5 Operational Phase EM&A Procedures

5.1 Identify the Need

There is often a considerable span of time between the preparation stages of a development project and its operational stage. Changes adopted during the course of a project's implementation might ultimately affect the predicted environmental performance of the project. Hence, there is a requirement to reaffirm the "NEED" for an Operational Phase EM&A programme as per the criteria set out in Section 1.2. For any unforeseeable material changes to a project during the course of its implementation, a supplementary EIA/EA study shall be required to evaluate the appropriate impacts and their means for mitigation and in addition, consider the need for an Operational Phase EM&A programme

5.2 Operational Phase of a Development Project

Subsequent to construction, a project might proceed through the following stages:

i) Post construction: after the cessation of construction activities and prior to the commissioning of the project, the Construction Phase EM&A programme shall normally be extended to demonstrate the return of ambient conditions, as recorded during the project's baseline monitoring programme, and confirm no unexpected adverse environmental impact due to the construction;

ii) Commissioning commissioning constitutes the start-up process of a project's operation and an EM&A programme might be needed (dependent on the EIA/EA study recommendations and requirements, and/or the evaluation as per Section 5.1) to validate whether the performance of the proposed environmental mitigation measures is within the predicted scenarios/limits; and

iii) Operation project operation will begin after commissioning and an EM&A programme might be needed (dependent on the EIA/EA study recommendations and requirements, and/or the evaluation as per Section 5.1) to conduct long-term monitoring to ensure no adverse impacts resulted from the project's operation. An Operational Phase EM&A programme might also be needed for some outstanding, incomplete or on-going issues following from the construction phase, such as, ecological reinstatement, compensation/replacement planting, flora or fauna sensitivity evaluation due to the

development, etc.

5.3 Environmental Management System and ISO14000

For long-term environmental monitoring, the Project Proponent is recommended to pursue a structured environmental management system (EMS) integrated with the day-to-day management of the operation of the development project. The EMS shall be a systematic, independent evaluation of the operational environmental impacts and shall verify compliance with statutory limits, any relevant standards and criteria, and the EIA/EA study recommendations and requirements. The Project Proponent may follow the basic procedures set out in Section 2 in order to structure a project specific EMS.

5.3.1 Environmental Policy

An Environmental Policy statement represents a commitment by the Project Proponent/Operator to carry out project activities, either directly or indirectly under his control, in a sustainable manner and with the aim of protecting the environment. A project's policy statement should be specific and Section 2.1 provides some guidelines.

5.3.2 Planning and Management

The formulation of environmental objectives represents the translation of a project's policy into action and paves the way to achieve a project's environmental targets. Guidelines on environmental management procedures are given in Section 2.2. Notwithstanding these requirements, the Project Proponent and/or Operator are required to note the following:

(a) environmental organization — it is recommended that the environmental team (ET) should be integrated into the normal management system and not be isolated from routine production/operation of the facility or development. The environmental manager leading the ET should report to senior management, such as, CEO or GM directly;

(b) resource arrangements — the quality and training of ET staff; provision of appropriate and effective instrumentation and equipment, transportation; laboratory analyses, and comprehensive equipment and instrument calibration and maintenance contracts are important elements for the successful performance of an Operational Phase EM&A programme. A resource allocation schedule is required for timely and effective implementation of the Operational EM&A programme.

(c) empowered authority and responsibility — necessary and sufficient empowerment is an efficient and effective management mechanism to enable the Environmental Team to prevent, correct and stop any unfavourable or unforeseen environmental impacts; and

(d) conflict resolution mechanism — proactive environmental review of all project operational activities is the optimum means to reduce "end-of-pipe" environmental problems. The Environmental Team should establish close communication channels with all of the project's components or facilities; and through routine environmental meetings, seek mutual understanding and the resolution of environmental problems. In addition promote environmental awareness amongst all staff.

5.3.3 Technical Requirements

A practical Operational Phase EM&A programme should be effective to detect environmental impacts due to the project as set out in Section 2.6. For routine monitoring, detailed requirements for monitoring locations, sampling, frequency and laboratory analysis, reference should be made to Section 4.7 for general guidance.

5.3.4 Quality Assurance

A quality assurance (QA) programme is the key to a successful EM&A programme. An effective QA programme is dependent on; the employment of qualified personnel with relevant professional experience; independent audit of environmental data, sampling and analysis procedures; as well as comprehensive and relevant staff training. Section 2.3 and 2.4 provides guidance on the requirements for a quality assurance programme.

5.3.5 Review and Feedback

The EM&A programme represents an opportunity for the Project Proponent to continually review environmental issues in relation to the project and it's facilities' operations. In addition it provides an opportunity to evaluate whether the Project Proponent's Environmental Management methods enable project compliance with the relevant environmental laws, regulations, standards, relevant guidelines, etc. Guidance is provided at Section 2.7.

For a complete EMS, Project Proponent/Operator may refer to "A Simple Guide to Set Up An EMS"" published by EPD and available from CEM Section , EPD, HK Government; or, make reference to the comprehensive EMS prescribed in ISO 14000 series (International Organization for Standardization, Case Postale 56, CH-1211 Geneve 20, Switzerland).

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5.4 Operational Phase EM&A Requirements

The environmental protection conditions, including, all statutory limits for project operation, all EIA/EA study recommendations and requirements, ACE conditions and any endorsed public comments related to the operational phase of the development project shall be clearly defined in the Operational Phase EM&A Manual. The various measures for implementation by the Project Proponent/Operator shall be in a tabulated format for easy reference (see attached checklist proforma, in the form of an Implementation Schedule at Appendix E1).

5.5 Resources Arrangement and Transfer of Responsibility

The EIA/EA study is the means to document the prediction and assessment of a project's environmental performances during, inter alia, its operational phase. It is vitally important for the EIA/EA study to not only identify and quantify the predicted environmental scenario arising from a projects implementation; but also to put forward the means and mechanisms to forewarn, prevent, minimize and stop any potential adverse impact throughout the duration of the project, by reference to a checklist of resource requirements. On the basis of this information, the Project Proponent/Operator shall cost the environmental protection items and provide the necessary and essential resources in a timely and efficient manner. For projects which the Project Proponent might not be the project operator or there is a transfer of ownership, it is the responsibility of the Project Proponent (originator) to ensure continuity for the undertaking of environmental protection requirements as per Section 5.4.

5.6 Documentation

The documentation and reporting requirements as well as the frequency of reporting shall be stated in the Operational Phase EM&A manual as part of the EIA/EA submission. Detailed reporting requirements are summarized in Appendix to Section 2.7. A generic outline for Operational Phase EM&A reports is provided in the following for general guidance:

5.6.1 Operational Phase EM&A Manual

(NB. submit as part of the EIA/EA study and update as necessary 3 months prior to

the commissioning of project operation with the agreement of the Director of Environmental Protection)

Table of Contents

(i) Project Background
(ii) Project Proponent/Operator Particulars
(iii) Environmental Policy
(iv) Environmental Objective
(v) Description of Operation Process
(Uses of raw materials resources, output of the process, by products and the associated environmental impacts.)
(vi) Organization Structure (option for an EMS within the management structure)
(Flowchart to show the hierarchy of the environmental team and the inter-relationships with other department of the facility)
(vii) Operational Phase EM&A Requirements
(viii) Duty of Environmental Team and Independent Auditing
(Refer to Section 3.5, 3.6, 4.5, 4.6)
(ix) Technical Requirement for Monitoring
(Refer to Section 4.7)
(x) Compliance Requirements
(Refer to Section 4.9)
(xi) Complaint Procedure
(Refer to Section 2.5, 4.12)
(xii) Environmental Training and Awareness Programme
(Refer to Section, 2.4)

Appendices

- ☐ Location Plan and Facility Process Flowchart
- ☐ Location of Sensitive Receivers
- ☐ Monitoring Locations
- ☐ Implementation Schedule
- ☐ Environmental Monitoring Technical Summary
- ☐ Process Audit Proforma
- ☐ Listing of relevant Regulations

5.6.2 Baseline EM&A Report

(NB. submit 1 months prior to the commissioning of project operation)

Table of Contents

(i) Executive Summary

(ii) Brief Project Background
(iii) Description of Site
(iv) Monitoring and Audit
- parameters undertaken;
- methodology and protocol;
- location, frequency and duration;
- approved laboratory analysis;
- instrumental calibration;
- monitoring result audit.

(v) Data Analysis and Presentation
(vi) Basis for Ambient Environmental Conditions and Action/Limit Levels
(vii) Revision of EM&A Manual
(viii) Conclusion and Observation

Appendices

- ☐ Location of Monitoring Stations
- ☐ Raw Data
- ☐ Calibration Certificate
- ☐ Data Presentation
- ☐ Action and Limit Level Calculation

5.6.3 Operational Phase EM&A Report

(NB. submit within 10 working days subsequent to the reporting period. This applies to monthly, quarterly and annually reports)

Table of Contents

(i) Executive Summary
(ii) Brief Project Background
(iii) Description of Site
(iv) Project Information
(Project organization including key personnel contact names and telephone no., management structure, etc)
(v) Description of Operation Process
(Uses of raw materials resources, output of the process, by products and the associated environmental impacts and provide the quantity of these items during the reporting period)
(vi) Environmental Status
(vii) Monitoring and Audit
- parameters undertaken;
- methodology and protocol;
- location, frequency and duration;
- approved laboratory analysis;
- instrumental calibration;

- monitoring result audit.

(viii) Data Analysis and Presentation
(ix) Environmental Audit
(x) Recommended Mitigation Measures
(xi) Report on Non-compliance, Complaints, Notifications of Summon and Successful Prosecutions

Appendices

- ☐ Location of Monitoring Stations
- ☐ Location Plan and Facility Process Flowchart
- ☐ Location of Sensitive Receivers
- ☐ Implementation Schedule
- ☐ Implementation Status
- ☐ Environmental Monitoring Technical Summary
- ☐ Process Audit Proforma
- ☐ Regulatory Compliance Proforma
- ☐ Complaint Log
- ☐ Raw Data
- ☐ Calibration Certificate
- ☐ Data Presentation