

Technical Guidance Document for Strategic Environmental Assessment (SEA)

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Signature on Original		
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* Refer to SG Circular S.G/C-08/12 Concerning Appointment and Responsibilities of the Corporate Management Representative at the Environment Agency – Abu Dhabi.		

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List of Abbreviations

COMAH	Control of Major Accident Hazards
EAD	Environment Agency–Abu Dhabi
EAP	Environmental Action Plan
EHSIA	Environment, Health and Safety Impact Assessment
EHSMS	Environment, Health and Safety Management System
EIA	Environment Impact Assessment
EMF	Environmental Management Framework
EPA	Environmental Permit Application
HER	Hazards and Effects Register
MSDS	Material Safety Data Sheet
OHRA	Occupational Health Risk Assessment
PPP	Policy, plan, or program
SEA	Strategic Environmental Assessment
SRA	Sector Regulatory Authority
UAE	United Arab Emirates

Definitions of Terms

Area of Probable Impact—The extent of physical area occupied by an environmental component that is likely to be impacted by at least one of the phases of the proposed policy, plan, or program (i.e., development, implementation and monitoring). The boundary of the area of probable impact is determined by measurements, previous studies, models, or best professional judgment and may vary by environmental component.

As Low as Reasonably Possible—To reduce a risk to a level that is as low as reasonably possible and involves balancing reduction in risk against the time, trouble, difficulty, and cost of achieving it. This level represents the point (objectively assessed) at which the time, trouble, difficulty, and cost of further reduction measures becomes unreasonably disproportionate to the additional risk reduction obtained.

Assessment Area—The physical area that the consultant and proponent have identified for assessment of potential environmental impacts.

Construction—The time period corresponding to any event, process, or activity that occurs during the construction phase (e.g., building of site, buildings, processing units) of the proposed policy, plan, or program. This phase terminates when the policy, plan or program goes into full operation or use.

Decommissioning—The time period corresponding to any event, process, or activity that occurs during the decommissioning phase (destruction or dismantling) of the proposed policy, plan, or program. The decommissioning phase follows the operation phase.

Environmental Component—Attribute or constituent of the environment (i.e., Air Quality; Marine Water; Waste Management; Geology, Seismicity, Soil, and Groundwater; Marine Ecology; Terrestrial Ecology; Noise; Traffic; Socio-economic) that may be impacted by the proposed policy, plan, or program.

Environmental Impact—Positive or negative impact that occurs to an environmental component as a result of the proposed policy, plan, or program. This impact can be directly or indirectly caused by the policy, plan, or program's different phases (i.e., construction, operation, and decommissioning).

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Hazard—Any substance, physical effect, or condition with potential to harm people, property, or the environment.

Hazardous Waste—Waste that poses potential harm to human health and the environment.

Operation—The time period corresponding to any event, process, or activity that occurs during the operation phase (fully functioning). The operation phase follows the construction phase, and then terminates when the policy, plan, or program goes into the decommissioning phase.

Owner—The agency or entity responsible for creating the policy, plan, or program.

Policy, Plan, or Program Area—The physical area within which all phases (i.e., construction, operation, and decommissioning), processes, and activities associated with the proposed policy, plan, or program will take place (boundary of project area is defined by titled property boundary). The project area is equivalent to the project site.

Policy, Plan, or Program Site—Same as the *Policy, Plan, or Program Area*.

Solid Waste—Rubbish, debris, garbage, and other discarded solid materials resulting from the policy, plan, or program that are not classified as hazardous waste.

Purpose of This Guidance Document

This document outlines the requirements for developing a study and Strategic Environmental Assessment (SEA) report in Abu Dhabi Emirate for review and evaluation by the Environment Agency–Abu Dhabi (EAD), which is the Competent Authority in the environmental field. This document has been prepared to assist Environmental Consultancy Offices in the Emirate of Abu Dhabi in producing SEA reports.

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Section I. Background Information

Section I provides an overview of an SEA report and the role it plays within the EAD's protocol for addressing and mitigating environmental impacts.

Definition of an SEA Report

An SEA report is a preliminary document that, within the context of the federal laws of Abu Dhabi Emirate and the jurisdiction of EAD, serves as a planning tool to guide the investigation of alternatives, evaluation of environmental impacts, and potential mitigation and monitoring efforts associated with a proposed policy, plan, or program (PPP) within Abu Dhabi Emirate.

The SEA report is intended to support the requirements of Abu Dhabi Environment, Health and Safety Management System (EHSMS) Regulatory Framework (Decree 42 of 2009).

Further information on the principles and background of SEA can be found in a number of publicly available references, including the following documents (available online):

- Natural Scotland Scottish Executive, 2006, Strategic Environmental Assessment Tool Kit.
Available at <http://www.scotland.gov.uk/Publications/2006/09/13104943/45>
- OECD (Organisation for Economic Co-operation and Development), 2006, DAC Guidelines and Reference Series: Applying Strategic Environmental Assessment. Good Practice Guidance for Development Co-operation, OECD Publishing
Available at <http://www.oecd.org/dataoecd/4/21/37353858.pdf>

Applicability and Approach

The importance of undertaking environmental assessment at a strategic level has been recognized for some time. SEA is one form of Environmental Impact Assessment under Federal Law No. 24/1999. EAD has set specific requirements to be enforced in Abu Dhabi that ensure integration of environmental assessment and sustainability principles at all levels of planning and execution of government and private developments. These requirements introduce a strategic level of assessment into the formulation process.

An SEA is a proactive instrument for integrating environmental considerations into spatial and sectoral PPP formation for suitable development. Because there is a wide variety of PPPs being considered under different circumstances, an SEA is both systematic and flexible, and this type of assessment provides the best available environmental information and advice to decision makers to improve the environmental performance of their proposed PPPs.

The SEA is aimed at requiring environmental assessments be conducted for all plans and programs, including, but not exclusive to, agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning, or land use. This document also sets the framework for future development. The SEA is therefore able to consider a rich array of development options by addressing choices in PPPs upstream of projects.

An SEA report provides a basic description of the current environmental condition, outlines details on the most current version of the proposed PPP, provides an overview of the potential environmental impacts associated with the proposed PPP, and discusses the mitigation approaches and monitoring efforts that may be necessary with the proposed PPP at a level of detail that satisfies EAD. Upon EAD's approval, and should the proponent intend to continue with the proposed PPP, an SEA is followed by an Environmental Impact Assessment (EIA) and the preparation and submission of an EIA report. The statement of commitments outlined in the SEA report will serve as the binding agreement between EAD and the proponent.

The SEA requirement is very wide in its coverage, and many policies, strategies, projects, concepts, laws, and regulations will require this assessment. EAD will determine the type of study/assessment required for the type of program requiring an environmental permit. However, EAD will predominantly require the SEA for the assessment of Master Plans for proposed

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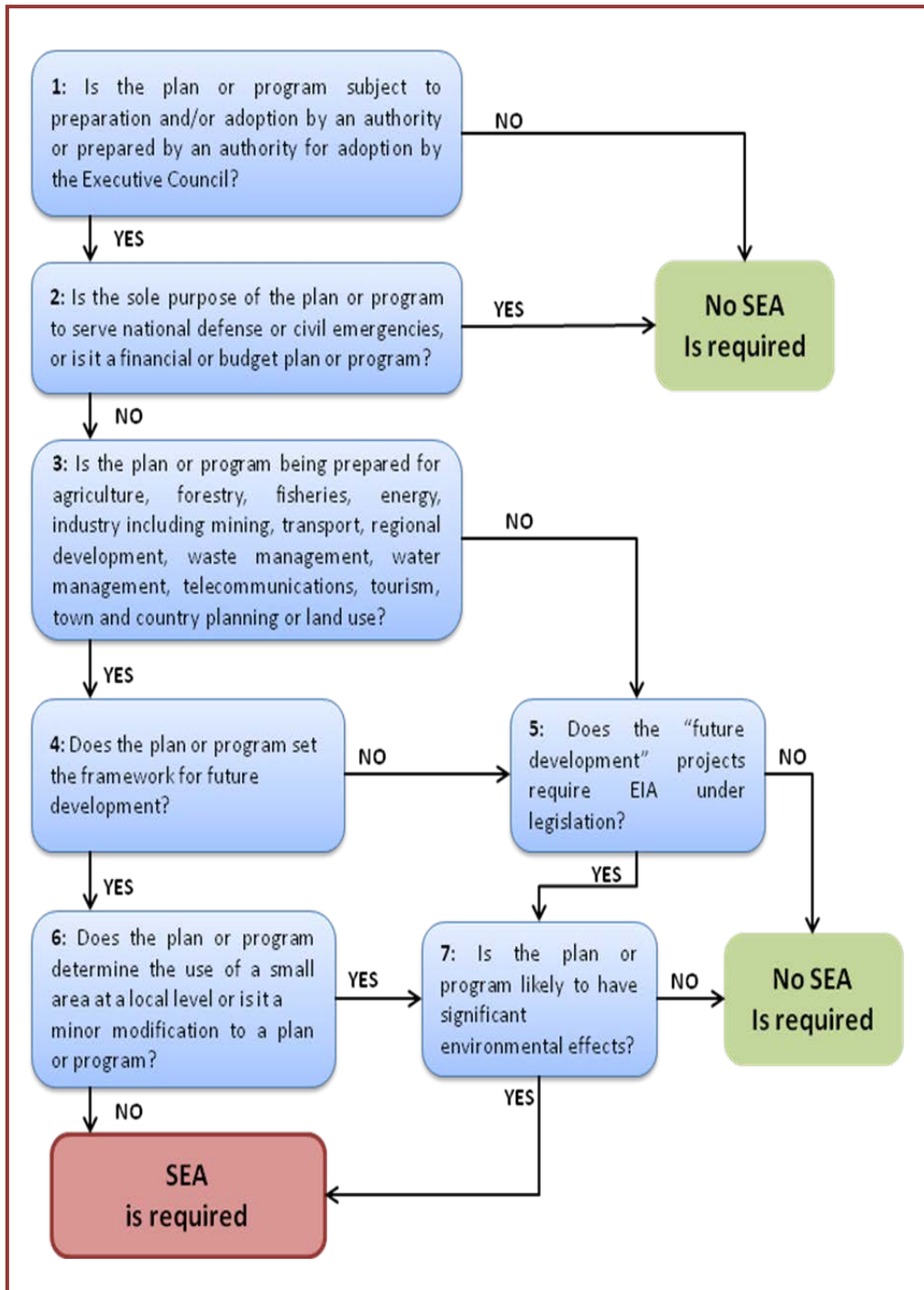
developments. An SEA does not apply to financial or budgetary plans and programs and those with the sole purpose of serving national defense or civil emergency.

If, during the development and/or review of an SEA, significant health and safety impacts are highlighted, the Abu Dhabi Environment, Health, and Safety Center (AD EHS Center; i.e., the Competent Authority for the EHSMS Regulatory Framework) should be informed and reserves the right to request further information.

It is important to keep in mind the following factors when considering whether an SEA is required:

- Use of the terms “plan” or “program” is not a sufficient qualification.
- Not all plans and programs will require SEAs, just those plans and programs meeting EAD’s requirements and conditions (principally development Master Plans), or where there is the potential for direct or indirect impact to the environment.
- It is possible that some laws and regulations might fall within the field of application, again provided that they meet EAD’s requirements and conditions as shown in **Figure 1**.

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Source: UNECE, 2006

Figure 1. Determination whether a particular plan or program should be subject to an SEA.

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Objective of an SEA Report

The objectives of an SEA are to

- Provide a systematic means of identifying, describing, evaluating, and reporting on the environmental effects of a PPP.
- Require that a PPP owner (i.e., plan, program, or policy makers) prepares a report on the likely significant environmental effects of its PPP and its reasonable alternatives.
- Prevent, reduce, and offset negative environmental effects. The enhancement of positive effects may also benefit from the SEA process.
- Ensure wide consultation and engagement with the concerned Government Authorities at an early and effective stage of the PPP preparation.
- Ensure that significant environmental effects of implementing a PPP are monitored, which enables the identification of unforeseen adverse effects at an early stage so appropriate remedial action can be taken, where necessary.

The SEA report will provide EAD with a preliminary and basic description of the environmental baseline conditions, the probable impacts of the proposed PPP (based on the most current version of the PPP, if it exists), and the potential mitigation and monitoring efforts, as required by EAD. The SEA report supports the goals of environmental protection and sustainable development; integrates environmental protection and economic decisions at the earliest stages of planning an activity; predicts environmental, social, and economic consequences of a proposed activity and assesses plans to mitigate any adverse impacts resulting from the proposed activity; and provides for the involvement of government and other agencies in the review of proposed activities.

The findings and recommendations of the SEA effort should be documented clearly and concisely in the report and be devoid of unnecessary technical details. The usefulness of an SEA report is measured by how well the potential problems are foreseen, evaluated, and addressed with adequate and straightforward measures and proposed actions. An SEA report should not make recommendations, decisions, or conclusions about the proposed PPP within the scope of EAD's environmental review process.

Preparation and Submission of an SEA report

The proponent of the proposed PPP is responsible for preparing and submitting an SEA report, which should be performed by an EAD-approved and -registered consultant operating within Abu Dhabi Emirate. A current list of registered consultants can be obtained from EAD.

An SEA report should include, but should not be limited to, all of the details, content, and requirements outlined Section II that are applicable to the PPP; the sections of an SEA report may be expanded to include other information relevant to the proposed PPP. The information collected should be relevant and appropriate to the scale of the PPP and to issues that the PPP will address. The data and information collected should inform and be relevant to the SEA objectives and indicators. The proponent should use the checklist in Table 1 to ensure that all applicable components and criteria are included and adequately addressed within the SEA report. An SEA report should adhere to the framework presented in Table 2 and described in Section II of this guidance document.

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Table 1. Checklist for Chapter-By-Chapter Review of an SEA Report

Chapter 1—Executive Summary	
<input type="checkbox"/>	Adequate summary of the PPP and significant findings of the SEA report
<input type="checkbox"/>	A sufficiently detailed description of the ways in which significant environmental issues will be resolved (enough information to allow the reader to grasp its importance and scope) and the appropriateness of the approach taken to resolve
<input type="checkbox"/>	Description of any remaining and residual impacts
<input type="checkbox"/>	Brief explanation of the methods and approaches used and confidence in results
<input type="checkbox"/>	Presentation of the effort's conclusions
Chapter 2—Introduction	
<input type="checkbox"/>	Contact information for PPP proponent and consultants
<input type="checkbox"/>	The PPP title, PPP rationale, and an overview of the report
<input type="checkbox"/>	Brief description of methods used to identify, predict, and assess impacts
<input type="checkbox"/>	Review of similar PPP
Chapter 3—Legal Framework and Standards	
<input type="checkbox"/>	Relevant and applicable laws, standards, and guidelines (e.g., local, regional, and Abu Dhabi Emirate)
<input type="checkbox"/>	Identification of the source(s) of the pollutant and contaminant standards limits adopted by the SEA report
Chapter 4—Project Description	
<input type="checkbox"/>	Maps and descriptions of the location and/or scale of the PPP
<input type="checkbox"/>	Description of the PPP (e.g., development and implementation, characteristics, processes, technology, design, potential for accidents)
<input type="checkbox"/>	Listing of PPP activities that are likely to cause significant impacts to environmental resources, detailed description of equipments used, pollution anticipated, and wastes generated
<input type="checkbox"/>	The PPP schedule
Chapter 5—Environment, Impacts, Mitigation, and Monitoring	
<input type="checkbox"/>	Identification of data gaps and/or description of the current environmental conditions and appropriateness of methods used to collect baseline data and information
<input type="checkbox"/>	Detailed information on all of the environmental components that may be significantly affected by the PPP
<input type="checkbox"/>	Base maps for spatial data to orient reviewers on the distribution of the various resources, areas of probable impact (including off-site areas), and their proximity to the PPP site with respect to each environmental component
<input type="checkbox"/>	Description of the major issues and impacts in all phases of the PPP
<input type="checkbox"/>	Documentation of the cause-and-effect relationships between planned activities and the environmental components
<input type="checkbox"/>	Impact prediction includes many stated assumptions that affect the predicted impacts, their probability of occurrence, time scale, and degree of impact
<input type="checkbox"/>	Methods used to predict impacts (quantitative assessment whenever possible, giving ranges and confidence limits) and limitations of the data, methods, or assumptions used
<input type="checkbox"/>	Assessment of the significance of predicted impacts, including impact matrix
<input type="checkbox"/>	Methods or approaches to assigning impact significance
<input type="checkbox"/>	Justification for the choice of methods used to predict environmental impacts
<input type="checkbox"/>	Descriptions of all the environmental protection measures considered to mitigate or offset damaging environmental impacts from PPP activities

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Chapter 5—Environment, Impacts, Mitigation, and Monitoring (continued)	
<input type="checkbox"/>	Descriptions of the costs and benefits for each recommended environmental protection option developed to resolve a significant environmental issue; comparison of each option to the other options; and justification for a recommended option should include an explanation of how its cost was weighed against the projected reduction in value of the environmental resource
<input type="checkbox"/>	Descriptions of the technology used in each environmental protection measure, including information on its prior effective use, the range of environmental conditions under which it is effective, and the level of skill required to operate or maintain the technology
<input type="checkbox"/>	Time schedule for implementing the environmental protection measures, showing that these measures will be in use before the PPP impacts are realized
<input type="checkbox"/>	Indication of significance of residual and unmitigated impacts; reasons for no mitigation
<input type="checkbox"/>	Figure or table that illustrates the ways in which the mitigation measures address the significant environmental issues
<input type="checkbox"/>	Sampling design (frequency, intensity) for compliance of mitigation monitoring and residual impact monitoring, including monitoring requirements, staffing requirements, budgets and schedules, and administrative arrangements
<input type="checkbox"/>	Monitoring objectives (i.e., is monitoring linked to determine actual effects and effectiveness of environmental protection measures?)
<input type="checkbox"/>	Clearly defined measurable environmental indicators
<input type="checkbox"/>	Detailed plan for reporting monitoring results, including monitoring requirements, and administrative mechanisms for enforcement and taking corrective action are in place
<input type="checkbox"/>	Detailed descriptions of the environmental protection measures, the monitoring program, and a variety of other required follow-up activities
<input type="checkbox"/>	Detailed information on cumulative impacts, list of mitigation measures to reduce or eliminate cumulative impacts, and a sampling design to monitor cumulative impacts
<input type="checkbox"/>	Objectives, schedule, and location for development and implementation of waste management plans
Chapter 6—PPP Alternatives	
<input type="checkbox"/>	An acceptable evaluation method
<input type="checkbox"/>	A broad and acceptable range of alternatives (e.g., zero-development option)
<input type="checkbox"/>	Explicitly stated assumptions and uncertainty considered
<input type="checkbox"/>	Objective comparison of alternatives and reasons for the final choice
Chapter 7—Statement of Commitments	
<input type="checkbox"/>	Commitments to develop Environment Management plan
<input type="checkbox"/>	Adherence to EAD permitting regulations and procedures
Annexes	
<input type="checkbox"/>	Annex 1—References
<input type="checkbox"/>	Annex 2—Data on existing environment
<input type="checkbox"/>	Annex 3—Methodologies and analyzed data
<input type="checkbox"/>	Annex 4—Terms of Reference and consultant activities
General	
<input type="checkbox"/>	Logical organization into integrated and easy-to-review components, including annexes
<input type="checkbox"/>	Clarity (i.e., minimum technical terms, the adequate and appropriate use of graphics, text could be understood by non-specialists)
<input type="checkbox"/>	Include a list of abbreviations, definition of terms, and full references to sources of information
<input type="checkbox"/>	Include negative and positive impacts of the proposed PPP (assessment should be objective, not the best case statement for the PPP)
General (continued)	

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<input type="checkbox"/>	Describe difficulties in collecting information and performing assessments
<input type="checkbox"/>	Ensure that map legends can be clearly understood for each resource; maps should be easy to read and accurately scaled and should include all major topographical and land-use features in the PPP area

Review of an SEA Report

EAD officials will review the submitted SEA report to verify that all chapters are complete and that the report meets all of the stipulated requirements. After EAD officials have reviewed and approved the SEA report, the proponent may proceed with the necessary steps toward implementing the SEA and monitoring the effects of SEA implementation.

Section II. SEA Report Format and Content

Section II provides guidelines on the format and content of the SEA report to be submitted by the proponent to EAD. The SEA report should have a title page and a Table of Contents, with the Table of Contents adhering to the framework and layout outlined in Table 2.

Table 2. Standard Table of Contents for the SEA Report

Table of Contents		
List of Abbreviations		
Definitions of Terms		
Tables		
Figures		
Chapter 1	Executive Summary	1.1 PPP Description 1.2 Summary of Findings
Chapter 2	Introduction	2.1 PPP Title and PPP Proponent 2.2 SEA Consultants 2.3 PPP Description and Rationale 2.4 Justification and Chronology for the Development of the SEA report
Chapter 3	Legal Framework and Standards	
Chapter 4	PPP Description	4.1 Statement of Need 4.2 PPP Location and Scale 4.3 PPP Description 4.4 PPP Status and Schedule

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Table of Contents (continued)		
Chapter 5	Environment, Impacts, Mitigation, and Monitoring	<p>5.1 Air Quality</p> <p>5.1.1 Description of the Environment</p> <p>5.1.2 Environmental Impact Prediction and Evaluation</p> <p>5.1.3 Mitigation Measures</p> <p>5.1.3.1 Potential Mitigation Measures</p> <p>5.1.3.3 Mitigation Measures to Address Cumulative Impacts</p> <p>5.1.3.4 Residual Impacts</p> <p>5.1.4 Monitoring Program</p> <p>5.1.4.1 Monitoring Program for Compliance with Selected Mitigation Measures</p> <p>5.1.4.2 Monitoring Program for Cumulative Impacts</p> <p>5.1.4.3 Monitoring Program for Residual Impacts</p> <p>* NOTE: Sections 5.2–5.10 should also include the subsections listed for 5.1, Air Quality</p> <p>5.2 Marine Water</p> <p>5.3 Waste Management</p> <p>5.4 Geology, Seismicity, Soil, and Groundwater</p> <p>5.5 Marine Ecology</p> <p>5.6 Terrestrial Ecology</p> <p>5.7 Noise</p> <p>5.8 Traffic</p> <p>5.9 Socio-economic</p> <p>5.10 Other Environmental Component(s) (if applicable)</p> <p>5.11 Impacts, Mitigation, and Monitoring Summary</p> <p>5.11.1 Mitigated Impacts</p> <p>5.11.2 Residual Impacts</p> <p>5.12 Risk Assessments</p> <p>5.12.1 Accidental Environmental Impacts</p> <p>5.13 Environmental Management Framework</p> <p>5.13.1 Environmental Management Program Objectives</p> <p>5.13.2 Roles and Responsibilities</p> <p>5.13.3 Training and Competence</p> <p>5.13.4 Communication</p> <p>5.13.5 Monitoring and Reporting</p> <p>5.13.6 Audit and Inspection</p>
Chapter 6	PPP Alternatives	
Chapter 7	Statement of Commitments	
Annexes		
Annex 1	References	
Annex 2	Information on the Current Condition of the Environment (methodology, data, and results)	
Annex 3	Terms of Reference	
Annex 4	Material Safety Data Sheets (if applicable)	

The following text describes the content that should be included, if applicable to the PPP, in each of the chapters and sections of the SEA report.

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List of Abbreviations

This section should include a list of abbreviations and acronyms used in the SEA report. This list should be presented in a tabular format using a format similar to that on page iii of this guidance document.

Definitions of Terms

This section should include a list of terms used in the SEA report and their definitions. This information should be presented in a format similar to that used on page iv of this guidance document.

List of Tables

This section should include a list of all the tables presented within the main body of the SEA report and should indicate table numbers, titles, and associated page numbers.

List of Figures

This section should include a list of all the figures presented within the main body of the SEA report and should indicate figure numbers, titles, and associated page numbers.

Chapter 1—Executive Summary

Chapter 1 of the SEA report should be a non-technical summary of the proposed PPP, which should outline the environmental components and special features that should be included in environmental baseline assessments and discuss general mitigation and monitoring recommendations. This chapter should be in English and Arabic and should include the following sections, which are discussed below:

- PPP Description
- Summary of Findings.

1.1 PPP Description

This section should contain a short description of the proposed PPP. This description should provide enough information for readers to understand the importance and scope of the proposed PPP.

1.2 Summary of Findings

This section should describe the environmental impacts associated with the most current version of the proposed PPP and the ways in which these impacts will be resolved through mitigation and monitoring efforts. The following information and findings should be included and described in this section:

- A listing of the environmental components that may be impacted by the proposed PPP.
- The environmental impacts (specifically addressing the potential impacts to threatened or endangered species, if present) that may occur with development of the PPP. Any potential impacts that are irreversible or threaten fauna and flora (especially threatened and endangered species) should be highlighted.
- The mitigation measures and associated monitoring programs that may be necessary.
- The ways in which significant environmental issues will be resolved.
- The cumulative environmental impacts that the proposed PPP or development of PPP area may contribute to.
- A brief summary and description of the alternative PPPs considered.
- The PPP advantages and disadvantages to the environment and society.

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General conclusions or recommendations concerning the overall PPP should not be included in the Summary of Findings section.

Chapter 2—Introduction

Chapter 2 should include information, data, and details relevant to the proposed PPP of the SEA report and be organized according to the following sections, which are discussed below:

- PPP and PPP Proponent
- SEA Consultants
- PPP Description and Rationale
- Justification and Chronology for the Development of the SEA Report.

2.1 PPP Title and Proponent

This section should include the name, address, telephone number, and fax number of the proponent's firm; the name and designation of the contact person who is responsible for the PPP; and the PPP's title.

2.2 SEA Consultants

This section should include the name, address, telephone number, and fax number of the consultant's firm; the names of the team members from that consultant firm who prepared the SEA report; and the field(s) of expertise of the consultant firm and the individual team members.

2.3 PPP Description and Rationale

This section should include a description of the type and components of the most current version of the proposed PPP and the location of the PPP, if applicable. This section should also include the purpose and rationale or justification (e.g., economic and/or social) for the proposed PPP.

2.4 Justification and Chronology for the Development of the SEA Report

This section should describe the justification for the SEA and the schedule for and steps taken to develop the SEA report. The following information should be included in this section:

- A list of the sequence of events and associated dates for the selection and preparation of the SEA report
- A list and description of the main outcomes of meetings that have already occurred or a list of intended meetings with stakeholders, governmental departments, and other groups potentially impacted by development of the PPP.

Chapter 3—Legal Framework and Standards

Chapter 3 should explain the legislative basis for the PPP and should outline the following information:

- All relevant applicable international laws, standards, and guidelines
- All relevant applicable regional laws, standards, and guidelines
- All relevant and applicable Emirate and local laws, standards, and guidelines
- International conventions, treaties, and protocols that may be relevant and applicable to the PPP
- All applicable standard pollutant limits should be referenced (EAD, AD EHSMS Regulatory Framework – Standards and Guideline Values, and federal limits; if these are not available, then the best- available standard limits).

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Chapter 4—PPP Description

Chapter 4 should include a detailed description of the PPP with clear explanations of the need for, content of, and scope of the PPP. This chapter should include the following sections, which are discussed below:

- Statement of Need
- PPP Location and Scale
- PPP Descriptions
- PPP Status and Schedule.

4.1 Statement of Need

This section should include a statement of need for the proposed PPP and its compatibility with national development and environmental strategies. There should be a discussion of the PPPs that are being considered to the level of detail allowed by the most recent version of the PPP. This statement should identify the clients and potential customers of the proposed PPP, demonstrate why the PPP should be located at the proposed site (if applicable), and demonstrate both economic and social benefits of the PPP.

4.2 PPP Location and Scale

If relevant, this section should fully describe the exact location and scale of the proposed PPP, to the level of detail allowed by the most recent version of the PPP, and should include location maps and other relevant visual information (e.g., figures, photographs, digital images, tables). The following information should be included and described in this section:

- A general site description, highlighting the important features in the proposed area (e.g., natural vegetation areas, soils, geology, bodies of water).
- The planned layout for the PPP, including all divisions, units, and activities within the PPP area boundaries, according to the most recent version of the master plan, and to the level of detail possible.
- Coordinates and geographic boundaries of the PPP area using EAD's Geographic Information Systems—Data Management Standards.
- Detailed maps showing the following information:
 - Proposed site and its immediate surroundings
 - Proposed site within the context of the regional landscape
 - Location of the proposed PPP within Abu Dhabi Emirate
 - Proximity of the proposed PPP to national parks, protected areas, or other areas of known sensitivity or environmental importance.
- General information regarding any known current or future proposed or planned development activities in surrounding areas (provide detail with text and maps, when possible).

4.3 PPP Description

This section should describe and provide details on the proposed PPP and the related activities and equipment associated with the different phases of the PPP. The information presented in this section should match the expected operations outlined in the master plan, and should include the following:

- Detailed descriptions of the processes and activities associated with development, implementation, and monitoring phases of the PPP.
- A list of utility types (e.g., electricity, water, waste treatment) and quantities that may be used or produced during the operation phase of the proposed PPP, if applicable.
- An organizational chart listing the staff members who are managing the main activities, phases, and components of the proposed PPP. For each staff member, this chart should provide the person's name, his or her roles and responsibilities, and the number of employees he or she is supervising.

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- A list of all raw materials and chemicals that will be used during the development, implementation, and monitoring phases (if relevant) of the proposed PPP and their associated purposes and functions. Material Safety Data Sheets (MSDSs) should be included in the appendices for all hazardous chemicals and raw materials.
- A description of the different wastes (e.g., hazardous, solid, liquid) that will be generated by PPP activities conducted during the development, implementation, and monitoring phases. Information that should also be included are the rates of generation, the methods that will be used for estimation, and the potential and proposed methods for handling, treating, and disposing of wastes.
- A list identifying all potentially polluting (emissions or noise) or environmentally damaging equipment and machinery that may be used (if relevant). This list of equipment should also describe the type and capacity of power or fuel used for each piece of equipment.

4.4 PPP Status and Schedule

This section should describe the current status of PPP implementation, the schedule, and the components and phases therein (if it is a multicomponent or a multiphased PPP). This section should also include a concise overview of the approval procedures and steps for the proposed PPP.

Chapter 5—Environment, Impacts, Mitigation, and Monitoring

Chapter 5 should contain all of the environmental conditions and assessment information related to the proposed PPP and the PPP location. This chapter should describe the environmental baseline condition, identify potential impacts and associated risks, and describe the potential mitigation and monitoring efforts for the proposed PPP (where relevant and applicable). These descriptions should be created for all environmental components that occur within or near the PPP location and should cover all applicable phases of execution (i.e., development, implementation, and monitoring).

Sections 5.1 through 5.10 in Chapter 5 discuss the environmental components and the corresponding section number for each component as it should appear in the EIA report. The remaining sections within Chapter 5 (i.e., 5.11, Impacts, Mitigation, and Monitoring Summary; 5.12, Risk Assessment; and 5.13, Environmental Management Framework) are summary sections and address all the environmental components together.

5.1 to 5.10 Environmental Components

Table 2 and Table 3 list each environmental component and its respective section number. If an environmental component is not covered in Sections 5.1–5.9, then it should be described and detailed in Section 5.10, Other Environmental Component(s). If an environmental component is not within or near the proposed PPP location, and therefore will not be impacted by the proposed PPP, then this should be stated and justified within the corresponding section (5.1–5.9).

Table 3. Organization and Corresponding Section Number for Environmental Components

Section Number	Environmental Component
5.1	Air Quality
5.2	Marine Water
5.3	Waste Management
5.4	Geology, Seismicity, Soil, and Groundwater
5.5	Marine Ecology
5.6	Terrestrial Ecology
5.7	Noise
5.8	Traffic
5.9	Socio-economic

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Section Number	Environmental Component
5.10	Other Environmental Component(s)

For each environmental component (Sections 5.1–5.10), the following four sections (i.e., 5.x.1, 5.x.2, 5.x.3, and 5.x.4) and their contents should be included.

Note: The “x” in the following sections represents sections 1–10, corresponding to the environmental component outlined in Table 3. For example, for the Air Quality environmental component, the Description of the Environment section would be 5.1.1.

5.x.1 Description of the Environment

This section should describe the current status (baseline condition) of the environmental component. There should be specific emphasis on areas and conditions that may be directly and indirectly affected by any of the proposed PPP activities conducted during the development, implementation, and monitoring phases.

For the SEA report, a general description of the condition of the environmental component is acceptable. Gaps in environmental baseline data should be described when applicable baseline data from similar studies or adjacent sites cannot be identified or is outdated. In such cases, some preliminary baseline studies may be required for critical environmental aspects. Suggested sources of information with which to construct the description of the environment include literature, previous studies, informal site visits, and consultation with experts in government, industry, and/or academia.

Baseline conditions that should be addressed include existing physical, chemical, biological, and socio-economic conditions relevant to the environmental component. These conditions should be evaluated at the site of the proposed PPP and in the area of probable impact (i.e., the extent of the area outside of the PPP location that is likely to be directly or indirectly impacted by the proposed PPP). Both the site of the proposed PPP and area of probable impact should be described and delineated with maps in the SEA report, if possible. The area of probable impact may differ by environmental component, and such differences should be reflected in the maps for each component. Specific information that should be addressed in this section includes the following; (for this information, EAD standards and the Abu Dhabi AD EHSMS Regulatory Framework – Standards and Guideline Values should be referenced):

- For Air Quality and Marine Water environmental components and the Groundwater portion of the Geology, Seismicity, Soil, and Groundwater environmental component, current levels of nutrients, pollutants, toxicants, and other relevant compounds should be evaluated and described.
- For Marine Ecology and Terrestrial Ecology environmental components, there should be an evaluation and description of all habitats, ecosystems, and flora and fauna that could or will be impacted by the proposed PPP, with special emphasis on habits, systems, and flora and fauna that are threatened, endangered, uniquely sensitive, or of regional or international importance. For flora and fauna, information of local, regional, national, and international abundance, habitat requirements, territory or home-range size, migration patterns, and other behavioral characteristics that could be impacted by the proposed PPP should be included.
- For the Noise and Traffic environmental components, the current levels of noise and traffic disturbance at different times of day and seasonally, if applicable, should be evaluated and described.
- For the Socio-economic environmental component, the current condition of population(s) that will or could potentially be impacted by the proposed PPP in the proposed location and area of probable impact should be evaluated and described.
- If any sites of archaeological significance are present, then they should be described.
- For each environmental component, there should be maps and other relevant visual information that orient reviewers to the distribution of important features and their proximity to the PPP site (covering the PPP site and area of probable impact). All maps should adopt a consistent format that includes a title (indicating what the map shows, the location, and the date the map was produced), a legend, a scale bar, and a North arrow. Recommended maps include the following:
 - Marine and terrestrial ecosystems, including major features and the locations of protected and sensitive areas
 - Residential or human-inhabited areas

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- Current land use
- Land ownership/land titles adjacent to PPP site.

5.x.2 Environmental Impact Prediction and Evaluation

This section should address the potential and anticipated impacts of the proposed PPP on the environmental components. This section should include the direct and indirect impacts in the PPP site, area of probable impact, and the potential environmental impacts identified by the proponent, contractors, and consultants associated with the proposed PPP. When possible, this section should include the following information:

- All of the potential impacts and their respective sources, including a description of cause-and-effect relationships between planned activities and the environmental component
- Potential cumulative effects and the potential for permanent or irreversible impacts
- The location of the impacts in relation to the activities and site boundaries
- The methods or approaches used to predict the impacts. It is best to use quantitative assessment whenever possible, giving ranges and confidence limits. When possible and relevant, include a list of stated assumptions that affect the predicted impacts, their probability of occurrence, the time scale, and degree of impact. Methodology and analyses from existing environmental guidelines, published literature, or case studies should also be used.

5.x.3 Mitigation Measures

This section should outline potential mitigation measures to reduce the negative impacts on the environmental component during all phases of the proposed PPP (i.e., development, implementation, and monitoring) and should consist of the following sections, which are discussed below:

- Potential Mitigation Measures
- Mitigation Measures to Address Cumulative Impacts
- Residual Impacts.

All of the environmental impacts described in Section 5.x.2 should be addressed, and a summary table should be provided that lists the following information: the environmental impacts and their sources, locations, and significance; baseline conditions that will be measured to evaluate the impacts; potential mitigation measures; relevant environmental standards (United Arab Emirates [UAE] or international); and the maximum allowable limits (if different from standards). This summary should also include the environmental impacts that cannot be mitigated. The amount of description contained within this section should be determined by the level of detail in the most recent version of the proposed PPP.

5.x.3.1 Potential Mitigation Measures

This section should list and describe all the environmental impacts, including cumulative impacts, described in Section 5.x.2, and identify a variety of potential mitigation measures that could be adopted to reduce the impact of the proposed PPP on the environmental component during all phases of the proposed PPP (i.e., development, implementation, and monitoring). This section should be developed with the SEA consultant and be presented in a tabular format. The following information should be included and described:

- The environmental impacts and their sources, locations, and significance
- Potential mitigation measures that could be adopted to address the impacts (more than one option can be presented)
- Environmental standards (EAD, Abu Dhabi EHSMS, UAE or international) associated with the impacts, if relevant
- The maximum allowable limits (if different from standards), if relevant
- If an impact cannot be mitigated, then this should be stated.

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5.x.3.2 Mitigation Measures to Address Cumulative Impacts

The section should describe any mitigation measures or actions that may be taken to avoid, minimize, eliminate, or compensate for the cumulative environmental impacts of the proposed PPP on each environmental component.

5.x.3.3 Residual Impacts

This section should generally describe the residual environmental impacts that are not likely to be mitigated. To the level of detail possible, the following information should be included in this section:

- Justification for the absence of a mitigation measure (e.g., economic, mitigation not possible, minimal environmental impact)
- Estimation of the environmental impact(s) that will likely occur without mitigation, addressing duration, extent, and intensity of impact(s).

5.x.4 Monitoring Program

This section should describe the monitoring program(s) that will be implemented to monitor the level of impact from residual and cumulative impacts and ensure compliance of the selected mitigation measures (including non-mitigated cumulative impacts) of the proposed PPP on the environmental components. The monitoring program(s) should address all phases of the projected PPP and both the PPP site and area of probable impact. The level of detail in this section should be determined by the most current version of the proposed PPP and the previous section (Section 5.x.3, Mitigation Measures).

5.x.4.1 Monitoring Program for Compliance with Selected Mitigation Measures

This monitoring program and methods used to monitor the efficacy of and compliance achieved with the selected mitigation measures should be clearly outlined and described in this section. This section should include a brief description of the preferred methods, a rough outline of the monitoring schedule (frequency and duration), the requirements for periodic reporting, and a method to verify that the mitigation measures have been imposed.

5.x.4.2 Monitoring Program for Cumulative Impacts

This section should describe the monitoring program that will be implemented to measure the cumulative impacts (outlined in Section 5.x.3.2) associated with the proposed PPP and quantify the extent to which cumulative impacts have been reduced by mitigation measures.

5.x.4.3 Monitoring Program for Residual Impacts

This section should describe a monitoring program that will be developed to measure the residual environmental impacts associated with the proposed PPP. This monitoring program should be designed in such a way that it will be possible for the proponent to demonstrate that the proposed PPP is not impacting the identified key environmental conditions beyond an acceptable level.

5.11 Impacts, Mitigation, and Monitoring Summary

This section should provide a summary of all the environmental impacts and associated mitigation measures and monitoring programs outlined in Sections 5.1–5.10. Relevant monitoring efforts should be detailed in each of the following sections, which are discussed below:

- Mitigated Impacts
- Residual Impacts.

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5.11.1 Mitigated Impacts

This section should provide a summary of all the impacts and associated mitigation measures and monitoring programs outlined in Sections 5.1–5.10. Cumulative impacts should also be included in this section. The information should be presented in a tabular format and indicate

- The source of the impact
- The potential or anticipated environmental impact
- The recommended mitigation measure(s) to reduce the impact
- A brief description of the monitoring program that will determine the effectiveness of the mitigation measure(s)
- The name of the person will be responsible for the monitoring program.

5.11.2 Residual Impacts

This section should provide a summary of all the residual impacts (including non-mitigated cumulative impacts) and associated monitoring programs outlined in Sections 5.1–5.10. This information should be presented in a tabular format and indicate the following:

- The source of the impact
- The potential or anticipated environmental impact
- The reason(s) why the impact could not be mitigated
- A brief description of the monitoring program that will determine the effectiveness of the mitigation measure(s)
- The name of the person who will be responsible for the monitoring program.

5.12 Risk Assessments

This section should address the risks associated with impacts to the environment that could occur as a result of mishaps or failures during the construction, operation, and decommissioning phases of the proposed PPP. Examples of such occurrences are failure of material or equipment, procedures not being followed, unforeseen non-routine process upsets, and process equipment or processes not performing according to design parameters. Typical examples of impacts through mishaps include, but are not limited to, spills, leaks, fires, explosions, and process blow-downs. Such mishaps or failures may represent environmental hazards.

To account for, control, and avoid such potential hazards, this section of the SEA report should identify and provide a description of (1) all environmental hazards that could be encountered during a phase, activity, or process associated with the proposed PPP; (2) the level of risk associated with each identified hazard; and (3) the control and recovery measures that will be implemented to minimize the risk of the occurrence and impact of each hazard. This section should demonstrate that the proposed PPP has accounted for the risks associated with all potential hazards to the environment (all environmental components) and that facilities, activities, and processes of the PPP will be operated with measures and protocols to avoid or contain direct and indirect risks associated with the identified hazards. This section should

- Identify sensitive resources and priority protection areas
- Identify emergency organizations, responsibilities, resources, and call-out details and include the names and contact details for emergency response personnel and emergency services
- Describe the design used to minimize the health and environmental impacts of systems failures
- Describe the special circumstances and requirements that may occur during decommissioning or testing operations
- Identify the location for on-site information about hazardous materials, including MSDSs, and spill-containment materials
- Include detailed information on spill-response and clean-up strategies (or plans to develop these strategies), safe oil and chemical packaging and storage, containment around oil-containing areas and equipment, efficient oil or water separators, and safe fuel transfer procedures.

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5.13 Environmental Management Framework

This section should provide an overview of the PPP-specific Environmental Management Framework (EMF) that will be developed by the proponent to facilitate implementation, tracking, and reporting of the mitigation and monitoring measures that are identified and committed to in the SEA report. If the proponent is a nominated entity, under the EHSMS Regulatory Framework, a statement showing approval of their EHSMS will be sufficient for this section. The elements of this section should parallel the concepts of the Abu Dhabi EHSMS Regulatory Framework in that the project-specific EMF program(s) should ensure that all parties involved in the PPP have a common and uniform understanding of the environmental management strategy, evaluation criteria, targets, and objectives. Information about and approach to the EMF should be organized according to the following sections, which are discussed below:

- Environmental Management Program Objectives
- Roles and Responsibilities
- Training and Competence
- Communication
- Monitoring and Reporting
- Audit and Inspection.

5.13.1 Environmental Management Program Objectives

This section should identify the EMF's core objectives that will provide the basis for implementation of the mitigation measures and monitoring program(s) identified in Chapter 5 of the SEA report.

5.13.2 Roles and Responsibilities

This section should describe the proposed roles and responsibilities of key personnel (e.g., the PPP Manager, the EMF Manager, the Construction Manager, subcontractors) who will be involved with EMF performance and implementation of the proposed mitigation measures and monitoring efforts.

5.13.3 Training and Competence

This section should describe the methods or procedures that will be implemented to assure that all management, supervisors, and workers are properly trained to the level necessary to conduct their work according to the EMF objectives. These methods and procedures should address documentation of training and verification of the competency of key personnel.

5.13.4 Communication

This section should describe the methods of internal and external communication that will be used to ensure effective implementation of the EMF programs. Methods of communication may include environment, health, and safety (EHS) induction training, newsletters, and regular PPP meetings (e.g., engineering, construction, and contractor coordination meetings). Examples of topics that should be discussed during PPP meetings include the status of EMF activities, implementation of the EMF program, and specific EMF issues identified during PPP execution.

5.13.5 Monitoring and Reporting

This section should describe how the PPP proponent will monitor the implementation of mitigation measures and/or the environment to verify and document successful EMF performance. There should also be a description of the methods and protocol for internal and external reporting of EMF performance, as required to demonstrate compliance.

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5.13.6 Audit and Inspection

An audit and inspection program should be developed for PPPs involving multiple stakeholders, proponents, and/or contractors because this will ensure compliance with all EMF requirements and commitments (including applicable legal requirements, standards, and Codes of Practice) across all participants in the PPP activity. The audit program should be designed to provide oversight and coordination on EMF objectives. This section should provide an overview of the types of audits or inspections that would (or will) be conducted, including audit criteria, scope, frequency, and methods. The description should also include, at a minimum, who is responsible for planning and conducting audits and inspections, what reporting of audit and inspection findings will be conducted, the procedures for addressing non-conformance and corrective actions, and what records will be maintained.

Chapter 6—PPP Alternatives

Chapter 6 should list and describe a broad and comprehensive range of alternative approaches to the proposed PPP. The main objective of this chapter is to evaluate the PPP outlined in the most current version and compare it against other options that may have more or less impact on the environment (physical and socio-economic). The main focus of this chapter should be the aspects of the proposed PPP that are likely to have the largest impact on cost and the environment. This chapter should include at least two alternatives and one “no-development” option and one “alternative location” option. To the level of detail possible, the descriptions of alternatives should include the following information:

- Improved or new technology and equipment used
- Process
- Size
- Location
- Implementation
- Impacts of the alternative approach on the environment and cost (as absolute values and as reductions relative to proposed PPP)
- All assumptions must be clearly stated in all of the alternatives considered.

This chapter should conclude with a justification of the approach and components selected for the proposed PPP (i.e., why the alternatives were not adopted as part of the proposed PPP).

Chapter 7—Statement of Commitments

Chapter 7 should outline and reiterate commitments to mitigating the environmental impacts associated with the proposed PPP (as outlined in Sections 5.1–5.12) and adhering to EAD standard operating procedures and protocols. A summary of the environmental impacts outlined in Chapter 5, along with a detailed commitment to managing these impacts to acceptable levels, should be included (commitment should include details about mitigation, monitoring, and recording and reporting processes). A description should also be included that clearly details who is responsible for ensuring that the commitments are fulfilled. There should also be text that describes a commitment to adhering to the procedures and steps specific to EAD protocols and the process for preparing relevant documents. More specifically, this chapter should clearly state a commitment to

- Develop an Environmental Plan within 6 months after starting the proposed PPP
- Create an EMF 12 months after starting the proposed PPP
- Provide EAD with all developed management plans, any future updates and modifications of the PPP or PPP activities, and periodic environmental monitoring reports
- Adhere to all EAD permitting regulations and procedures.

Annexes

Annexes should include all information not immediately relevant to the main text of the SEA report. Annexes should include the following:

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- **Annex 1**—References. This annex should include all references used to develop the SEA report.
- **Annex 2**—Information on the Current Condition of the Environment (methodology, data, and results). This annex should include relevant and detailed descriptions of the methodology, data, and results of the assessments used to establish the current condition of the environment in the proposed PPP site and area of probable impact. Each environmental component should be addressed and should be organized according to the sequence outlined in Table 2 and followed in Sections 5.1 through 5.10. Included in this annex should be a full description of the current condition of each environmental component (product of assessments), sources of the information, and relevant maps and photographs not shown in Chapter 4 and 5 of the SEA report.
- **Annex 3**—Terms of Reference. This annex should contain the Terms of Reference document that was prepared and approved for the SEA report.
- **Annex 4**—Material Safety Data Sheets (if applicable). This annex should include all MSDSs associated with the hazardous materials identified in Section 4.3.

Additional annexes should be added as needed to support model selection and output, EHS documentation, large-scale drawings and diagrams, and record, checklist, and log templates for inspection, auditing, monitoring, maintenance, and training.

References

Abu Dhabi EHSMS Regulatory Framework, including Standards and Guideline Values for Air, Water, Land and Noise and associated Technical Guidelines.

Natural Scotland Scottish Executive, 2006, Strategic Environmental Assessment Tool Kit. Available at <http://www.scotland.gov.uk/Publications/2006/09/13104943/45>

OECD (Organisation for Economic Co-operation and Development), 2006, DAC Guidelines and Reference Series: Applying Strategic Environmental Assessment. Good Practice Guidance for Development Co-operation, OECD Publishing Available at <http://www.oecd.org/dataoecd/4/21/37353858.pdf>

UNECE (United Nations Economic Commission for Europe). 2006. Adapted from the Resource Manual to Support Application of the UNECE Protocol on SEA. July. Available at http://www.unece.org/env/eia/sea_manual/welcome.html.

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Document Change History

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EAD-EQ-PCE-TG-03	00	01 April 2010	First Issue		SG
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