style="list-style-type: none"> • Landfill
10	Is the Undertaking location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions (e.g. temperature inversions, fogs, severe winds, which could cause the Undertaking to present environmental problems)? Consider both current and future climate hazards.	
11	Is the Undertaking likely to affect the physical condition of any environmental media?	<ul style="list-style-type: none"> • Groundwater resources • Surface waters • Forestry • Agriculture • Fisheries
12	Are releases from the Undertaking likely to have effects on the quality of any environmental media?	<ul style="list-style-type: none"> • Local air quality • Global air quality including climate change and ozone depletion • Water quality – rivers lakes, groundwater • Soils
13	Is the Undertaking likely to affect the availability or scarcity of any resources either locally or globally?	<ul style="list-style-type: none"> • Fossil fuels? • Water? • Minerals and aggregates? • Timber? • Natural hazard buffers (mangroves, sand dunes) • Other non-renewable resources?
14	Is the Undertaking likely to affect human or community health or welfare?	<ul style="list-style-type: none"> • The quality or toxicity of air, water, foodstuffs and other products consumed by humans? • Morbidity or mortality of individuals, communities or populations by exposure to pollution? • Occurrence or distribution of disease vectors including insects? • Vulnerability of individuals, communities or populations to disease? • Individuals' sense of personal security? • Community cohesion and identity?

No.	Question	Examples
		<ul style="list-style-type: none">• Cultural identity and associations?• Minority rights?• Housing conditions?• Employment and quality of employment?• Economic conditions?• Social institutions?

Criteria for Evaluating the Significance of Impacts

The following table contains a list of questions that proponents can utilize when evaluating the significance of impacts, and are intended to be used in conjunction with ‘Scoping Checklist 1’. Please note, this tool is intended as a starting point for assessing significance and should not be interpreted as definitive list. Proponents may require tailored evaluation criterion for their own social, political and environmental context.

Table 6: Scoping Checklist 3, Criteria for Evaluating the Significance of Impacts. Adapted from European Commission (2001)

No.	Question	Output (insert in ‘Scoping Checklist 1’)
1	Will there be a large change in environmental conditions?	
2	Will new features be out-of-scale with the existing environment?	
3	Will the effect be unusual in the area or particularly complex?	
4	Will the effect extend over a large area?	
5	Will there be any potential for transfrontier impact?	
6	Will many people be affected?	
7	Will many receptors of other types (fauna and flora, businesses, facilities) be affected?	
8	Will valuable or scarce features or resources be affected?	
9	Is there a risk that environmental standards will be breached?	
10	Is there a risk that protected sites, areas, and features will be affected?	
11	Is there a high probability of the effect occurring?	
12	Will the effect continue for a long time?	
13	Will the effect be permanent rather than temporary?	
14	Will the impact be continuous rather than intermittent?	
15	If it is intermittent will it be frequent rather than rare?	
16	Will the impact be irreversible?	
17	Will it be difficult to avoid, or reduce or repair or compensate for the effect?	
18	Will the impact enhance, or degrade, the proponents’ (or the community’s) ability to adapt to climate change?	
19	Will the impact lead to reactive maladaptive measures (actions which fail to ameliorate the impacts of climate change, whilst also imposing additional social, environmental or financial costs)?	
20	Does the impact (e.g. GHG emissions) exceed the limit outlined in relevant Government policies and/or laws?	

Based on the output of the Scoping assessment, proponents will have an understanding of the priority impacts and considerations to be addressed via detailed assessment in the full EIA.