A PROPONENT'S GUIDE TO PRELIMINARY ENVIRONMENTAL REPORT (PER):

Incorporating Climate Change, 2012

Adapted from: A Proponent's Guide to Preliminary Environmental Report (PER), Republic of Mauritius – Ministry of Environment & National Development Unit, October 2009

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1.0 INTRODUCTION

A Preliminary Environmental Report (PER) is a short form of an Environmental Impact Assessment (EIA), and is generally meant for assessing projects with lesser environmental impacts. This preliminary analysis is undertaken to identify the impacts associated with the proposed development and the means of mitigation. PER is an important tool for sound decision making and for achieving sustainable development.

The PER mechanism was introduced in the Environment Protection Act (EPA) 2002. With the coming into force of the Business Facilitation (Miscellaneous Provisions) Act 2006, undertakings which are less polluting have been waived from the lengthy administrative procedures for processing of applications. In the same context, Part A of the First Schedule of the Environment Protection Act (EPA) 2002 which pertains to the list of undertakings requiring a PER has been reviewed to exclude certain undertakings from it.

Consequently, the First Schedule to the EPA 2002 has been repealed and replaced by the Environment Protection (Amendment of Schedule) Regulations 2006. The list of undertakings warranting the approval of a PER is at Appendix 1. EPA 2002 also empowers the Minister to request a PER for any non-listed activity, which, by reason of its nature, scope, scale and sensitive location could have an impact on the environment.

The processing of a PER application involves consultation with several Ministries/Authorities. Thus, a proponent applying for a PER approval shall submit **10 copies** of the PER and such additional copies as the Director may request. Requirements for a PER as per EPA 2002 as amended in 2008 are at Appendix 2.

2.0 OBJECTIVE

The objective of this guideline is to assist proponents and consultants in the preparation of a comprehensive PER on a project to enable a timely processing of the application.
This guideline provides general guidance for the preparation of a PER. This guideline should be complemented by sectoral guidelines (available on this ministry's website), the EIA Scoping Guidelines, and other relevant guidelines such as the Planning Policy Guidance, National Development Strategy, Outline Schemes and relevant Acts and Regulations.

Alterations to the original PER Guideline have been marked in green text. These enhancements articulate the recommended approach to integrating climate change considerations into the existing PER process.

3.0 GUIDELINE ON THE CONTENTS OF A PER

The proponent or the consultant preparing a PER should ensure that all the environmental and socio-economic parameters are addressed and their impacts are identified and taken into account in the project design. The PER should not comprise statements of a general nature but instead should provide substantive and indicative information on the proposed measures to mitigate all adverse environmental impacts as well as on the opportunities for environmental enhancement so as to enable a proper assessment.

Prior to embarking on a project, a proponent should ensure that the proposed development is compatible with the zoning of the site and that relevant clearances such as zoning certificate**,** land conversion permit or lease agreement (if applicable) have been obtained. In case of inappropriate zoning and the absence of proof of land ownership or authorisation, the PER application will not be considered.

A PER should be in conformity with such policy or environmental guidance as may be published in respect of an undertaking and should be duly signed and dated by either the proponent of the undertaking or his legal representative and countersigned by the consultant.

The preparation of a PER includes the following studies:

- Completion of Scoping Assessment (Appendix 1)
- Collection of baseline data and information;
- Identification of impacts in terms of magnitude and significance;
- Mitigating measures for each impact identified;
- Analysis of alternatives of the project;
- Development of a monitoring programme and environment management plan

The above studies should be documented in the form of a PER. The format below provides a guide for the preparation of a PER:

3.1 Title page

This should contain details of:

- The full title under which the PER has been prepared;
- Location of project;
- Name of the project initiator/proponent, signature and contact details (address, phone and fax numbers);
- The team responsible for the preparation of the PER or name(s) of the consultant(s)/ consultancy firm and contact details (address, phone and fax numbers)

3.2 Table of Contents

The table of contents should indicate the different chapters with their respective page numbers.

3.3 An Executive or non technical summary

The summary should be concise and give a short overview of the proposal. The language used should be simple and non-technical. It should focus primarily on key impacts identified in the PER and measures taken to avoid and /or reduce them.

3.4 Introduction

It should provide background information on the project, the promoters, objective and justification of project, any experience in similar projects, project costs, benefits, employment opportunities, as well as the technical, economic and environmental features essential to the project.

3.5 Site and Project Description

This section should describe the site and the project and should indicate the justification and rationale underlying the project.

3.5.1 Site Description

The site description should include:

- Project location and land extent. The project location shall be indicated on a map drawn to a scale of 1:25,000;
- Ownership of land and proof thereof, or lease agreement clearly indicating the owner's consent to the project;
- Present zoning of the site as per approved and recent Outline Scheme (can be obtained from the Town & Country Planning Board or the Local Authorities);
- Plans and policies with which the project conforms;
- Site characteristics in terms of site location, landform, magnitude of slope of site

(supplemented by 0.5m interval contour map), geology, soil type, topography, water table level, prevailing wind direction, type of flora and fauna, presence of any rare or endangered species, sensitive habitats of ecological importance, present and past land use (if known), accessibility to site, areas vulnerable to flooding, inundation, landslides, erosion and other impacts from natural hazards or climate change, etc;

- Certified and comprehensive site/location plan drawn to scale and duly certified by a Sworn Land Surveyor with known landmarks as reference points and showing any environmentally sensitive areas, water bodies, wetlands, boreholes and any existing development in the vicinity (within a 500m radius);
- Description of the surrounding environment indicating adjacent land uses, residential areas/built-up environment, environmentally sensitive areas and their categorization (refer to the ESA Management Plan), watercourses (canals, rivers, streams, natural drain), designated sites of interest, and other attributes of the area e.g. amenities, recreational and agricultural values, including socio-economic activities vulnerable to natural hazard or climate change impacts;
- Indication of other similar projects in the surroundings;
- Existing infrastructure and availability of statutory services (water, electricity, sewerage system and telephone lines);
- The future development projects under the outline scheme should also be located in the site plan of the proposed development, as far as practicable;
- The site topography with contour lines at 0.5 m intervals should be submitted by the proponent;
- The proponent should send comprehensive and certified site plans for an easy location;

3.5.2 Project Description

The project description should include:

- Type of project and associated activities to be carried out;
- The design, size and scale of the project;
- Detailed site/layout plan drawn to scale of 1:500 **(as applicable)** indicating site boundaries (as per title deeds), all existing development on site (if any) and all proposed structures to be put up on site with setbacks from site boundaries; the layout plan of scale (1:500 or better) shall indicate the relevant set back of 30m from all natural water courses (canals, rivers, streams) and show compliance of the proposed development as per Rivers

and Canals Act.

- Detailed plans indicating elevations, plot coverage and gross floor area.
- Description of project in terms of raw materials, products, process technologies, equipment, machinery (Horse Power and noise level), work force, type of fuel used, hours of operation, marketing of products, etc;
- Layout plans of the proposed or existing building, architectural plans, photographs and aerial photographs whenever necessary (aerial photographs are available at the Ministry of Housing and Lands);
- Plans submitted should meet the design criteria-spelt out in the Planning Policy Guidance.
- Architectural drawing of building and site plan;
- Safety data sheets for chemicals;
- Information as per Fire Prevention Form II Flow chart of the process production and explanation on the process;
- Project life cycle;
- Proposed schedule for implementation;
- Zero development option;

3.6 Method of Assessment Including Baseline Data

- Baseline information on which the PER was based upon;
- Data source, data collection methodology (e.g. survey, matrix or checklist) and results of site investigation;
- Any constraints in collection of data or omissions in data collected and proposed remedial measures;
- A geotechnical report including description of subsurface strata up to 3m deep, maximum level of water table and results of percolation test as per BS 6297 **as applicable.** The geotechnical report shall be certified by a Civil Engineer registered with the Council of Registered Professional Engineers (Mauritius) or a Soil Scientist**.** (Note: The onus of requesting a geotechnical report/percolation test rests with the Wastewater Management Authority who might request same on a case-to-case basis depending on the sensitivity of the site. Proponents/Consultants are advised to consult the Wastewater Management Authority in order to ascertain as to whether a geotechnical report is required for a particular project);
- Baseline data on prevailing climatic conditions **(as applicable**), namely rainfall,

temperature, relative humidity, wind direction and speed, ambient air quality, water

- A qualitative assessment of the project
- *Assemble, evaluate and present baseline data on the relevant natural hazard/climate change characteristics of the study area that are relevant to project siting or design, or to the formulation of mitigation or adaptation measures. Include information on any changes anticipated before the project commences. The ROM Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC) outlines proposed scenarios for change in climate conditions over time; as well as baseline values for GHG emissions. This information can be referred to when establishing the baseline and completing the vulnerability and adaptation assessment.

*Note: The following standards may assist proponents in evaluating risk – refer to the Mauritius Standards Bureau for more detail:

- *MS ISO 31000:2009: Risk Management – Principles and guidelines*
- *MS ISO 31010:2009: Risk Management – Risk assessment techniques*

3.7 Assessments and Mitigation of Direct and Indirect Environmental Impacts

3.7.1 Impact Assessment

Utilise the EIA Scoping Guidelines to assess all the direct and indirect environmental impacts associated with the construction, operation and decommissioning (if any) phases of the project (Appendix 1). These guidelines include the assessment of the undertakings interaction between climate change characteristics and the undertaking (e.g. sea level rise, GHG emissions), along with broader impact considerations (e.g. disposal of solid waste).

3.7.2 Mitigation

For each identified impact, the PER should state the steps to be taken to avoid/reduce and or eliminate the impacts, and the likely effectiveness and adequacy of the mitigation measures proposed. The impacts and mitigating measures should be included in terms of solid waste, wastewater, noise, odour, air emissions, traffic, climate variability and change, *etc.* Some examples are as follows:

- Impacts on the physical environment associated with the implementation of the proposed development such as site preparation, construction impacts such as noise, dust nuisances, traffic implication and mitigating measures against these impacts;

- Source, type and amount of solid wastes generated on a daily/monthly basis, mode of collection, storage and disposal of solid waste;
- Source, type and expected volume of wastewater generated on a daily basis, the maximum number of workers to be employed on site, physical, chemical and biological characteristics of wastewater, method of collection, treatment and disposal, the receiving media and its corresponding effluent discharge limitations as per existing legislations, design calculations, drawings and dimensions of wastewater disposal system, layout plan showing wastewater collection, treatment and disposal system;
- Amount of dangerous/toxic materials used, storage methods, threshold levels of dangerous/toxic material stored/handled on site together with identification system and a register of hazardous installation, details of processes and authorized limits for storage, contingency plan in case of accidental spill, fire hazards and natural disasters;
- Source of noise nuisance, level of noise during operation stage and precautionary mitigating measures;
- Source of odour and precautionary measures;
- Source, type, concentrations of air pollutants emitted, including Greenhouse Gas (GHG) emissions*, and the mitigating measures to be taken to reduce the concentration (e.g. air filters, renewable energy system(s), solar passive design of structures/ settlements).
- The potential climate risks now and in the future that could result from the project or be amplified by the project. Distinguish between significant positive and negative impacts, direct and indirect impacts, cumulative impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. The analysis of potential impacts should include an assessment of potential exacerbations or reduction of natural hazard impacts, both on- and off-site.
- Amount of traffic likely to be generated by development, particularly for the capacity of the road system in the locality, any implications on existing traffic flow, availability of parking facilities and loading/unloading facilities on site;
- The promoter should consider adequate engineering details concerning road junctions to main roads and views of the TMRSU should be sought regarding road safety and traffic impact.
- Precautionary measures against risk of soil erosion, detailed design, specification and layout of surface drains for storm water disposal indicating final evacuation;

*Note:

Mitigation targets and standards should be consistent with national strategies, policies and standards (e.g. EMMO and standards from Mauritius Standards Bureau). Proponents should consult with the Energy Efficiency Management Office (EEMO) to ensure existing guidelines, standards and initiatives are utilised. More specifically, proponents should refer, where appropriate, to the following standards developed by the Mauritius Standards Bureau:

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

3.8 Socio Economic and Socio Cultural Impacts

This section should include:

- Impacts on adjacent residential areas, local community, surrounding amenities; and current activities carried out by different stakeholders including recreational activities;
- Impacts on cultural property such as sites, structures and remains of historic,
- Religious, cultural, archaeological or aesthetic value.
- Socio-economic and cultural impacts, and associated risks, during and post decommissioning of the project, including climate risks that could result from the project or be amplified by the project. For example, the project may accentuate coastal erosion in locations downstream from the development site, resulting in social and economic impacts for communities in these areas.
- Note: where there is a reason to believe that the heritage resources will be affected by such development, the proponent/consultant shall carry out a Heritage Impact Assessment (HIA) and incorporate it in the PER document. The information to be provided in the HIA is as follows:
    (i) The identification and mapping of all heritage resources in the area affected by the proposed development;

(ii) An assessment of the significance of such heritage resources;

(iii) An assessment of the impact of the development on such resources;

(iv) The results of consultation with interested and affected parties regarding the impact of the development on heritage resources;

(v) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(vi) Plans for mitigation of any adverse effects during and after the completion of the proposed development;

- Safety measures for road users and pedestrians should be taken into consideration. These include footpath, road furniture and street lighting as well as access for disabled person.
- The PER document should also include the total cost of the project and the number of direct and indirect jobs expected to be created with the project.

3.9 Residual Impacts

The PER should indicate all unavoidable impacts (e.g. noise pollution, Greenhouse Gas (GHG) emissions). These should be justified in terms of costs and benefits of the project and enhancements.

3.10 Cumulative and Synergistic Effects

The ability of the natural and social environment to assimilate cumulative stresses placed on them; the likelihood of negative synergistic effects; whether the proposed development has a significant impact on, or will be constrained by existing or future development rights in the area. Climate change considerations should be a focus here considering how the project may impact the environment now and in the future. In addition, consider the impacts that any proposed mitigation measures (for example, sea-walls, renewable energy systems) may have on areas beyond the project site – i.e. risk transfer spatially (over areas) and temporally (over time).

3.11 Checklist for environmental monitoring plan

A checklist should be submitted indicating actions to be taken to ensure compliance with the mitigation measures proposed in the PER.

- Provision made for ongoing monitoring during the life of the undertaking to assess change in social and environmental conditions (monitoring change against baseline conditions at time of EIA screening assessment).
- Provision for remedial action to address social or environmental changes, as specified within a monitoring plan.
- Estimate of capital and operating costs and a description of other inputs (such as training and institutional strategy).
- Provisions for a monitoring plan, if appropriate, to assess the performance of mitigating measures (e.g. GHG reduction strategies - log emissions rates at predetermined intervals).

The monitoring practitioner(s) should determine, where possible, the effectiveness of any mitigation, adaptation, GHG emission reduction, offset or compensatory measures that has been implemented. Maintaining a database of "lessons learnt" should feed into an iterative process whereby mitigation measures are modified and enhanced when necessary – thereby managing change adaptively.

The following standards should be referred to when conducting GHG Monitoring - refer to the Mauritius Standards Bureau for more detail.

- *MS ISO 14064-2:2006: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*
- *MS ISO 14066:2011: Greenhouse gases – Competence requirements for greenhouse gas validation teams and verification teams*

3.12 Decommissioning

The PER document should also give any information on the decommissioning of the project. Decommissioning refers to removal of the project from service.

3.13 Enhancement Opportunities such as Landscaping and Embellishment

A brief outline should be given of any proposed enhancement work (landscaping and embellishment), its maintenance and upkeep. This should be distinguished from mitigation measures, which are integral to the project and form part of the proposed development; for example upgrading of an access road for the public. The proponent should indicate how the project is going to enhance the existing environment.

3.13 Identification of any Additional Studies

Any additional studies necessary to implement the mitigating measures or to monitor effectiveness of proposed mitigating measures.

3.14 Consultation

This section should indicate who has been contacted for the project. It should include:

- Consultation with the neighbours, and all other bodies who are likely to be affected by the proposed development (where the project is adjacent to a built-up area, consultation with the local population is compulsory. In case of coastal projects, consultation with local fishermen, if any, is required to resolve conflicts).
- Any correspondence or application made to any other Authorities including the Land Conversion Unit of the Ministry of Agro-Industry, Food Production and Security, shall be included in the report.
- Consultation with relevant Ministries and Local Authorities

3.15 Any Alternative

This section should give an outline of:

- The alternatives to the project
- The "Do Nothing" option – what will be the outcome of not undertaking the project?
- Can the project be undertaken elsewhere?

The concept of alternatives extends to the site of development, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental impacts; capital and operating costs; suitability under local conditions; and institutional, training and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated, managed or addressed under an appropriate adaptation plan.

3.16 Conclusions and Summary of Environmental Outcomes

- Include any irreversible residual impacts that cannot be mitigated.

3.17 Supporting Documentation & References

3.18 Appendices

These should include information, which would cluster the main body of the text, such as site photographs and maps, press releases, written responses to the project.
As appropriate can include any additional technical information, material safety data sheets, a list of reference materials, names, addresses and qualifications/expertise of the PER consultants, copies of clearances/ permits obtained or applied (if any) from authorities, title deed, proof of land ownership, etc.

Appendix 1

Guidelines for Scoping

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. Please note, this approach is intended for EIAs, and therefore, articulates a relatively detailed approach to evaluating significant environmental impacts. As a result, not all PER undertakings will require this level of analysis. Proponents should consult with the Ministry of Environment to determine the appropriateness conducting the scoping phase proposed here.

Table 1: 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:
1. 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.
2. Where an activity is marked as 'not significant' the proponent should provide and explanation as to why the impact is 'not significant'.
3. 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 2: 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 that will cause physical changes in the site (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?			
	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			

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?
	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 site, 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 to climate change impacts (during 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 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 risks to human health (actual or perceived)?				
	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			

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?
	undertaking (e.g. hospital patients, the elderly)?			
	Any other causes?			
Will the Undertaking produce solid wastes during construction, 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?			
	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, estimate 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?			
	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?			

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 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, 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 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			

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?
	impact on the environment, e.g.: • 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 with other future stressors (e.g. increased population)? How will these synergistic or additive impacts effect the undertaking over its life cycle?				
	Building design/materials/orientation			
	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 3: 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 that could be affected by the undertaking?	• 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?	• 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?	• Homes, gardens, other private property • Industry • Commerce • Recreation • Public open space
5	Are there any plans for **future** land uses on or around the undertaking location that could be affected by the Undertaking? Will these future developments (e.g. expansions) be sensitive or exposed to climate change impacts?	• 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?	• 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?	• 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 could be affected by the undertaking?	• Groundwater resources • 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)?	• Landfill
10	Is the Undertaking location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse	

No.	Question	Examples
	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?	• Groundwater resources • Surface waters • Forestry • Agriculture • Fisheries
12	Are releases from the Undertaking likely to have effects on the quality of any environmental media?	• 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?	• 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?	• 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? • 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 4: 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 extend over a large area?	
4	Will many people be affected?	
5	Will other social and environmental items (i.e. fauna and flora, businesses, facilities) be affected?	
6	Will valuable or scarce features or resources be affected?	
7	Is there a risk that environmental standards will be breached?	
8	Is there a risk that protected sites, areas, and features will be affected?	
9	Is there a high probability of the effect occurring?	
10	Will the effect continue for a long time?	
11	Will the effect be permanent rather than temporary?	
12	Will the impact be continuous rather than intermittent?	
13	If it is intermittent will it be frequent rather than rare?	
14	Will it be difficult to avoid, or reduce or repair or compensate for the effect?	
15	Will the impact enhance, or degrade, the proponents' (or the community's) ability to adapt to climate change?	
16	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)?	
17	Does the impact (e.g. GHG emissions) exceed the limit outlined in relevant Government policies and/or laws?	