ENVIRONMENTAL IMPACT ASSESSMENT GUIDELINE IN MALAYSIA

Department of Environment
Ministry of Natural Resources and Environment
Malaysia

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Department of Environment, Malaysia

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The Department is also grateful to all the DOE staffs for their great efforts and passion in steering the development of this project into reality.

Finally, we wish to acknowledge all stakeholders for their great contribution in the development of this book of guidelines.

PREFACE

The Environmental Impact Assessment (EIA) Guidelines in Malaysia consists of the updated guidelines prescribed by the Director General of Environmental Quality in order to fulfill the requirements under the provision of Section 34A (2c) of the Environmental Quality Act 1974 and Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 which has been gazette and enforced since 28th August 2015.

The purpose of this guideline is to guide the project proponent and qualified person (registered consultants by Department of Environment, DOE) in the preparation of the EIA reports. The project proponent is required to appoint registered consultants and consult with the DOE about the proposal as early as at the project identification stage.

The Guideline contains EIA order which comprises of two schedules. For the First Schedule, EIA report should be submitted to the relevant State Offices of the DOE for review and approval. However, for the Second Schedule report should be submitted to the DOE headquarters. In addition, for the proposed project that traverse two or more states (such as linear project – Highway), even though it is under first schedule, the EIA Report submission must be made through the DOE Headquarters for review and approval.

This Guideline is also enhanced by providing guidance at pre, during and post stages of EIA Report submission. It also introduces guidance on self-regulation in the current practice by DOE to ensure the project proponent to be fully responsible and accountable in EIA project implementation.

The Guideline consists of seven (7) chapters as follows:

Chapter 1: This chapter describes the purpose, concept, applicability and principles of Environmental Impact Assessment (EIA) in Malaysia.

Chapter 2: This chapter explains the policy and legislations relating to EIA Procedures in Malaysia.

Chapter 3: This chapter explains the general procedure, requirements and study methodologies of EIA Report

Chapter 4: This chapter explains the requirements for pre-submission stage of EIA Report
– Screening and scoping process

Chapter 5: This chapter explains the requirements for during submission stage of EIA report.
– Review Process

Chapter 6: This chapter explains requirements for post-submission of EIA reports which outlines the specifications and format of report on Environmental Management Plan (EMP), Performance Monitoring Document and Land Disturbing Pollution Prevention and Mitigation Measures Document to be submitted to the DOE.

Chapter 7: This chapter explains mainstreaming of environmental agenda and self-regulation approach in EIA procedure.

The guideline also contains useful environmental information in a number of appendices to facilitate project proponent and qualified person in the course of report preparation.

This guideline was first drafted in December 1979 and was reviewed in 1987, 1995, 2000, 2007 and 2009. The guideline in its present form includes updates and additional provisions required under Section 34A of the Environmental Quality Act, 1974 (Amendment) 2012 and the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015. It will be further updated as and when deemed necessary by the Director General of Environmental Quality.

The Technical Committee of EIA Guideline chaired by Director General of Environmental Quality Malaysia had endorsed the Environmental Impact Assessment (EIA) Guideline in Malaysia on 19th July 2016.

(DATO' DR. AHMAD KAMARULNAJUIB BIN CHE IBRAHIM)
Director General of Environmental Quality
Malaysia

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ABBREVIATION

2I's1M	Installation, Inspection and Maintenance
AIs	Appointed Individuals
APCS	Air Pollution Control System
BAT	Best available technologies
BMPs	Best Management Practices
CM	Compliance Monitoring
CD	Compact Disc
CPESC	Certified Professional in Erosion and Sediment Control
COA	EIA Conditions of Approval
DID	Department of Irrigation and Drainage
DOE	Department of Environment
EAR	Environmental Audit Report
EIA	Environmental Impact Assessment
EIATRC	EIA Technical Review Committee
EiMAS	Environmental Institute of Malaysia
EKMC	Enviro Knowledge Management Centre
EMP	Environmental Management Plan
EMR	Environmental Monitoring Report
EO	Environmental Officer
EPD	Environmental Protection Department
EPMC	Environmental Performance Monitoring Committee
EQA 1974	Environmental Quality Act 1974
ERP	Emergency Response Plan
ESCP	Erosion and Sediment Control Plan
ESI	Environmental Scoping Information
EXCO	State Executive Council
GAs	Government Agencies
GIS	Geographical Information System
GSR	Guided Self-Regulation
IETS	Industrial Effluent Treatment System

IM	Impact Monitoring
ISC3	Industrial Source Complex 3 Dispersion Model
KML	Keyhole Mark-up Language
LD-P2M2	Land-disturbing pollution prevention and mitigation measures
MIDA	Malaysia Industrial Development Authority
NDPC	National Development Planning Committee
NGO	Non-Governmental Organization
NPE	National Policy on the Environment
NPP	National Physical Plan
NREB	Natural Resources and Environment Board
OSA	One Stop Agency
PCS	Pollution control systems
PDF	Portable Document Format
PM	Performance Monitoring
PMD	Performance Monitoring Document
PMR	Performance Monitoring Report
PP	Project Proponent
P2M2	Pollution Prevention and Mitigation Measures
QC	Quality Control
RA	Report Adequacy
RAC	Report Adequacy Check
RDA	Regional Development Authority
RQSAT	EIA Report Quality Self-Assessment Tool
SMCs	Subject Matter Consultants
SSA	Site Suitability Assessment
STS	Sewage Treatment System
SZIRA	Siting and Zoning of Industry and Residential Area
TOR	Terms of Reference
TORAC	Terms of Reference Adequacy Check
TRC	EIA Technical Review Committee
USEPA	US Environmental Protection Agency

CHAPTER 1
INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THE EIA GUIDELINE IN MALAYSIA

This Environmental Impact Assessment Guideline (to be referred to as the EIA Guideline) in Malaysia is prepared in accordance with the requirements of Section 34A (2C) of the Environmental Quality Act (EQA), 1974 (Act 127) to provide an understanding of the EIA procedures, preparation, and submission of the EIA Report for review and approval. Compliance with the requirements set out in this Guideline will fulfil the Project Proponent's obligation stated under Section 34A (2C) of the EQA.

The primary purpose of the EIA Guideline is to provide guidance to Project Proponents, Qualified Persons (i.e., DOE-registered EIA consultants), and other EIA-related practitioners in the preparation and submission of EIA Reports in order quality reports can be prepared in a timely manner. The EIA Guideline gives clear explanations of the requirements to be complied with at each stage of the EIA procedure: pre-EIA report submission, during EIA report submission and post-EIA report submission. Strict adherence to the stipulated requirements will produce quality EIA Reports that can be processed and approved by the DOE with confidence and within the stipulated time periods. It also avoids costly implications due to the need for submittal of additional information before final decision on the EIA Reports can be made.

This Guideline embeds a new requirement on environmental mainstreaming to be embraced by the Project Proponent as a strategic tool for promoting, instilling, and achieving self-regulation culture in his EIA project. In this Guideline, environmental mainstreaming refers to the integration of environmental concerns, aspects, and considerations in all business processes, at all stages of decision making, at all levels of organizational hierarchy, and at all phases of the implementation of the project. Through

environmental mainstreaming imposed in this Guideline, the Project Proponent is shouldered with greater environmental responsibility and accountability for ensuring environmental friendly options are chosen in the course of implementing his project.

This EIA Guideline does not only serve as the primary guidance and resource document for Project Proponents and Qualified Persons (EIA Consultants), but it also serves as a useful reference for project approval authorities and the relevant stakeholders.

1.2 APPLICABILITY OF THE EIA GUIDELINE

This EIA Guideline shall only be used within the framework of the Environmental Quality Act 1974 and its subsidiary regulations. It is not be applicable for EIA legislations enacted under the environmental laws of Sabah and Sarawak. However, for prescribed activities in Sabah and Sarawak that are subject to the EQA 1974, this Guideline shall prevail.

1.3 EIA IN MALAYSIA

Environmental Impact Assessment (EIA) can be broadly defined as a study to identify, predict, evaluate, and communicate information about the impacts (both beneficial and adverse) on the environment of a proposed development activity and to detail out the mitigating measures prior to project approval and implementation. Although the emphasis is often on the biophysical environment, in recent years, social and economic environment have also been included in EIA studies. Through the EIA process, the most environmentally suitable options from various perspectives such as site, manufacturing technology, resources, and mitigation measures can be identified at an early stage. As a consequence, not only positive impacts can be maximized, adverse and damaging impacts, and costly remedial measures can be prevented or reduced.

The EIA procedure in Malaysia has been developed primarily as an aid to the environmental planning of new development projects or to the expansion of existing development projects. It can be compared with similar techniques which have been devised for the technical and economic planning of projects such as financial feasibility studies. The procedure has been tailored specifically to the assessment of development project proposals.

In Malaysia, EIA is a statutory requirement for activities which have been prescribed under Section 34A of the Environmental Quality Act (EQA) 1974. Section 34A (2C) of the Act stipulates that any person intending to carry out any of the prescribed activities is required to appoint a Qualified Person to conduct an EIA and submit a report to the Director General of Environment. A Qualified Person is an individual who has met the DOE's technical and experience criteria, hence he is eligible to be registered as an EIA Consultant. In this Guideline, the terms Qualified Person and EIA Consultant are used interchangeably. A general overview of the EIA procedure in Malaysia is illustrated in Figure 1.1, while the details are discussed in Chapter 4 through Chapter 6.

In the EIA Report, the Project Proponent makes a legal pledge of his commitment to implement pollution prevention and mitigation measures (P2M2) to reduce the adverse impacts to the environment. EIA Report serves as a decision making tool for the project approval authority to decide whether a proposed project can be approved for implementation.

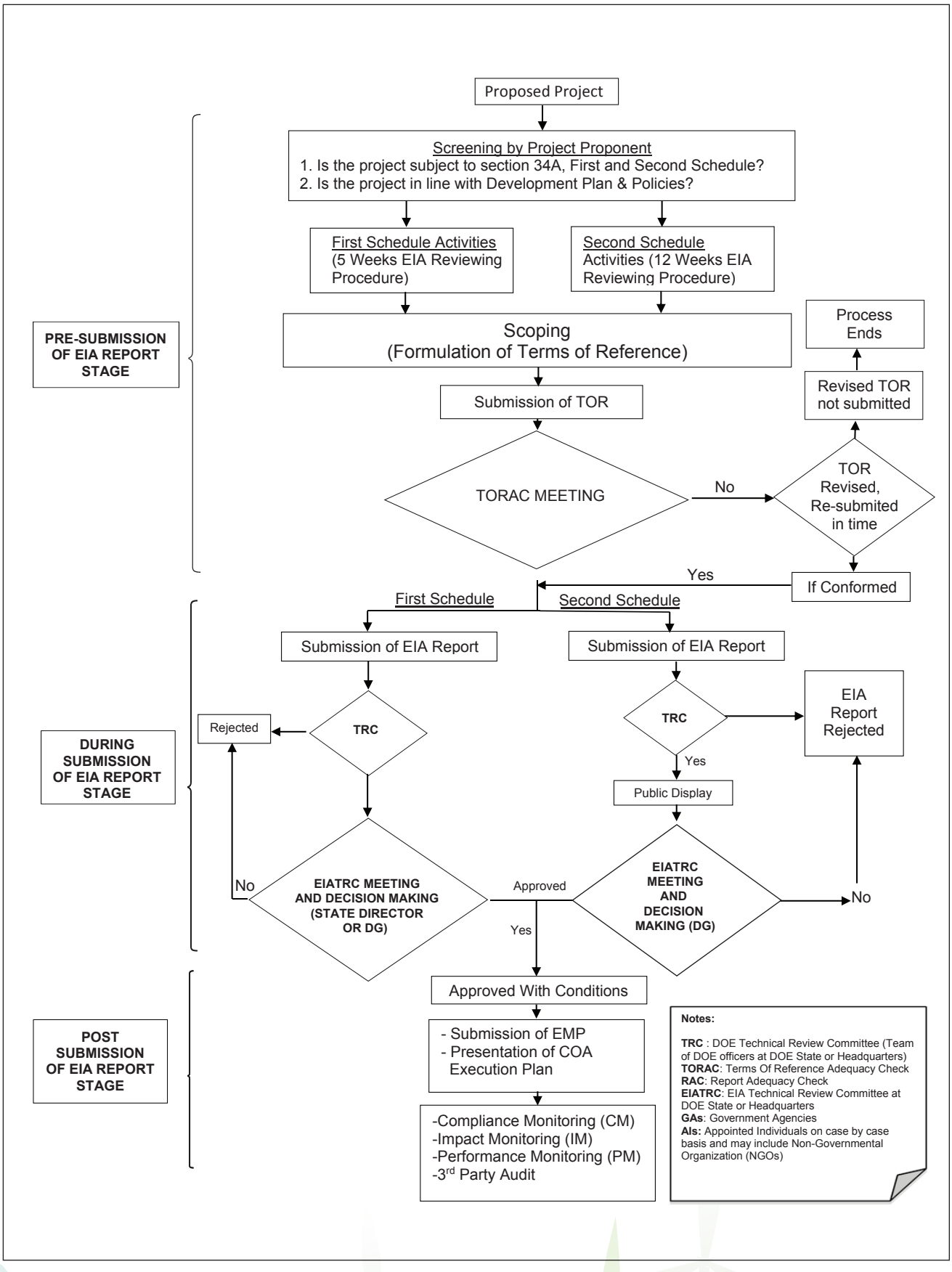


Figure 1.1: General Overview of EIA Procedure in Malaysia

1.4 EIA GUIDING PRINCIPLES

The EIA process shall be guided by the following principles:

(a) Development Befitting to Nature

Project Proponent should have a deep understanding of the existing environmental conditions of the site of his development project, and should rationalize, and customize his proposed development project to harmonize with the natural environment. The natural environment should not be overly modified to suit the proposed development.

(b) Pro-active

The EIA process should start as early as possible within the project planning cycle and decision making for project approval so that environmental impacts of a project are considered right from the beginning to address all potential environmental impacts that might result from the proposed development.

(c) Transparency

The EIA study should be conducted in a transparent manner involving inputs from all relevant stakeholders. The EIA Report produced should be clear, concise, informative, transparent, balanced, easily accessible, and understood by the stakeholders.

(d) Credibility

The EIA study should be carried out by professionals and performed with integrity, rigor, fairness, and objectivity. The study which invariably involves measurement and collection of data and its subsequent analysis and interpretation should apply established and appropriate techniques to address key areas of environmental concerns. The study should be comprehensive and comply with statutory requirements to guarantee the quality of the EIA Report.

(e) Cost-effectiveness

The proposed environmental management plan including pollution prevention and mitigating measures, follow up surveillance and monitoring, and compliance audit should be cost-effective and be based on best available technologies or best industry practices. The environmental cost should be accounted for in the total project cost which should be reflected in the contract documents signed by the Project Proponent and his contractors and suppliers.

(f) Practical

The information and outputs provided by the environmental assessment process, documented in the EIA Report should be in the form which is readily usable for decision making and planning. The proposed mitigation measures should be practically implemented.

(g) Social Accountability

The Project Proponent and decision makers are accountable to the stakeholders for decisions and actions. The Project Proponent is also legally responsible for regulatory compliance of his project at all times. The Project proponent should allocate sufficient funds and provide dedicated staff on a full time basis to be responsible for all environmental management matters related to the project.

(h) Quality Conscious

The findings from the EIA study provide pertinent information to the authorities for making decision on the development project. Quality decision is contingent upon quality EIA Report. Quality control at every stage of the EIA study and report preparation is essential to ensure decisions on the EIA Report and project planning and implementation can be made in a timely manner. To accomplish the above, the Project Proponent and the EIA Consultant should thoroughly review the EIA Report and ensure it is a stand-alone document, comprehensive, and its contents coherent. The practice of submitting additional information through separate documents in supporting the EIA Report should not be practiced.

(i) Self-Regulatory

Self-regulation ensures environmental commitment and regulatory compliance is achieved on a sustained basis. The practice of self-regulation by Project Proponent is a driver for cultivating a positive work culture in the day-to-day management of the project paving the way for excellence in environmental regulatory compliance. The environmental commitment should be displayed and translated into action at all levels of the project organization and all phases of project development.

(j) Ethical

All personnel involved in the EIA study should uphold their professional ethics to fulfil their professional obligations with extreme sense of responsibility, professionalism and integrity. The ethical principles should be applied not only in the EIA study phase but also in the project implementation and operational phases.

(k) Participative

EIA is a multi-disciplinary study on environmental components such as water quality, air quality, waste management, environmental sensitive area and natural resources. It involves participation of government agencies, non-governmental organizations, academicians, experts, and environmental practitioners including qualified and competent persons, industries and public at large. Hence, the EIA process should provide adequate opportunities to all stakeholders including the affected public to express their concerns and provide inputs for decision making process by the relevant approving authority.

(l) Sustainability

The proposed project should be thoroughly studied to ensure it is environmentally sound, sustainable, and beneficial to the society.

1.5 INTEGRATION OF EIA INTO PROJECT PLANNING CYCLE

The benefits of EIA may only be achieved if the environmental dimensions are integrated in a timely manner within the project planning and development cycle. As EIA is conducted in response to a project proposal, the assessment procedure is project centred, and moulded around the normal project planning process.

1.5.1 EIA in Project Planning and Decision-Making

Effective project planning and decision-making requires proper understanding of policies and legislations relevant to environmental protection and management. A decision as to whether a project may be allowed to proceed or not often rests with the project meeting basic requirements of international conventions, national policies, local laws, regulations and procedures. These may be in the form of statutory or non-statutory requirements from one or more national agencies or authorities, which have either direct or indirect interest in the project. In addition, some international funding institutions may require certain conditions to be fulfilled as a prerequisite for providing financing for projects.

EIA as a project planning and decision-making tool intends to accomplish the following:

(i) To provide the Project Proponent with appropriate information to ensure project design and operation meets environmental sustainability objectives;
(ii) To provide the relevant approving authority with the appropriate information and assurance for it to make a decision on whether or not to approve the project; and
(iii) To provide the public and other stakeholders the assurance that the benefits to the society from the project are greater than the environmental costs to society.

EIA is carried out not for the sole purpose of securing authority approval for the project but to be applied to improve project design and to meet sustainability objectives of quality planning, social acceptability and investment security. The EIA Report provides the information needed for decision-making by the authority.

Integrated project planning requires the Project Proponent to assess and evaluate his planning decisions taking into account the technical, economic, and environmental factors. It implies that environmental assessment should be a continuous process throughout the course of project planning.

Considerations of the environmental issues and the use of various environmental planning tools early in the project cycle allow actions to be taken at the early stage when site selection and project design are being undertaken and not at the stage when the project is ready for construction or operation.

The benefits of integrated project planning of which EIA is one of the tools available for that purpose to the Project Proponent include:

(a) Investment Security

The investor whose project has been planned on sound environmental principles right from the start might be safeguarded against environmental costs once the project has been implemented. EIA being a preventative-planning tool helps to avoid costly remedial actions by taking proactive measures also helps to protect the investment.

(b) Social Acceptability

The question of social acceptability of a project will become increasingly important to Project Proponents in Malaysia as the demand for a better quality of life is manifested in a growing public concern for environmental quality. A project which has gone through an EIA study and the EIA Report has been approved is more likely to be acceptable than a project which has not undergone through the process.

(c) Quality Planning

An important and integral part of EIA is the review of project options from the economic, environmental, and social standpoints. A deliberate assessment of project options during project planning encourages the project proponent to search for the “state of the art”, “best”, and “win-wins” from

the perspective of location, manufacturing technology (which includes raw materials, energy and water sources and uses, design capacity, etc.), manpower requirements, construction methods, pollution prevention and mitigation measures, and environmental monitoring. The overall result is to enhance the quality of projects, minimize adverse impacts, and maximize benefits to society.

CHAPTER 2
POLICY AND LEGISLATION

CHAPTER 2

POLICY AND LEGISLATION

2.1 INTRODUCTION

Effective project planning requires proper understanding of policies and legislations relevant to environmental protection and management. A decision on project approval relies on the project's ability to meet all legal requirements (statutory or non-statutory), procedures and the project is in line with national development policies. The project may be of interest to several agencies, directly or indirectly, be it at national, state or local authority level.

2.2 RELEVANT NATIONAL POLICIES AND PLANS

Some key national policies and plans are as follows:-

- National Policy on the Environment
- National Policy on Biological Diversity
- National Policy on Climate Change
- National Physical Plan

A complete list of relevant policies is listed in **Appendix 1**. The Project Proponent and consultants are required to ensure that the proposed project is in line with and do not contradict these policies and plans.

2.2.1 National Policy on the Environment

The National Policy on the Environment (NPE) was formulated in 2002 with the aim of providing policy directions for the protection and sustainable management of the environment. The Policy is based on eight principles which inter-alia are intended to harmonize economic development goals with environmental protection agenda. A key objective of the Policy is the integration of environmental considerations into planning through the EIA process.

2.2.2 National Physical Plan

Malaysia's Second National Physical Plan (2010 - 2020) provides a long-term strategic framework for national spatial planning and includes measures required to shape the direction and pattern of land use, biodiversity conservation and development in Peninsular Malaysia.

The Physical Plan is a set of guidelines for federal and state governments to control development and land administration. The Physical Plan includes measures to address climate change and conserve natural resources and biological resources in the country, including establishing carbon sinks for sequestration, establishing sustainable forest and water management, and a Central Forest Spine to link key ecological areas in Peninsular Malaysia. The Plan complements the Five-Year Economic Development Plan as it provides the spatial dimension to the sectoral distribution of natural resources in the country.

2.3 ENVIRONMENTAL LEGISLATION

Federal and state laws relating to the environment are as follows:-

(a) Federal Legislation

(i) Environmental Quality Act, 1974 (Act 127) and its subsidiary Regulations and Orders – applicable to all states and is administered by the Department of Environment (DOE).

(b) State Legislation

(i) Environment Protection Enactment, 2002 (Enact. 12/2002) – applicable to the State of Sabah and is administered by the Environmental Protection Department (EPD);

(ii) Natural Resources and Environment Ordinance, 1993 (Chap. 84) – applicable to the State of Sarawak and is administered by the Natural Resources and Environment Board (NREB).

The relevant environmental laws with respect to requirements of EIA are given in **Appendix 2**.

2.3.1 Federal Legislation

The Environmental Quality Act (EQA) was formulated in 1974 to prevent, abate, and control pollution and to enhance the environmental quality in Malaysia. Regulations and Orders have been made under the EQA to control and manage various environmental aspects.

The administration of the EQA is entrusted to the Department of Environment (DOE) Malaysia. The DOE, an agency of the Ministry of Natural Resources and the Environment, is the authority established under the EQA and plays a key role in the enforcement of the provisions of the Act and its subsidiary regulations.

Environmental Impact Assessment (EIA) is a statutory requirement for activities which have been prescribed under Section 34A of the EQA. Section 34A(2) of the Act stipulates that any person intending to carry out any of the prescribed activities is required to conduct an EIA study and submit a report to the Director General of Environment for prior approval.

The main highlights of EIA provisions in the EQA 1974 include:

- Section 34A (1) – The Minister may prescribe any activity which have significant environmental impacts as prescribed activity
- Section 34A (2) – Appointment of qualified person to conduct EIA
- Section 34A (2) (A) – Director General shall maintain a list of qualified persons
- Section 34A (2) (B) – Qualified person shall be responsible for the EIA
- Section 34A (2)(C) – EIA report shall be in accordance with the guidelines
- Section 34A (3) – Director General can approve the EIA report with conditions and inform relevant approving authority
- Section 34A (4) – Director General may not approve the EIA

report if not consistent with physical plan or fulfil the guidelines

- Section 34A (5) – Director General can require the submission of additional reports other than the EIA report
- Section 34A (6) – Activity is not to be carried out until EIA report is approved
- Section 34A (7) – Responsibility of the proponent to provide proof of compliance with conditions of approval
- Section 34A (8) – Fine not exceeding five hundred thousand or imprisonment for contravening section 34A
- Section 34AA – Director General may issue prohibition or stop work order

2.3.2 State Legislations

The states of Sabah and Sarawak enacted their own environmental legislations requiring Environmental Impact Assessment for activities which fall within the state jurisdiction. These include activities associated with the exploitation, development and use of land and natural resources including water, soil, minerals, forest, and other resources.

(a) Sabah Environment Protection Enactment 2002

Section 12 of the Enactment provides for the Minister to prescribe any development to be a Prescribed Activity for which an EIA or a proposal for mitigation measures is required to be submitted to the Director of the Environment Protection Department (EPD) for approval. The Enactment provides powers to prohibit the execution of any prescribed activity that is in contravention of the regulations. Two subsidiary Orders have since been established to bring into effect the provisions of this Enactment.

The Environment Protection (Prescribed Activities) Order 2005 spells out the 12 groups of prescribed activities. The above Order further categorizes the prescribed activities into First and Second Schedules which differ in the type of EIA Report submission required to be made to the Director

of the EPD. Prescribed activities under First Schedule are required to submit a proposal for mitigating measures while prescribed activities under Second Schedule are required to prepare and submit an EIA Report. The Director of the EPD may by a notice in writing to the project proponent to cease a prescribed activity in the event of non-compliance with the conditions of approval issued for the prescribed activity.

(b) Sarawak's Natural Resources and Environment Ordinance 1993

The Natural Resources and Environment (Prescribed Activities) Order, 1994 (Sarawak) made under the Natural Resources and Environment Ordinance 1993 stipulates the types of activities which are subjected to an environmental impact assessment. Activities prescribed under the Ordinance are related to the development of natural resources of the State.

The provision of this Ordinance is quite similar to that of the EQA and the Environmental Protection Enactment of Sabah. Section 11A of the Ordinance confers powers to the NREB by Order, to require any person undertaking a prescribed activity to submit a report on the impact of such activities on the natural resources and environment to the Board for its approval. A unique feature of the Ordinance is the provision for early commencement of preparatory work for the activity or part of it (such as earthworks) prior to the approval of the EIA Report. An Order prescribing the activities requiring an environmental impact assessment was established in 1994.

2.3.3 Adherence to DOE Guidelines

At the stage of EIA Report preparation and all stages of project implementation, the requirements and specifications stipulated in the following Guidelines issued by the DOE shall be adhered to:

(a) Guidance Document for addressing soil erosion and sediment control aspect in EIA Report as per **Appendix 3**.

(b) Guidance Document for the preparation and submission of Environmental Management Plan (EMP) as per Chapter 6 of this EIA Guideline.

(c) Guidance Document for the preparation of the document on land disturbing pollution prevention and mitigation measures (LD-P2M2) as per **Appendix 4**.

(d) List of Guidelines/Technical Guidance Documents as per **Appendix 5**.

(e) Other relevant guidelines issued by the DOE pertaining to environmental-related system and management.

(f) Other documents issued by the DOE from time to time related to EIA process and procedure.

CHAPTER 3
GENERAL EIA PROCEDURE, REQUIREMENTS, AND STUDY METHODOLOGIES

CHAPTER 3

GENERAL EIA PROCEDURE, REQUIREMENTS, AND STUDY METHODOLOGIES

3.1 EIA STUDY TO BE CONDUCTED BY QUALIFIED PERSONS

An EIA study shall only be carried out by a team of Qualified Persons who hold a valid registration with the DOE as stipulated under Section 34A (2B) of the EQA 1974 (Amendment) 2012. The Qualified Persons are commonly referred to as the EIA Consultants. The EIA team shall comprise professionals (qualified persons) who are competent and experienced in the technical fields relevant to the EIA study. The team shall be led and supervised by a team leader who shall be responsible for coordinating the EIA study and for ensuring the EIA Report to be written is complete, clear, coherent, balanced, and impartial and is useful for decision making process.

3.2 EIA METHODOLOGIES

EIA study shall follow the following typical steps or phases commonly followed by EIA practitioners and widely adopted by environmental agencies worldwide:

- Screening
- Scoping towards formulation of terms of reference
- Baseline study
- Identification of mitigation measures
- Impact assessment and evaluation of significance
- EIA Report preparation
- EIA Report review
- Decision making
- Project implementation and environmental monitoring
- Environmental audit

The steps are briefly explained in the following paragraphs.

3.2.1 Screening

Screening is the first process in the EIA study to determine if a proposed development project is subject to a regulatory provision requiring an EIA.

3.2.2 Scoping

Scoping is the initial phase of the EIA process which occurs early in the project cycle. Scoping is the process of identifying the key environmental issues and the study spatial and temporal boundaries. The scoping answers the question of what to to be investigated and assessed during the subsequent phases of the EIA process, and the range and extent of the key issues to be addressed. The scoping step is of extreme importance because it determines the focus and depth of the EIA study, which in turn implicates the requirements on time, personnel, and cost of the study.

The scoping shall consider issues of concerns identified and expressed by the stakeholders and the public (especially the local community), the professional and scientific community, government departments, and non-governmental organizations (NGOs). During the scoping process desktop analyses, stakeholder interviews, and public meetings may be conducted to ascertain whether additional information is needed to evaluate baseline conditions and potential impacts within the proposed project area.

Table 3.1 provides some recommended practices in organizing scoping consultations.

Table 3.1: Good Practical Steps and Tips in Scoping Consultations

Some good practices and steps in organizing scoping consultations are:

1. Identify relevant stakeholders and local residents who are concerned in the proposed project.
2. Contact the stakeholders and local residents to participate in scoping.
3. Provide the stakeholders and local residents information about the proposed project. Give contact details for information and comment.
4. Arrange meeting place for getting feedback on scoping consultation process.
5. Collate and analyze all responses and take them into account in the EIA study.
6. Thank respondents for their help and explain how their comments have been addressed.
7. If there is considerable local interest, consider holding a public exhibition or special focus group meeting in a community hall at which the project will be presented and staff will be ready answering questions and queries.
8. Record the views expressed in scoping consultations in the EIA Report.

The scoping ensures that only significant issues and reasonable alternatives are examined and the exercise results in the formulation of the Terms of Reference (TOR) for the EIA study.

3.2.3 Terms of Reference (TOR) Formulation

Terms of reference (TOR) is the product of the scoping process. The scoping identifies the issues to be addressed, whereas the TOR sets the objectives, defines the scope, and establishes the strategy and schedule for the EIA process to address these issues. Typically, the TOR will:

- Define what types of information obtained from the scoping process are to be presented in the EIA Report such as
- Specify what studies will be performed
- Identify who will conduct the studies
- State when the studies will be carried out and the study timeline
- Outline the methodologies to be used in impact assessment and evaluation of significance

3.2.4 Baseline Studies

A baseline study is the study of the current status of the environment in the area proposed for development before the development work of the project is started. The baseline study phase may involve field studies (the collection of data directly from the project site – primary sources) or desktop studies (data obtained from published records, project documents, maps, photos - secondary sources). The baseline study will identify key issues likely to be faced as a result of the implementation of the proposed project. The baseline studies will provide a detailed description of the affected area and establish the existing environmental and socio-economic baseline status that will be used in the impact assessment phase.

Typically baseline studies may address following main areas:

Physical:
- Land use
- Topography
- Geology, hydrogeology
- Soils and terrain
- Watershed

Environmental:
- Air quality
- Water quality
- Noise, vibration and nuisance
- Groundwater
- Visual/aesthetics

Biological:
- Terrestrial and aquatic ecosystems
- Flora and fauna
- Environmentally sensitive areas

Socio-economic:
- Demography
- Development needs and potential
- Infrastructure facilities
- Economic activities

Cultural/Heritage:
- Archaeological resources
- Historical resources

The list is not exhaustive, and not all items listed above are applicable to all EIA studies. The subject areas to be covered in the baseline study should focus only on those aspects that are likely to be affected. The areas generally depend on the nature, scale, location of the proposed project, and the extent of the impact.

3.2.5 Impact Assessment and Evaluation of Significance

During the impact assessment phase of the EIA study, the impacts of the proposed project are determined. The impacted sectors could be environmental, socio-economic, health, etc. To identify and assess the magnitude of potential impacts associated with or resulting from project activities, a number of methodologies have been developed and used worldwide. These include the following:

- Experts judgement
- Checklist and matrices
- Multi-criteria analysis
- Mathematical models and simulation
- Case comparison
- Geospatial analysis
- Risk analysis

There is no single ideal method: some methodologies are appropriate in certain situations while others are more applicable to other situations, depending on several factors including the nature and scale of development project, impact receptors, budget availability, etc.

Another important process in the impact assessment stage is to evaluate the significance of the impacts. It is a standard practice to firstly categorize the impacts generated by any activity for every component of the project into adverse (negative impacts) or enhancement (for positive impacts). The impacts are then graded for their significance by using some form rating system for both scenarios of “before mitigation” and “after mitigation”. Significance is often differentiated into impact magnitude and impact significance. Impact magnitude refers to the measurable change (i.e. intensity, duration and likelihood) while impact significance refers to the value placed on the change by different affected parties (i.e. level of significance and acceptability). To determine whether an impact is significant the following criteria are commonly used:

- Impact characteristics (temporal, spatial, reversibility)
- Geographic extent
- Ecological context
- Environmental standards, guidelines, or objectives

Rating of impacts will provide a basis for prioritization of impacts to be addressed, understanding the scale of the impacts, and the method of assessment of the effectiveness of the mitigation measures.

There will be sources of uncertainty involved at several stages of the EIA study including the baseline studies and impact prediction. The sources of uncertainty are identified and discussed.

3.2.6 Identification of Mitigation Measures

This step of the EIA study will identify mitigation measures that can be implemented to avoid, prevent, minimize, or offset the predicted adverse impacts. The environmental agencies normally require that state of the art technologies or best available technologies (BAT) and industry best practices appropriate to the project components are evaluated for implementation to mitigate the adverse environmental impacts on the various receptors.

Mitigation measures include all actions and activities taken, put in place, or executed which could be structural, non-structural, procedural, or administrative in nature, to mitigate the adverse impacts.

3.2.7 EIA Report Preparation

Based on the results of all studies, the EIA team leader will coordinate the writing of the EIA Report and thoroughly review it to ensure it encompasses all the elements in the TOR, and is comprehensive, coherent, balanced, impartial and technically acceptable for submission to the authorities.

The EIA consultant acting as the team leader shall extract and summarize the major findings of the reports prepared by subject matter consultants (SMCs) and place them in the appropriate chapters in the EIA Report. The report summary made by the EIA consultant shall be cross referenced to the relevant pages in the SMCs' reports. The original reports by the SMCs shall be placed in the Appendix to the EIA Report.

3.2.8 EIA Report Review

EIA Report review is conducted either at the DOE state office or at the DOE Headquarters depending on the nature and location of the proposed project. If the project falls under the First Schedule of the EIA Order, the EIA Report will be reviewed at the state office, while for a project which falls under the Second Schedule, the EIA Report will be reviewed at the DOE Headquarters. If a First Schedule activity traverses two or more states, the EIA Report will also be reviewed at the DOE Headquarters. The differences between the EIA reports review process at the state DOE and at the DOE Headquarters are briefly discussed below.

3.2.8.1 The EIA Report review at the DOE state office

The submitted EIA Report will firstly be checked for "Report Adequacy" (RAC) by a technical committee comprised of a team of DOE State officers to be known as Technical Review Committee (TRC). The adequacy checking involves quality checks for compliance with the Terms of Reference (TOR), EIA Report format, absence of obvious scientific and technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does not pass the RAC will be rejected. The EIA Report which passes the RAC will be reviewed by a technical committee known as the EIA Technical Review Committee (EIATRC). The members of EIATRC, other than the TRC members are representatives from government agencies (GAs) and in certain circumstances when needed, individuals (referred to as appointed individuals-AIs) from within the DOE or outside of DOE who possess vast experience or specific expertise relevant to the EIA study will be appointed on a case to case basis. Non-Governmental Organizations (NGOs) may also be invited to the EIATRC meetings as general representatives or as Appointed Individuals (AIs). The Appointed Individuals (AIs) are required to submit a written comment on the Report to the DOE. The final decision to approve or not to approve an EIA report is made by the DOE state Director after taking into consideration the views of the EIATRC members.

3.2.8.2 The EIA Report review at the DOE Headquarters

The EIA Reports will undergo a review process as follows: Firstly, it will be checked for "Report Adequacy" (RAC) by a technical committee comprised of a team of DOE HQ officers to be known as Technical Review Committee (TRC). The adequacy checking involves quality checks for compliance with the Terms of Reference (TOR), EIA Report format, absence of obvious technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does not pass the Report Adequacy Check (RAC) will be rejected. The EIA Report which passes the RAC will be reviewed by the EIATRC members, comprised of the TRC members, individuals appointed (AIs) on an ad hoc basis from within the DOE or outside of DOE and relevant government agencies (GAs). Non-Governmental Organizations (NGOs) may also be invited to the EIATRC meetings as general representatives or as Appointed Individuals (AIs). The individuals, appointed based on their extensive experience or particular expertise on a subject matter relevant to the EIA study are required to submit a written comment on the Report to the DOE. The Director General will make the final decision whether to approve or not to approve an EIA Report after taking into consideration the opinions and views of the EIATRC members.

3.2.9 Decision Making

A decision is made at the end of the review process to approve or reject the EIA Report. The decision is then conveyed to the project approving authority to assist them in arriving at a decision on the project.

3.2.10 Project Implementation and Monitoring

If the proposed project is approved for implementation, the project will proceed to the subsequent phases of design, construction and operation. Monitoring activities will be conducted

to verify that the findings of the EIA study of the potential impacts identified during EIA scoping process are correct, appropriate mitigation and prevention measures are properly implemented, and the measures are effective in mitigating the adverse impacts to the environment. This form of monitoring can be described as impact monitoring (IM). Monitoring also serves the purpose of ensuring the EIA conditions of approval (COAs) are complied with. In this phase, an environmental audit may also be carried out to assess the overall project compliance and opportunity for optimization and further improvement in environmental management of the project. This form of monitoring can be termed as compliance monitoring (CM). Additionally, monitoring may also involve the monitoring the performance of pollution control systems and other mitigation measures. This type of monitoring is commonly known as “performance monitoring” (PM).

3.3 EIA REPORT QUALITY CONTROL ASSESSMENT

As general guidance, the Project Proponent and the EIA Consultant may utilize the EIA Report Quality Self-Assessment Tool (RQSAT) shown in Table 3.2 to assist them in conducting self-check on the quality of the EIA Report prepared and the possibility of it be approved. EIA Reports scoring an A or B will likely to be approved while those scoring an F will be rejected. The Project Proponent and the EIA Consultant are advised not to submit to the DOE any EIA Reports which has been self-assessed, where an F score is obtained.

Table 3.2: Self–assessment tool for EIA Report quality control

Assessment criteria	Score	Expected assessment result
* All important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were performed * All TOR components were covered * EIA Report complies with the report standard format * Data and information are factually correct, can be verified, and technically defensible * EIA Report is coherent, legible, and balanced * Proposed mitigation measures (P2M2s) are considered to be BAT or best practices * PP made pledge to implement EMP &P2M2s	A	The EIA Report can be approved.
* Most important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were performed but some minor ones were not performed * All TOR components were covered * Data are factually correct and technically defensible but some non-substantive facts cannot be verified * EIA Report is coherent and balanced but some non-substantive information may not be presented clearly * EIA Report complies with the report standard format * Some non crucial contents (e.g. maps) of EIA Report are illegible or calculations not performed or incorrect * PP made pledge to implement EMP & P2M2s	B	The EIA Report can be approved

* Important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were not performed * Some TOR components were not covered * EIA Report did not comply with the report standard format * Important data and information are factually incorrect and are not technically defensible * Important studies were not conducted, or inadequate, or technically flawed. * Some parts of EIA Report are biased, incoherent, and unreadable * Proposed P2M2s are not considered to be BATs or best practices * PP did not make pledge to implement EMP & P2M2s	F	The EIA Report cannot be approved and will be rejected

The score of an A or B or F in column 2 of Table 3.2 is assigned as the overall score of the EIA Report. To achieve an overall score A or B, all the criteria listed in column 1 of the Table must be complied with. On the other hand, an overall F score will be given to the Report if any of the criteria listed in column 1 is not complied with.

CHAPTER 4
PRE- SUBMISSION STAGE OF EIA REPORT

CHAPTER 4

PRE- SUBMISSION STAGE OF EIA REPORT

4.1 SCREENING

Prior to conducting an EIA study, the Project Proponent and the Qualified Person (i.e. the EIA Consultant) shall carry out the screening process to determine whether a proposed project is a prescribed activity under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015. The Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015 is reproduced in **Appendix 6**. The EIA Consultant needs to determine which Schedule the proposed project falls under: the First Schedule or the Second Schedule. The EIA for First Schedule projects follows a different EIA procedure from the EIA for Second Schedule projects, as described in Chapter 3.

The Case Where the Proposed Project Has More Than One Prescribed Activity

If the proposed project consists of more than one prescribed activity and one of them falls under the Second Schedule, then the project as a whole shall be considered to fall under the Second Schedule of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015.

4.2 SCOPING AND TERMS OF REFERENCE

The scoping process to identify the impacts of specific projects on the environment shall follow the EIA guidelines for specific projects issued by the DOE. An example of environmental assessment matrix to assist the Project Proponent and the EIA Consultant to identify significant impacts of projects is given in **Appendix 7**. From the scoping process the EIA Consultant then prepares an Environmental Scoping Information (ESI)

that determines the proposed Terms of Reference (TOR) for the EIA study. The general requirements for scoping process and TOR preparation shall follow those described in Chapter 3.

4.2.1 Terms of Reference for Activities Falling Under the First Schedule

For prescribed activities that fall under the First Schedule, the Project Proponent (PP) shall prepare an Environmental Scoping Information (ESI) that determines the proposed - Terms of Reference (TOR) for the EIA study and submit it to the DOE State Office for endorsement. The ESI and TOR will be assessed and endorsed by the Director of DOE State Office either through a TORAC meeting or mail correspondence, whichever deemed appropriate. Subsequently, when the EIA Report has been prepared, it shall be submitted to the relevant DOE state office for review, as described in Chapter 3.

4.2.1.1 Terms of Reference (TOR) Review Procedure

The output of scoping exercise is the terms of reference (TOR). The Project Proponent shall first submit to the DOE the TOR together with the Environmental Scoping Information (ESI), in accordance with the format outlined in the Guidance Document For Preparing Terms Of Reference (TOR) for endorsement. **Appendix 8** gives a general guidance on scoping and also the general contents of TOR which shall be followed in the TOR formulation.

The review of the TOR is carried out by the EIA Technical Review Committee (EIATRC) comprised of TRC members (a team of DOE officers at the State Office), and may include individuals who are specifically appointed (AIs) on an ad hoc basis from within or outside of the DOE as well as representatives from government agencies (GAs).

The TOR review involving parties outside of the DOE shall be done either through a Terms of Reference Adequacy Check (TORAC) meeting or by submission of comments through mail correspondence.

Non-Governmental Organizations (NGOs) may also be invited to the TORAC meeting (or requested comments through mail) as general representatives or as Appointed Individuals (AIs). The AIs are individuals who have vast technical experiences in the relevant areas related to the proposed project, which may include potential project environmental impacts, impact study methodologies, and applicable pollution prevention and mitigation measures. The same personnel (i.e. TRC members and AIs) will also serve as the committee for reviewing the EIA Reports.

The adequacy of the scoping coverage and the TOR formulated will be decided in a Terms of Reference Adequacy Check (TORAC) meeting which will be chaired by the State Director of the DOE. The TORAC meeting members comprise the TRC members, and may include AIs and GAs, as well as NGOs as deemed appropriate. At this meeting, the TOR may be accepted or agreed upon or it may require a revision.

Figure 4.1 shows the procedural steps for submission of TOR.

The TOR review process involves the following:

(i) The review process will be completed within a period of 3 weeks (15 working days) and an additional of two weeks (10 working days) for submission of revised TOR.

(ii) A minimum of 3 hard copies and 1 softcopy (in PDF format) of the draft TOR shall be submitted to the DOE State. Additional copies are to be submitted whenever necessary. Through the Project Proponent, the TRC (DOE State) will distribute the Report to the relevant government agencies (GAs) and appointed individuals (AIs) for the purpose of the TORAC meeting or submission of comments through mail correspondence.

(iii) A visit to the project site by the DOE and appointed individuals (AIs) may be required, which shall be arranged by the Consultant through the TRC.

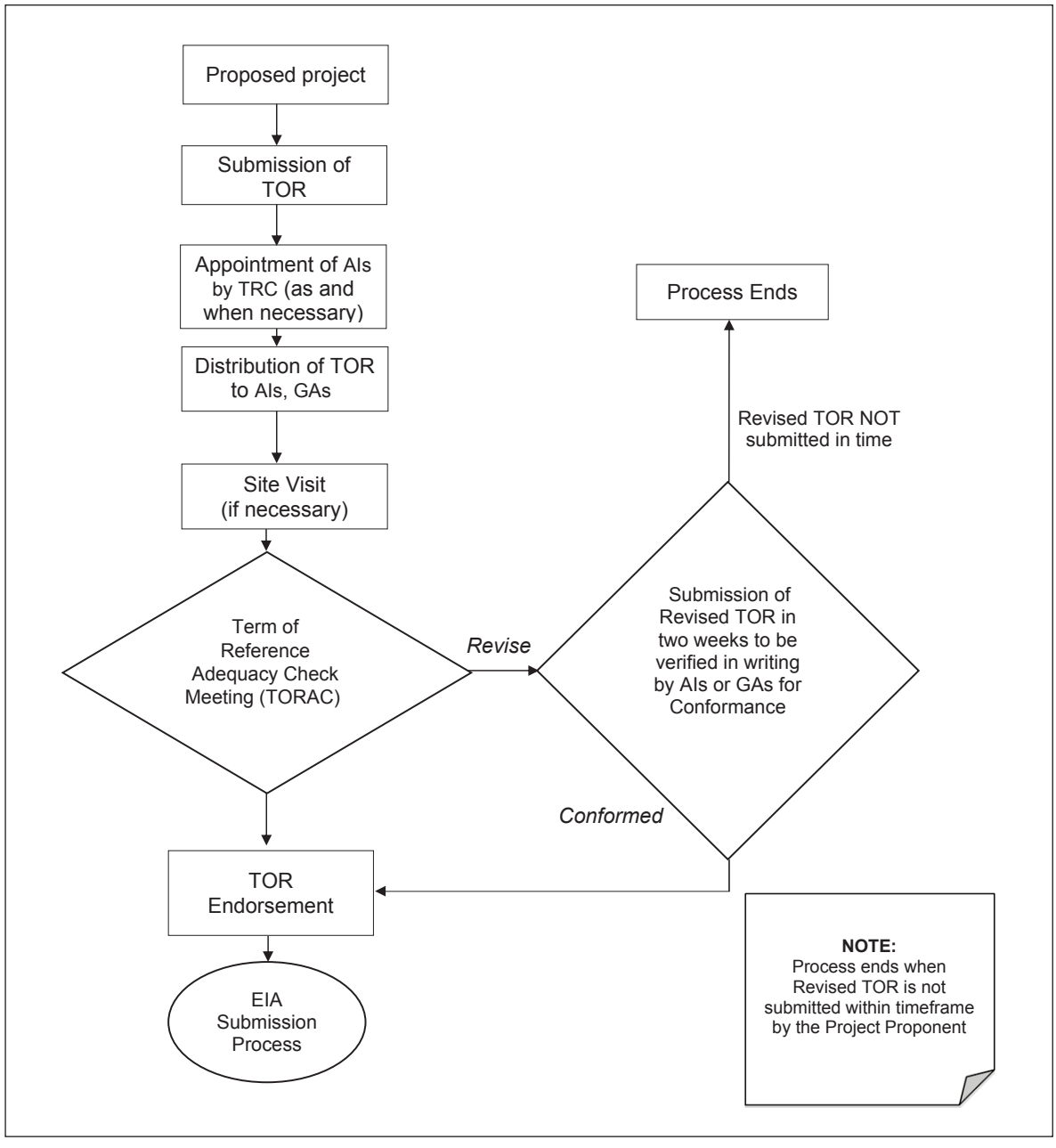


Figure 4.1: Procedural steps for assessment of EIA Report for First Schedule Activities – TOR Adequacy Check Stage

(iv) The TORAC meeting will be conducted (as and when necessary), after the site visit normally within the third week from date of submission of the TOR to DOE. At this meeting, the proposed TOR will be presented by the Project Proponent and his Consultant to the TORAC meeting when deemed necessary. Otherwise the TOR review decision will be issued through mail correspondence.

(v) The outcome of the TOR review may lead to:

(a) Acceptance of the TOR, provided:

- The TOR is in line with the contents of the TOR specified in **Appendix 8**.
- Recommendations from the TORAC meeting members or mailed comments have been accepted or agreed upon.

(b) Revision of TOR, where:

- The TOR is not in line with the contents of the TOR specified in **Appendix 8**.
- There is need to provide additional information to clarify any unresolved or outstanding matters arising during the review process. The additional scope shall be submitted at least two weeks before the processing time ends. If the additional scope or revised TOR is not submitted within the time frame, the process will end and new submission is required if the relevant party is still interested.

4.2.2 Terms of Reference for Activities Falling Under the Second Schedule

The Project Proponent (PP) shall prepare an Environmental Scoping Information (ESI) that determines the proposed - Terms of Reference (TOR) for the EIA study and submit it to the DOE Headquarters for endorsement.

A site visit by the TRC members and appointed individuals may be required, which shall be arranged by the EIA Consultant.

4.2.2.1 Terms of Reference (TOR) Review Procedure

The output of scoping exercise is the terms of reference (TOR). The Project Proponent shall first submit to the DOE the TOR together with the Environmental Scoping Information (ESI), in accordance with the format outlined in the Guidance Document for preparing Terms of Reference (TOR). **Appendix 8** gives a general guidance on scoping and also the general contents of TOR which shall be followed in the TOR formulation.

The review of the TOR is carried out by the EIA Technical Review Committee (EIATRC) comprised of TRC members (a team of DOE officers at the Headquarters), individuals specifically appointed (AIs) on an ad hoc basis from within or outside of the DOE and representatives from government agencies (GAs). Non-Governmental Organizations (NGOs) may also be invited to the EIATRC meetings as general representatives or as Appointed Individuals (AIs). The AIs are individuals who have vast technical experiences in the relevant areas related to the proposed project, which may include potential project environmental impacts, impact study methodologies, and applicable pollution prevention and mitigation measures. The same personnel (i.e. TRC members and AIs) will also serve as the committee for reviewing the EIA Reports. The adequacy of the scoping coverage and the TOR formulated will be decided in a Terms of Reference Adequacy Check (TORAC) meeting which will be chaired by the Director General of the DOE. The TORAC meeting members comprise the TRC members, AIs and GAs, and may include NGOs. At this meeting, the TOR may be accepted or agreed upon or it may require a revision.

Figure 4.2 shows the procedural steps for submission of TOR.

The TOR review process involves the following:

(i) The review process will be completed within a period of 6 weeks (30 working days) and an additional of two weeks (10 working days) for submission of revised TOR.

(ii) A minimum of 3 hard copies and 1 softcopy (in PDF format) of the draft TOR shall be submitted to the DOE HQ. Additional copies are to be submitted whenever necessary. Through the Project Proponent, the TRC (DOE Headquarters) will distribute the Report to the relevant government agencies (GAs) and appointed individuals (AIs) for the purpose of the TORAC meeting.

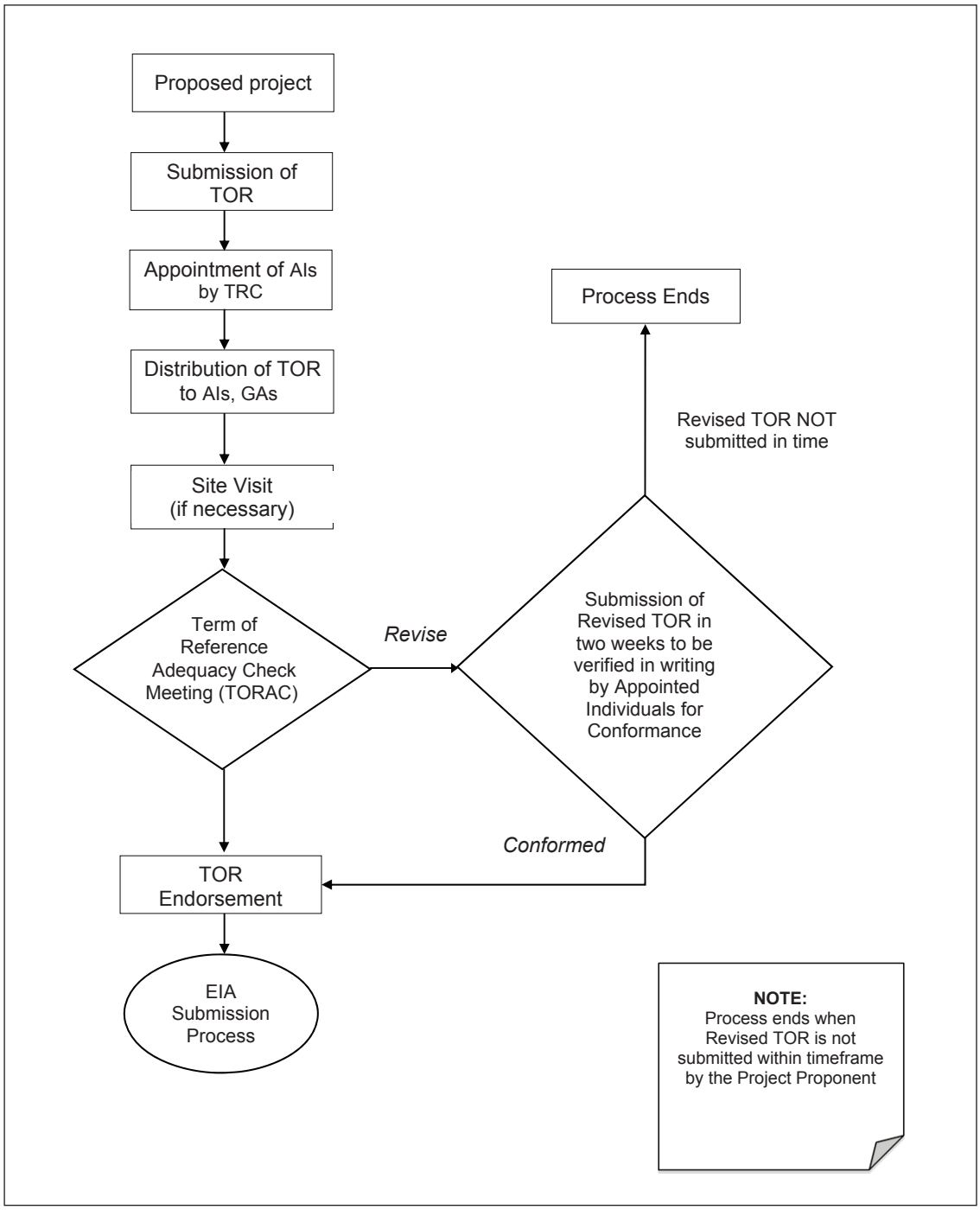


Figure 4.2 Procedural steps for assessment of EIA Report for Second Schedule Activities - TOR Adequency Check Stage

(iii) A visit to the project site by the DOE and appointed individuals (AIs) may be required, which shall be arranged by the Consultant through the TRC.

(iv) The TORAC meeting will be conducted after the site visit, normally within the third week from date of submission of the TOR to DOE. At this meeting, the proposed TOR will be presented by the Project Proponent and his Consultant to the TORAC meeting when deemed necessary.

(v) The outcome of the TOR review meeting may lead to:

(a) Acceptance of the TOR, provided:
- The TOR is in line with the contents of the TOR specified in **Appendix 8**.
- Recommendations from the TORAC meeting members have been accepted or agreed upon.

(b) Revision of TOR, where:
- The TOR is not in line with the contents of the TOR specified in **Appendix 8**.
- There is need to provide additional information to clarify any unresolved or outstanding matters arising during the review process. The additional scope shall be submitted at least two weeks before the processing time ends. If the additional scope or revised TOR is not submitted within the time frame, the process will end and new submission is required if the relevant party is still interested.

4.3 SITE SUITABILITY ASSESSMENT

The EIA Consultant shall perform site suitability assessment (SSA) by comparing the proposed project (its location and type of development) with the approved development plans such the National Physical Plan (NPP), structure plans, and Guidelines for the Siting and Zoning of Industry and Residential Areas (SZIRA) or any other guidelines prescribed by the Director General of Environment which are relevant to the proposed project. Comments on SSA shall be reported in the EIA Report. There may be a situation where the proposed project site or location may not contradict the approved development plans or any other guidelines

prescribed by the DOE, but the site exhibits certain critical characteristics (for example, geomorphological features) that may present a particularly formidable constraint to the proposed project, due to the nature of the project. In such a situation, the Consultant shall thoroughly examine the suitability of the site and report it in the EIA Report.

4.4 BASELINE CONDITIONS

A description of the existing environment where the proposed project is to be located (termed as "baseline conditions") shall be presented. The important components of the affected environment shall be identified and described. The methods used and investigation undertaken for this purpose shall be discussed and clearly indicated and shall be appropriate to the size and complexity of the assessment tasks. Uncertainties encountered in the studies shall also be indicated. Land use plans for the proposed project site shall be consulted and other data collected as necessary to assist in the determination of the baseline conditions.

4.5 IMPACT ASSESSMENT METHODOLOGY

Appropriate methodologies to assess the environmental impacts shall be identified for a particular EIA study and the rationale for the choice of methodologies shall be discussed.

For example, for air pollution impact studies, several mathematical models which have been developed by US Environmental Protection Agency (USEPA) are available, while some companies have developed their own models. Specific dispersion models such as the industrial source complex (ISC3) dispersion models developed by US Environmental Protection Agency may be used for calculation of the ground-level concentrations for point, area, flare and volume sources. The results of modeling exercise shall be presented in an appropriate form such as pollutant concentration with contour visualization on a map using ArcGIS as GIS platform. The meteorological data (wind speed, wind direction, stability class, ambient temperature, cloud base height, cloud cover, mixing height) used for model input shall be adequate and acceptable to be used for determining the highest short term and long term air quality impacts at air sensitive receptors. The modeling exercise shall capture the worst case scenarios to determine the worst case short term impacts.

Similarly, impact assessment studies may involve assessing water quality impacts, sediment transport, groundwater pollution, oil slick, and liquefied natural gas spill. All modelling studies shall undergo the stages of verification, calibration, and validation. The outputs of the modeling studies shall be presented in an easy to understand manner. The uncertainties in the models shall be discussed thoroughly.

4.6 SPECIFICATIONS AND FORMAT OF EIA REPORT

It is the responsibility of the Project Proponent and the EIA consulting team (especially the EIA team leader) to ensure quality control of the EIA Report is performed before the EIA Report is submitted to the DOE. Internal quality check will ensure that all relevant and pertinent tasks have been performed satisfactorily and no important tasks left incomplete; the latter situation may lead to rejection of the Report or delay in decision making on the Report. The EIA Report which is ready for submission shall have taken into account the following general quality control elements:

(a) To ensure the scoping of study has been sufficiently deliberated
(b) To ensure statutory and administrative requirements are met
(c) To ensure the EIA Report is organized and presented clearly and in a coherent manner
(d) To ascertain the EIA Report is impartial
(e) To assure the Report is able to answer key questions regarding the proposed project that are critical for decision making
(f) To ensure the information about impacts has been organized in a concise, logical, coherent manner and is communicated in an intelligent fashion
(g) To ensure the proposed project and its options are described in a comprehensive manner using satellite imagery, diagrams, plans or maps
(h) To ensure the EIA Report is scientifically and technically sound from the perspective of:
    (i) The reliability of data and coefficients (constants) used for modelling (predictive technique) where they must be accurate and based on local conditions where the proposed project is to be sited
    (ii) The quantitative impact prediction, where the magnitude and significance of impacts must be predicted both with the mitigating measures in place and for the worst case scenario

(i) To ensure that the Report identifies the follow-up works of post EIA stage that are required, such as Environmental Management Plan (EMP), Environmental Monitoring Report (EMR) and Environmental Audit Report (EAR).

An example of arrangement of the front cover and various chapters of the EIA report shall follow the example given in **Appendix 9**.

CHAPTER 5
DURING SUBMISSION STAGE OF EIA REPORT

CHAPTER 5

DURING SUBMISSION STAGE OF EIA REPORT

5.1 SUBMISSION OF EIA REPORT

EIA Reports for activities falling under the First Schedule are to be submitted to the respective DOE state offices, while those falling under the Second Schedule are to be submitted to the DOE Headquarters. If a project is located on a site involving two or more states, the Report shall be submitted to the DOE Headquarters.

EIA Reports shall be prepared in the form of hard and soft copies, accompanied with a cover letter bearing the Project Proponent's letter head which shall be submitted to the respective DOE office. A summary of EIA Report submission requirements is shown in Table 5.1.

Table 5.1: EIA Report Submission Requirements

Item	First Schedule Activities	Second Schedule Activities
Submission of EIA Report	DOE State* (*For prescribed activity that traverses across states, the EIA report shall be submitted to the DOE Headquarters)	DOE Headquarters
No. of EIA Report	Five (5) weeks procedure: • Minimum twelve (12) hard copies and 1 soft copy to State DOE • Minimum one (1) hard copy and 1 soft copy to DOE HQ	Minimum thirty fives (35) Hard copies and one (1) soft copy

5.2 EIA REVIEW PROCESS

5.2.1 Objectives of EIA Review

The key objectives of EIA review are to:

- Assess the adequacy and completeness of the EIA Report to ensure it meets the scope of work required of the EIA
- Assess that information presented in the EIA Report is clear, concise, transparent, quantitatively accurate, well defined, explicit, and is of adequate quality for decision making;
- Assess public comments and feedbacks for the EIA Report for prescribed activities with adverse significant environmental impacts and high public interest; and
- Make decision on the approval of the Report and the conditions to be attached to the approval.

5.2.2 Roles and Responsibilities of Parties Involved in the EIA Procedure

Several individuals and organizations play important and specific roles and shoulder different responsibilities in the EIA procedure. The roles and responsibilities are briefly described below

(a) The Project Proponent

The Project Proponent (PP) is an individual or organization that is proposing to undertake the development of a prescribed activity. The PP may be from the public or the private sector and he may be represented by a consultant. The PP is responsible for all aspects related to the development of the project including the environmental planning of the project and its associated cost. He may delegate the task of conducting the environmental impact assessment of the project to his project consultant or to another organization but he remains ultimately responsible for the content of the EIA Report on his project.

(b) The EIA Consultant

The EIA Consultant is an individual who has been tasked by the Project Proponent to conduct the Environmental Impact Assessment (EIA) of the project. The Consultant is typically the leader of a team of consultants from various disciplines relevant to the proposed project and is responsible to the Project Proponent. The EIA team leader who may work for an EIA consulting firm and the subject matter experts shall be DOE-registered consultants who shall maintain professionalism in conducting a comprehensive EIA study and produce a quality EIA Report that is useful for decision-making purposes.

(c) The Environmental Related Agencies and Experts

Environmental related agencies and individuals who have vast technical expertise and experience in specific areas have an important role to play in providing relevant inputs on environmental impacts, impact study techniques, and pollution prevention and mitigation measures. The inputs from these agencies and individuals may be sought by the DOE whenever deemed necessary.

(d) The Public

Public participation is an essential and integral part of project development to provide an avenue for the public to channel their views on the proposed project. Public engagement is a direct method of obtaining information on the concerns of the impacted community resulting from the project implementation. Some form of public participation to obtain their inputs to the EIA study, shall be implemented which may include public engagement and public display of EIA Reports.

(e) The Technical Review Committee

The review of the EIA Reports is carried out by a committee known as the EIA Technical Review Committee (EIATRC) established both at the DOE state office and at the DOE Headquarters. The EIATRC at the DOE state office reviews the EIA Reports of activities under the First Schedule while the EIATRC at the DOE Headquarters reviews Reports of

activities under the Second Schedule. Members of both EIATRCs are the TRC members, representatives from relevant government agencies (GAs), and individuals appointed (AIs) from within or outside of the DOE, who have vast technical experiences in the relevant areas related to the proposed project. The technical areas may include potential project environmental impacts, impact study methodologies, and applicable pollution prevention and mitigation measures. Additionally, Non-Governmental Organizations (NGOs) may also be invited to sit on the committees as general representatives or as Appointed Individuals (AIs). In the case of the EIATRC at the DOE state offices which reviews EIA Reports of the First Schedule activities, AIs will only be appointed when needed on a case to case basis, as described earlier.

The Approving Authority

The approving authority is the Government Authority that has the task of deciding, in view of the environmental and development costs, and the benefits of the proposed project to the community, how (or whether) a project should proceed. The project approving authorities include:

(i) The National Development Planning Committee (NDPC) for Federal Government sponsored projects;

(ii) The State Executive Council (EXCO) for State Government sponsored projects;

(iii) The various Local Authorities or Regional Development Authorities (RDA) with respect to planning approval within their respective areas;

(iv) The Ministry of International Trade and Industry or MIDA for industrial projects.

5.2.3 EIA Review Process Timeline

The timeline for the EIA review process and decision is as follows:

(a) For EIA Reports of projects falling under the First Schedule
- 25 working days (5 weeks)

(b) For EIA Reports of projects falling under the Second Schedule
- 60 working days (12 weeks)

The general requirements on EIA Report review are summarized in Table 5.2 while the committees involved in the review process are summarized in Table 5.3.

Table 5.2: Summary of General Requirements on EIA Report Review

Components of EIA Review Process	First Schedule Activities	Second Schedule Activities
Submission of EIA Report	Submit to DOE State Office	Submit to DOE HQ
Public participation in EIA study	Not required	Required
Public display of EIA Report	Not required	Required
Web display of EIA Report	Required. Submit softcopy of the EIA Report to DOE State Office	Required. Submit softcopy of the EIA Report to DOE HQ
Advertisement of EIA Report	Not required	Required. Advertise in two major newspapers

Table 5.3: Summary of Committees Involved in EIA Report Review Process

Details of Review Committee	Personnel involved	
	First Schedule Activities	Second Schedule Activities
Name of Review Committee	DOE State Office EIA Technical Review Committee (EIATRC)	DOE Headquarters EIA Technical Review Committee (EIATRC)
Chairperson of Review Committee	Director of DOE State Office	Director General of Environment
Members of Review Committee	DOE state officers, appointed individuals (AIs) – in certain circumstances, representatives from Government Agencies (GAs) and NGOs	DOE Head Office officers, appointed individuals (AIs), representatives from Government Agencies (GAs) and NGOs, if required

5.3 REVIEW PROCESS OF EIA REPORT FOR FIRST SCHEDULE ACTIVITIES

5.3.1 Procedural steps for assessment of EIA Report for First Schedule Activities-EIA Report Review Stage

The review process will be undertaken within a period of 5 weeks (25 working days). Figure 5.1 shows procedural steps for assessment of EIA Report for First Schedule Activities-EIA Report Review Stage. This First Schedule assessment procedure is characterized by the following:

a. A minimum of 12 hard copies and 1 softcopy (in PDF format) of the EIA Report are to be submitted to the DOE State Office and 1 softcopy to the DOE Headquarters.

b. The submitted EIA Reports will firstly be checked for "Report Adequacy" (RAC) by a technical committee comprised of a

team of DOE officers (TRC). This quality check process will check the EIA Report for compliance with the EIA Report format, absence of obvious technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does not pass the RAC will be rejected. The EIA Report which passes the RAC will be reviewed by the EIATRC.

c. The EIA Report which passes the RAC will be distributed to relevant government agencies (GAs) for written comments and a minimum of three working days will be given before comments are due.

d. A visit to the project site by the DOE officers (TRC) (if necessary).

e. A presentation to the DOE State EIA Technical Review Committee (EIATRC) by the Project Proponent and his Consultant. As mentioned earlier section 3.2.8.1 of this EIA Guideline, members of EIATRC are TRC members (DOE state officers), representatives from government agencies (GAs) and in certain circumstances whenever needed, appointed individuals (AIs) from within the DOE or outside of DOE, who possess vast experience or specific expertise relevant to the EIA study will be appointed on a case to case basis. Non-Governmental Organizations (NGOs) may also be invited to attend the EIATRC meeting as general representatives or as Appointed Individual (AIs).

f. The EIA review meeting will be conducted in the third week from date of submission of the EIA Report to the DOE.

g. The outcome of the EIA review meeting may lead to:

i. Approval of the EIA Report, provided:

- The EIA Report meets with the requirements of the section 34A(3) of EQA 1974;

ii. Rejection of EIA Report, if:

- The EIA Report that does not meet the requirements of the section 34A(4) of EQA 1974.

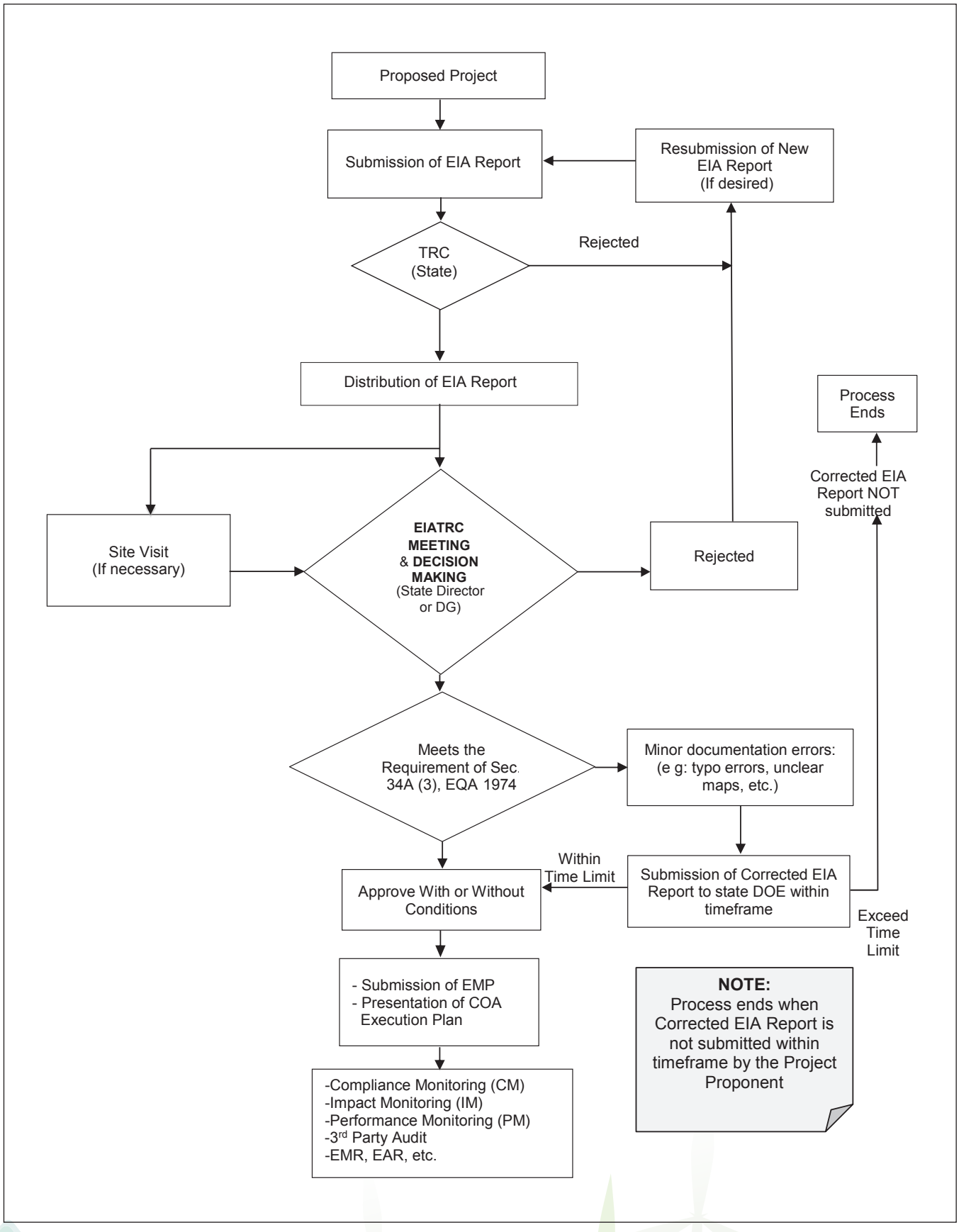


Figure 5.1: Procedural steps for assessment of EIA Report for First Schedule Activities-EIA Report Review Stage

5.4 REVIEW PROCESS OF EIA REPORT FOR SECOND SCHEDULE ACTIVITIES

5.4.1 EIA Report Reviewing Procedures

The review of EIA Reports for Second Schedule activities is carried out by the DOE Headquarters as described as follows: Firstly, the DOE HQ Technical Review Committee (TRC) comprised of a team of DOE officers will check for "Report Adequacy" (RAC). This quality check process will check the EIA Report for compliance with the Terms of Reference (TOR) and EIA Report format, absence of obvious technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does not pass the RAC will be rejected. The EIA Report which passes the RAC will be reviewed by the EIATRC, which is composed of individuals specifically appointed (AIs) on an ad hoc basis from within the DOE or outside of DOE, and representatives from relevant government agencies (GAs). EIATRC may include NGOs, either invited to sit on the committee as general representatives or appointed as AIs. The individuals appointed (AIs) based on their broad experience or particular expertise on a subject matter relevant to the EIA study are required to critically review the Report and submit a written comment on the Report to the DOE. The reviews by the AIs shall focus on specific subject areas and examine whether they have been addressed in a technically defensible manner. Additionally, the review shall evaluate whether the proposed pollution prevention and mitigation measures are adequate and can be considered to be the best available technologies (BATs) or the best industry practices. The Director General will make the final decision whether to approve or not to approve the EIA Report after taking into account the opinions of the EIATRC members.

5.4.2 Display of EIA Reports

The EIA Reports for Second Schedule activities are also displayed at the relevant DOE state offices, public libraries and local authority offices for public review and comments. The Reports can also be

accessed through the DOE's homepage. The public is notified through the mass media and homepage of the DOE as to when and where the EIA Reports are available for review and comment.

The entire review process will be completed by the DOE within a period of 60 working days. Figure 5.2 shows the EIA Report Review Process for Second Schedule Activities. The review process is characterized by the following:

i. The review process will be completed within a period of 12 weeks.

ii. A minimum of 35 hard copies and 1 softcopy (in PDF format) of the report shall be submitted to the DOE HQ. Additional copies are to be submitted whenever necessary. The DOE will distribute the Report through the Project Proponent to the relevant government agencies and members of the EIATRC. The Project Proponent shall display the Report at specified locations. Additionally, the Project Proponent/ Consultant may also recommend suitable display locations besides those specified by the DOE. This is to allow as many affected or interested parties to review the Report and submit comments to the DOE. This has to be done within one week from the date of submission of the EIA Report.

iii. Upon submission of the EIA Report, the Project Proponent shall advertise in major newspapers to announce the availability of the EIA Report for public review. This entails placing advertisements in at least two (2) major newspapers for three (3) consecutive days (a total of 6 advertisements). A draft copy of the advertisement shall be submitted to the EIA Secretariat for approval prior to the placement. The advertisement shall include information on the project and the locations where copies of the Reports may be reviewed or purchased. For projects in Sabah and Sarawak, the advertisement must be placed in at least one regional newspaper. The Project Proponent may also choose to advertise in on-line news portals, subject to agreement by the DOE.

iv. The Project Proponent and or the Consultant shall make available the EIA Report, both in the form of hard copies and soft copies (in PDF format) for purchase by the public. The price of the Report in hard copy shall be affordable to the public and shall normally be equivalent to its printing cost.

v. The EIA Report shall be displayed for 30 days from the date of announcement. The time frame for public to submit their comments to the DOE is 45 days.

vi. A visit to the project site by the DOE officers (TRC) (if necessary).

vii. The Project Proponent and the Consultant shall respond to all the written comments received from the public. The responses are to be submitted to the DOE Headquarters for review.

The outcome of the EIA review meeting may lead to:

a. Approval of the EIA Report, provided:
   - The Report meets with the requirements of the section 34A(3) of EQA 1974.

b. Rejection of the EIA Report, where:
   - The Report does not meet the requirements of the section 34A(4) of the EQA 1974.

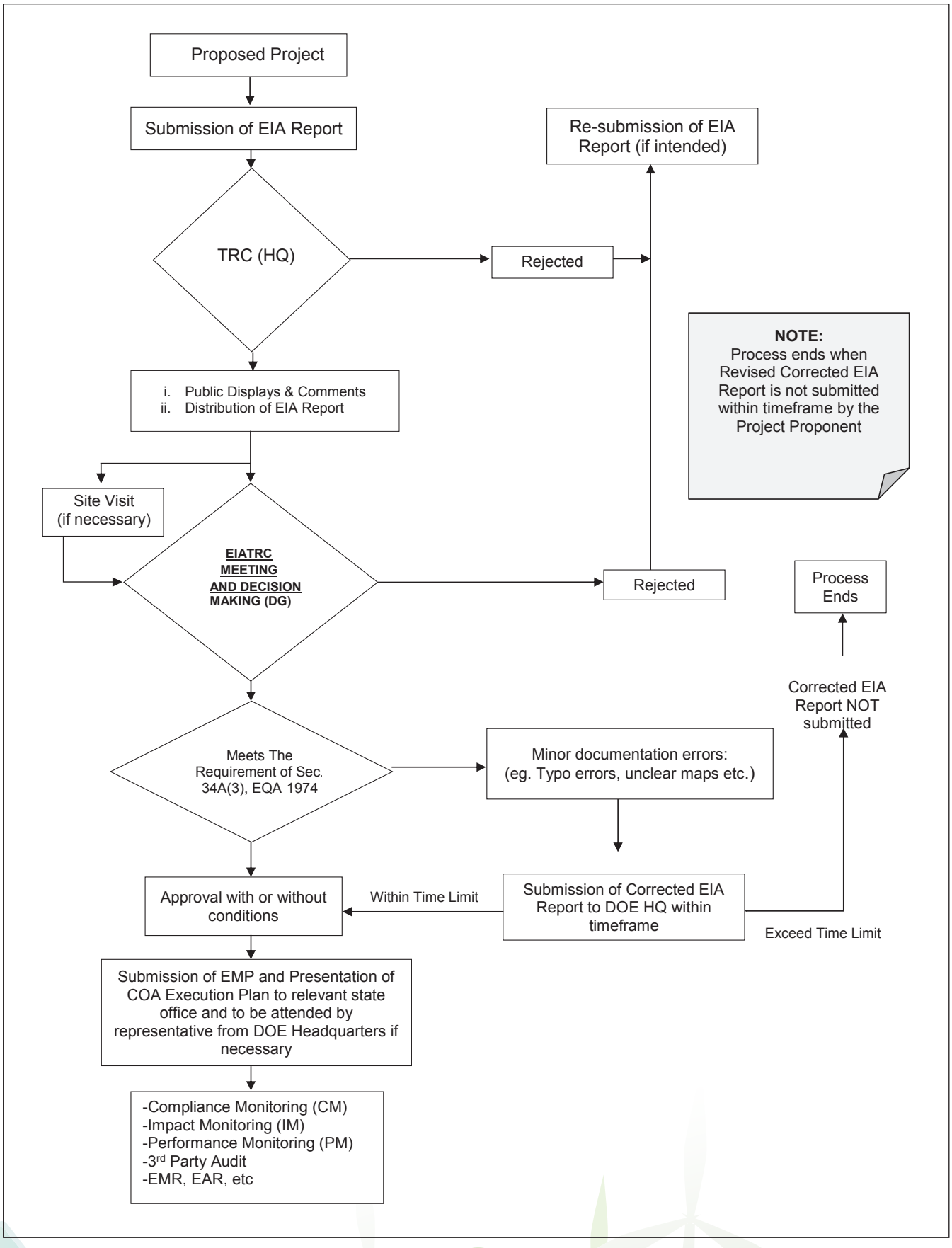


Figure 5.2: Procedural steps for assessment of EIA Report for Second Schedule Activities – EIA Report Review Stage

CHAPTER 6
POST SUBMISSION STAGE OF EIA REPORT

CHAPTER 6

POST SUBMISSION STAGE OF EIA REPORT

6.1 GUIDANCE DOCUMENT FOR PREPARATION AND SUBMISSION OF ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Environmental Management Plan (EMP) translates the pollution prevention and mitigation measures (P2M2s) recommended in the EIA Report and the approval conditions (COAs) into action. The EMP is neither a report of another study nor a document which is descriptive in character. As a contrast, the EMP document states in explicit terms what actions will be taken, what measures will be instituted, what structures will be built, what will be installed, when the actions will be executed; etc. in order to incorporate the P2M2s in the project activities and for the project activities to be compliant with the COAs. The EMP is a concrete plan of action which is explicit, illustrative, action-oriented, time-bound and definitive. Even though the EMP exhibits all of the above characteristics, the EMP is by nature a living document which needs to be revised and updated when there exists certain circumstances which demand changes to be made. These factors may include changes to project details and surrounding areas and inadequacy of the control measures to comply with regulatory standards.

Although in this EIA Guidelines the EMP is discussed in the post submission stage of the EIA Report, the Project Proponent is recommended to prepare the EMP at the same time as the EIA Report. If this option is taken, both the EIA Report and the EMP can be submitted to the DOE at the same time. If deemed necessary, the EMP can later be updated to incorporate the requirements of the COAs.

6.2 OBJECTIVE OF GUIDANCE DOCUMENT

The objective of the Guidance Document is to provide general guidance to the Project Proponent and consultants in the preparation of EMPs to be submitted to the DOE for approval. Pertinent aspects to be incorporated in the EMPs are stipulated to ensure that the EIA approval conditions (COAs) are translated into actionable items resulting in reduced adverse impacts to the environment.

6.3 HOW TO GET STARTED

Firstly the Project Proponent and the Consultant who has been tasked to prepare the EMP shall study and understand the pollution prevention and mitigation measures (P2M2s) recommended in the EIA Report and the EIA approval conditions (COAs).

Secondly, for each P2M2s and COAs, whether it is administrative or physical in nature, the Consultant shall identify actions required to be executed in order to implement the P2M2s or comply with the COAs.

Thirdly, the Consultant shall compute an estimated cost to be incurred for each of the executable actions.

Fourthly, the Consultant shall brief the Project Proponent (PP) on the executable actions to be undertaken and the cost implication. Later, the PP shall make a declaration or pledge that all the actions stipulated in the EMP will be implemented.

The logical steps to be followed in the EMP preparation as outlined above are depicted in Figure 6.1.

1	Study recommended P2M2s and COAs	EMP Preparer
2	Translate identified P2M2s and COAs into executable actions	EMP Preparer
3	Prepare cost estimate	EMP Preparer
4	Make declaration	Project Proponent

Figure 6.1: Typical steps in EMP Preparation

Note: The EMP preparer shall be a consultant registered with the DOE.

6.4 PREPARATION OF LAND DISTURBING POLLUTION PREVENTION AND MITIGATION MEASURES (LD-P2M2)

Brief explanation on LD-P2M2 is given below.

The LD-P2M2 document is a legal pledge made by the Project Proponent to take efforts, measures, actions, or due diligence in accomplishing the overarching goal of protecting the environment and in mitigating the environmental impact in the process of implementation of the proposed development project.

The LD-P2M2 gives guidance to the Project Proponent's personnel especially the Environmental Officer (EO), in supervising the implementation of the LD-P2M2 that includes the installation, inspection and maintenance (2I's1M) of the Best Management Practices (BMPs) as well as in preparing the required documentation and reports on (2I's1M).

The focus of the LD-P2M2 is on the prevention, mitigation and control of the discharge from the development area containing the major pollutant (suspended solids) resulting from land disturbing activities.

The Guidance Document for the preparation of the document on Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2) replaces the Guidance Document for the Preparation of Erosion and Sediment Control Plan (ESCP) issued earlier by the DOE.

The Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2) document is to be attached or inserted into the EMP as part of the EMP submission requirement.

Generally, the following shall be prepared and provided in the LD-P2M2 document. The details are explained in the Guidance Document for the preparation of the document on Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2).

a. Narrative Description

The narrative describing the project description, existing site conditions, conditions after development, major land disturbing activities, total site area, total disturbed area, soil types, design criteria for Pollution Prevention and Mitigation Measures (P2M2), expected rainfall, runoff velocities and peak flows, and illustration of how, what, where, why, and when P2M2 is to be installed, inspected and maintained.

b. Schedule of construction (land disturbing) activities

Schedule of construction activities detailing the project phasing, construction stages and sequences that progress with the implementation of each of the LD-P2M2s in a timely manner. Holding a pre-construction meeting to be attended by the owner or owner's representative, or his project environmental officer, project contractors and sub-contractors is an example of an initial construction sequence conducted prior to any land disturbing activities.

c. LD-P2M2 Plan and Construction Notes

A plan consisting of maps and/or site plans showing the existing geomorphology and land use of the site, to be overlaid with site development map that depict the proposed land disturbing activities or earthworks, inclusive of proposed area alterations and the locations of all P2M2s facilities. Construction notes which refer to general instructions of P2M2s application, shall be included in the LD-P2M2 plan or may written on a separate sheet.

d. Method Statement

Method Statement and layout plan to be implemented for the major land disturbing activities of the project that may cause the discharge of pollutants, particularly suspended solids. In this context, Method Statement refers to Environmental Method Statement that details how, what, where, why, and when the elements of environmental protection, P2M2s will be integrated and implemented into each of the land disturbing activities. The land disturbing activities which progress in stages and sequence include but are not limited to:

i. Site land clearing
ii. Excavation of cuttings
iii. Forming of embankments and fills
iv. Excavation of foundation pits, trenches and tunnels or viaduct
v. Stream or river diversion
vi. Stream or river crossing
vii. In-stream works
viii. Drilling of boreholes

6.5 FORMAT OF ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The EMP shall at a minimum, contain the following chapters: chapter 1 to chapter 5. However, the depth of treatment and details discussed in chapter 5 shall be tailored to suit the individual project, the pollution prevention and mitigation measures (P2M2s) recommended in the EIA Report and the EIA approval conditions (COAs).

The EMP for prescribed activities falling under both Schedules (First Schedule and Second Schedule) of the EIA Order shall follow the general specifications and format, and shall contain chapters 1 to 5 as explained below.

Chapter 1: Introduction

Provide information on:

a. Project layout as approved in the Development Order by Local Authority.
b. Project implementation schedule.
c. Name of the EMP preparer and his consulting firm.

Chapter 2: Policy

Provide information on:

a. Company's corporate policy statement on environmental management and protection.
b. Commitment by the top management on the mainstreaming of environmental agenda and instiling of self regulation in the development project and on ensuring continous compliance with the environmental regulatory requirements.

Chapter 3: Organizational Structure

Provide information on:

a. Organization chart of the company's top management with responsibilities on environmental management and protection (provide names, positions, mobile phone contact numbers and e-mail addresses).

b. Name, mobile phone contact number and e-mail address of environmental manager, environmental officer (EO), engineering consultant, contractor, site supervisor and competent person* (wherever relevant and available).

(*Note: Competent person is a person certified by the DOE through the certification program administered by the Environment Institute of Malaysia, EiMAS)

c. Name of environmental consultant and accredited laboratory conducting environmental monitoring, analysis of environmental samples and submitting reports to the DOE.

Chapter 4: Training Requirement

Provide information on:

a. Plan for staff training in order to develop competency to discharge responsibilities on environmental requirements and compliance. The training areas shall include maintenance and performance monitoring of all P2M2 (LD-P2M2, IETS, APCS, STS, management of scheduled waste), wherever relevant.

Chapter 5: Environmental Requirements

Provide information on:

a. EIA Approval Conditions (COAs)
b. LD-P2M2 document
c. Pollution prevention and mitigation measures (P2M2) to be implemented as in the Table 6.1.

Table 6.1: Pollution Prevention and Mitigation Measures (P2M2) To Be Implemented

Project activities and environmental issues concerned	Impacts	P2M2 recommended in EIA Report	P2M2 to be implemented

(Note: The contents of the above Table are to be derived from "Summary of Impacts and pollution prevention and mitigation measures" recommended in the EIA Report and additional requirements stipulated in the EIA approval conditions (COAs). P2M2 shall be those which can be described as "state of the art technologies" or "industry best practices").

d. Water Pollution Control

i. **Water pollution control monitoring**

Water pollution control monitoring consists of performance monitoring (PM) of effluent treatment system (for treating sewage or industrial effluent), effluent discharge monitoring (Compliance monitoring-CM) and ambient water quality

monitoring (Impact monitoring-IM). IETS or STS performance monitoring (PM) is compulsory, while ambient water quality monitoring covering areas beyond the boundary of project site may be required only on a case to case basis (IM). Proposed PM and CM program shall be prepared with details on parameters, the recommended ranges, monitoring frequency, field log sheets, data analysis and interpretation, and record keeping. For IM program, details on monitoring location, longitude and latitude, frequency, parameters, equipment, monitoring schedule, and personnel required shall be provided.

ii. **Effluent treatment**

The following information shall be provided: proposed treatment technology; schedule for submission of Notification for new source of effluent discharge, design of IETS; recruitment of competent person and purchase of relevant equipment. The IETS shall be that which can be described as state of the art technologies or industry best practices.

iii. **Temporary sullage and sewage treatment**

The following information shall be provided: proposal for the management and treatment of sullage and provision of temporary sewage facilities for workers shall be provided.

iv. **Permanent sullage and sewage treatment**

The following information shall be provided: proposed treatment technology; schedule for submission of Notification for new source of sewage discharge, design of sewage treatment system (STS); recruitment of competent person and purchase of relevant equipment.

v. **Control of oil and grease, concrete wash, etc.**

The following information shall be provided: proposed methods of managing discharge of other pollutants, particularly oil and grease, and concrete wash effluent during the construction phase.

e. Control of Air Pollution and Noise

i. **Air pollution control monitoring**
Air pollution control monitoring consists of performance monitoring (PM) of air pollution control system (APCS), air emission discharge monitoring (Compliance monitoring-CM), and ambient air quality monitoring (Impact monitoring-IM). APCS performance monitoring (PM) is compulsory, while ambient air quality monitoring covering areas beyond the boundary of project site (IM) may be required only on a case to case basis. Proposed PM and CM program shall be prepared with details on parameters, the recommended ranges, monitoring frequency, field log sheets, data analysis, and record keeping. For IM program, details on monitoring location, longitude and latitude, frequency, parameters, equipment, monitoring schedule, and personnel required shall be provided.

ii. **Air pollution control**
The following information shall be provided: proposed control technology; schedule for submission of Notification for new sources of air pollution; design of air pollution control system (APCS); recruitment of competent person and purchase of relevant equipment. The APCS shall be that which can be described as "state of the art technologies" or industry best practices.

f. Materials And Waste Management

i. Raw materials and stockpiles.
The following information shall be provided: proposal for the management of raw materials, including chemicals, fuels, etc., and stockpiles.

ii. Solid waste.
The following information shall be provided: proposal for the management of solid waste during land disturbance and construction phase.

iii. Biomass.
The following information shall be provided: proposal for

the management of biomass during land clearing and construction phase.

iv. Spoils/dredge materials/construction waste.
The following information shall be provided: proposal for the management of spoils/ dredge materials/construction waste during land disturbance/earthwork and construction phase.

v. Open burning.
The following information shall be provided: Measures to prevent occurrence of open burning.

vi. Housekeeping.
The following information shall be provided: proposal for implementing best practices in general housekeeping, including housekeeping of the vehicles and machinery maintenance area.

g. Scheduled Waste Management

The following information shall be provided: proposal for the management of scheduled waste to comply with Environmental Quality (Scheduled Waste) Regulations 2005 generated during construction and post construction stages.

h. Emergency Response Plan (ERP)

The following information shall be provided: name and contact details (mobile phone number, e-mail address) of the professional who has been tasked to prepare the ERP and the schedule for its preparation and submission to DOE.

i. Abandonment And Closure Plan

In a particular case where the project proponent intends to abandon a project whether it is in the construction stage or after it has started operation, an abandonment and closure plan shall be prepared. Decommissioning and closure plan is especially relevant to extractive industries such as minerals mining and oil and gas exploration and extraction.

j. Declaration And Checklist

a. **Declaration**

The Project Proponent is required to make a declaration that all the actions/measures/plans outlined in the EMP will be implemented as in the Table 6.2. The form is required to be filled out and submitted to the DOE together with the EMP document.

Table 6.2: Declaration By Project Proponent/Authorized Person

DECLARATION BY PROJECT PROPONENT/AUTHORIZED PERSON

I certify that the Environmental Management Plan (EMP) has been prepared with my knowledge and I shall undertake the responsibility to ensure the actions/plans/ and pollution prevention and mitigation measures (P2M2) stated in the EMP will be implemented. I have provided sufficient allocation for the implementation of the EMP and P2M2.

PROJECT TITLE: ……
……
……..……..

PROJECT ADDRESS/LOCATION: ……...
……...
……

……..
Name of Project Proponent/authorized person

Signature: (……)
Date: ……

b. **Checklist**

To assist the Consultant who has been assigned the task to prepare the EMP for submission to the DOE, a checklist/ form

A checklist to assist the Consultant in the EMP preparation and to summarize the EMP actionable items is given in Table 6.3.

Table 6.3 Environmental Management Plan Preparation Checklist

PROJECT TITLE: _____

NAME OF PROJECT PROPONENT: _____

_____

NAME OF CONSULTANT: _____

RECOMMENDED POLLUTION PREVENTION AND MITIGATION MEASURES (P2M2s) AND EIA APPROVAL CONDITIONS (COAS) COMPLIANCE CHECKLIST

P2M2 RECOMMENDED OR COA NUMBER….	ACTIONABLE ITEM IN EMP ON PAGE…..	NOTES

Name of Project Proponent

……..

Signature : (……)

Date : ……

CHAPTER 7
MAINSTREAMING OF ENVIRONMENTAL AGENDA AND SELF REGULATION CULTURE IN EIA PROCEDURE

CHAPTER 7

MAINSTREAMING OF ENVIRONMENTAL AGENDA AND SELF REGULATION CULTURE IN EIA PROCEDURE

Self-regulation has been adopted by the Department of Environment (DOE) as a long-term goal to be achieved and a culture to be inculcated within the regulated sectors through mainstreaming of environmental agenda. Environmental mainstreaming has been integrated into all the recent regulations of the DOE. The implementation of environmental mainstreaming to promote and instil self-regulation in industrial pollution control has been translated into regulatory requirements on performance monitoring of pollution control measures, scheduled reporting, record keeping, competent persons, and involvement of environmental professionals playing specific roles. This approach to pollution control is a win-win concept which has shown to accrue positive results in optimal operation of pollution control systems (PCSs), prevention of PCS failures, cost savings in PCS operation, systematic management of performance monitoring data and improved regulatory compliance on a sustained basis. On a wider perspective, self-regulation which complements the existing command and control approach of the DOE, would result in cultivating environmental ownership and excellence in environmental commitment from the regulated sectors.

The EIA procedure, a preventive strategy of the DOE also needs to embrace the environmental mainstreaming and self-regulation goal in order to enhance its effectiveness in mitigating the adverse impacts from development projects on the environment at every stage of the EIA procedure. Self-regulation culture in EIAs means that the Project Proponent will be charged with full responsibility and accountability for taking environmental friendly options and instituting effective pollution prevention and mitigation measures (P2M2) and self-demonstration of regulatory compliance of the EIA procedure at all stages of project implementation. From business perspective, self-regulation is a potent business strategic tool where positive image of good governance and corporate social responsibility could be portrayed to the public, enhancing the public's acceptance of an EIA project. Additionally, self-regulation would also result in reducing snapshot enforcement inspections currently practiced by the Department of Environment, whose inspectors find it impossible to

be constantly involved in inspecting the EIA projects in every phase of its implementation. Taking into consideration of the current scenario in Malaysia, Guided Self-Regulation (GSR) adopted by the DOE would require the project proponents to undertake several actions that are necessary to make way for the mainstreaming of environmental agenda in the EIA projects.

This chapter is dedicated to the discussion of the roles, functions and core duties of the various players involved in a development project: the Project Proponent, the EIA Consultant, and the Environmental Officer (EO). The implementation of the guidance provided in this chapter would result in mainstreaming the environmental agenda into the EIA project management decision making process as well as into the day to day management of project implementation, paving the way for excellence in environmental regulatory compliance. The guidance is also intended to cultivate self-regulation by promoting the practice of quality control and performance monitoring of EIA projects as a routine activity at every stage of the EIA procedure including pre-submission, during submission and post submission of EIA Report.

7.1 GENERAL CONSIDERATIONS

Legal responsibility rests on the shoulders of the Project Proponent hence he shall be totally committed towards ensuring regulatory compliance of his project with the EIA procedure at all stages of project planning and implementation. The Project Proponent is the key driver for ensuring the success self-regulation approach in environmental management through the mainstreaming of environmental agenda throughout his project implementation phases. The project proponent shall ensure top-down organizational commitment to environmental regulatory compliance to all personnel, at all levels of the organization, including the registered EIA consultant, the EO, the contractors, and other parties involved in the project implementation.

To exercise quality control and ensure regulatory compliance, the following general considerations shall be taken:

a) In a situation where the service of an EIA consultant firm is required, the Project Proponent may appoint a DOE-registered EIA consultant firm to provide advice on the EIA procedure and to act on his behalf for communication with the DOE. The consultant firm is composed of EIA team members who are registered with the Department of Environment. The members comprise various EIA subject matter specialists who are relevant to the project proposal.

b) During the stage of pre-submission of EIA Report, the Project Proponent is responsible to ensure a proposed project is screened to determine whether an EIA is necessary, since the project may fall under a 'prescribed activity" classified either under the First Schedule or the Second Schedule of the Environmental Quality (Prescribed Activity) Environmental Impact Assessment Order 2015. The screening process is also important to decide whether an EIA Report needs to be submitted to the respective DOE State Office for First Schedule activities or to DOE Headquarters for Second Schedule activities. In case of Second Schedule activities, public display of EIA Reports is mandatory. In performing the screening process, the project proponent is advised to appoint a DOE-registered EIA consultant to determine the EIA scoping for the project proposal.

The Project Proponent is also required to ensure the adequacy of the scope of the EIA studies. The scoping process is important to decide on the coverage and boundary of the EIA studies to ensure that significant environmental issues are adequately assessed and reported in the EIA Report. Any inadequacies in treating the significant issues may jeopardize the timing of EIA Report approval. The Project Proponent is required to obtain prior approval from the DOE for the Terms of Reference (TOR) for the preparation of EIA Report of a Second Schedule activity. Among others, The TOR will comprise the following: intention and brief description of the project proposal, scoping (coverage of the EIA studies), study methodology, sampling details (frequency, parameters, and locations), technical personnel, and study schedule. The TOR will also state the number of hardcopy EIA Reports to be submitted to the Department of Environment. The TOR is subject to comments and agreement from the EIA Technical Review Committee (EIATRC) prior to EIA Report Preparation.

In the course of EIA Report preparation of a Second Schedule activity, the Project Proponent shall take into consideration of the alternatives, demonstrate commitment to ensuring the successful conduct of the EIA study and implementation of measures to mitigate the significant impacts as recommended by the EIA Consultant. This is accomplished by allocating sufficient funds for the above purposes. The funds shall cover the cost required for all activities associated with the EIA study, and preparation and implementation of environmental management plan (EMP) and pollution prevention and mitigation measures (P2M2).

c) In the conduct of EIA study, a comprehensive site survey and investigation of the existing site conditions shall be made to provide crucial data of the study area which are necessary for planning considerations, formulating scope of work, and ensuring effective selection and design of pollution prevention and mitigation measures (P2M2).

d) During the stage of submission of EIA Report of a Second Schedule activity, the Project Proponent shall be present with the EIA Consultant team members to defend the EIA Report in a public display which will be arranged by the EIA Consultant in consultation with the DOE. During this stage the Director General of Environment Malaysia will finalize decision on the EIA Report.

e) During project implementation, wherever necessary, consideration shall be made by the Project Proponent to appoint a consultant to supervise the implementation of pollution prevention and mitigation measures (P2M2).

Specific considerations which shall also be taken into account during each stage of project implementation are enumerated below.

7.2 ROLES AND CORE DUTIES OF DIFFERENT PLAYERS IN EIA PROJECT IMPLEMENTATION

The Project Proponent

The Project Proponent (PP) is not only legally responsible for ensuring regulatory compliance, but is the driver for mainstreaming the environmental agenda in all stages of project implementation. The major roles and responsibilities of the PP include the following:

(a) Formulating an Environmental Policy (EP) of the company with respect to the EIA project, which shall be communicated to the stakeholders, consultants, contractors and other parties involved in the project planning and implementation.

(b) Establishing an organizational structure which clearly shows the emplacement of a Registered EIA Consultant and an Environmental Officer (EO), where they are charged with specific responsibilities to ensure environmental aspects are taken into consideration, and pollution prevention and mitigation measures (P2M2) are integrated into every stage of project planning and implementation.

(c) Allocating sufficient funds for all steps in the EIA process and every stage of project planning and implementation with itemized budget required for water quality monitoring, air quality and noise monitoring, for comprehensive site survey and investigation of the specific existing site conditions, for implementation of Environmental Management Plan (EMP) including temporary pollution prevention and mitigation measures (P2M2). P2M2 shall be those which can be described as state of the art technologies, best available technologies (BATs), or industry best practices.

(d) Appointing an Environmental Officer (EO), at the stage of post submission of EIA Report to be charged with responsibilities to execute environmental quality control and performance monitoring functions during the construction and operation phases of the project implementation. Service of an EO can also be obtained from an Environmental Officer Service Provider. Service of EO from EO service provider is allowed during the construction stage only. However, at the operational stage, the Project Proponent shall employ his own EO.

(e) Establishing a project Environmental Performance Monitoring Committee (EPMC) to monitor the environmental performance, effectiveness of pollution prevention and mitigation measures (P2M2), and status of regulatory compliance of the project. The EPMC shall be represented by all relevant parties involved in project implementation and chaired by a senior member representing the Project Proponent. The chairman who shall be formally appointed by the Project Proponent shall be responsible for ensuring the decisions of the meeting are responsibly executed. The EPMC shall meet at a minimum, once in a quarter and the minutes of the meeting shall be maintained.

(f) Setting up a “mini laboratory”, wherever appropriate, to facilitate the implementation of environmental performance monitoring program. This mini laboratory shall be adequately equipped with relevant resources including staff and portable analytical testing equipment.

(g) Ensuring the Environmental Management Plan (EMP) including temporary and permanent pollution prevention and mitigation measures (P2M2) are implemented and maintained according to industry’s best practices.

The Environmental Consultant

The registered EIA Consultant is the key person who is entrusted with the responsibilities for ensuring environmental impacts from a project are correctly identified, assessed, and mitigated. The roles and core duties of the EIA Consultant include the following:

- Preparing the Terms of Reference (TOR) for EIA study of a project proposal of a Second Schedule activity
- Performing quality control (QC) to ensure the quality of EIA Report meets the requirements* of DOE and hence, is fit for submission
- Preparing and defending the EIA Report of a project of a Second Schedule activity
- Setting up Public Display and Engagement Meetings
- Preparing the Environmental Management Plan (EMP).

(Note: * The requirements refer to all requirements on EIA procedure stipulated, mentioned, and discussed throughout this EIA Guideline).

The Environmental Officer (EO)

The Environmental Officer (EO) is the main project personnel responsible for ensuring regulatory compliance at the project implementation stage (post submission of EIA Report). The roles and core duties of the EO include the following:

(a) Implementing the environmental management plan (EMP), and installing the temporary and permanent pollution prevention and mitigation measures (P2M2).

(b) Preparing Environmental Performance Monitoring Document (EPMD). PMD describes in detail how EIA approval conditions are going to be complied and how performance monitoring* of the various pollution prevention and mitigation measures (P2M2) will be conducted to ensure the optimal functionality of the P2M2 is maintained. The details shall include, among others: performance monitoring equipment/instruments, sampling protocols and analysis, monitoring parameters, sampling frequency, preventive and corrective maintenance procedure for the P2M2, discharge compliance, record keeping, etc. EPMD also includes compliance monitoring (CM) and impact monitoring (IM) wherever relevant.

(* Note: Performance monitoring in this context refers to the monitoring of certain characteristics that would indicate that a P2M2 is functioning in an optimal manner. It also includes the preventive and corrective maintenance of the P2M2 to maintain their optimal performance. P2M2 refers to all measures to prevent

and mitigate pollution such as IETS, APCS, STS, and includes temporary pollution prevention and mitigation measures).

(c) Performing or supervising the conduct of performance monitoring (PM) program as specified in the PMD.

(d) Preparing Performance Monitoring Report (PMR). PMR discusses the results of the performance monitoring conducted as described in the PMD. Wherever relevant, PMR shall include data interpretation and assessment of the effectiveness of the pollution prevention and mitigation measures (P2M2) by making comparison of the performance monitoring parameters with their recommended ranges (or standards). Statistical techniques and graphical presentation of the performance monitoring parameters should be used wherever appropriate. PMR shall also make some definitive conclusions on the overall performance of the P2M2 and suggest improvement measures to be taken if necessary. PMR shall be submitted to the Environmental Performance Monitoring Committee (EPMC) as established by the Project Proponent for the EIA project and maintained for the inspection of the DOE officers.

(e) Communicating the status of environmental regulatory compliance of the project during construction and operation phases to the Project proponent.

(f) Maintaining a detailed record of major upset conditions encountered, if any, for the duration of the project construction and operation phases. The date of occurrence, nature and causes of upset conditions, and the corrective actions taken shall be recorded. Upset conditions refer to failures of pollution prevention and mitigation measures (P2M2) which result in noncompliance with the EIA approval conditions or discharge/ emission standards, or pollution that affects the immediate neighbourhood or seriously threatens the environment or public health and safety.

(g) Acting as an environmental advisor to the Project Proponent in advising him to undertake additional efforts, if any, to further ensure effective implementation environmental management plan (EMP) including temporary pollution prevention and mitigation measures (P2M2) on a sustained basis.

APPENDIX

Appendix 1

LIST OF RELEVANT POLICIES RELATED TO DEVELOPMENT PLANNING

1. National Physical Plan
2. Malaysia's National Policy On Biological Diversity
3. National Climate Change Policy
4. National Policy on the Environment
5. Laporan Kawasan Sensitif Alam Sekitar – JAS 1993
6. Kawasan Sensitif Alam Sekitar: Peranan dan Sumbangan Perancangan Guna Tanah – JPBD 1998
7. Pendekatan dan Garis Panduan Umum Perancangan Kawasan Sensitif Alam Sekitar – JPBD 1998
8. Strategi Pembangunan Mampan dan Agenda 21 Selangor - Kawasan Sensitif Alam Sekitar - Kerajaan Negeri Selangor 1999.
9. Garis panduan Pemuliharaan Kawasan Sensitifi Alam Sekitar (JPBD, 2004).
10. Town and Country Planning Act 1976 (Act 172) (Incorporating amendments up to 1st January 2006)
11. Land Conservation Act (Act 385) (incorporating amendments up to 1st January 2006)
12. National Land Code (Act 56 of 1965)
13. Local Government Act 1976 (Act 171) (Incorporating amendments up to 1st Act A1311 of the year 2007)

Appendix 2

LIST OF REGULATIONS ISSUED UNDER THE ENVIRONMENTAL QUALITY ACT, 1974 AND OTHER ENVIRONMENT RELATED LEGISLATIONS

1. Environmental Quality (Licensing) Regulations, 1977.
2. Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977.
3. Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977.
4. Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978.
5. Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Order, 1978.
6. Environmental Quality (Clean Air) Regulations 2014
7. Environmental Quality (Compounding of Offences) Rules, 1978.
8. Environmental Quality (Industrial Effluent) Regulations, 2009.
9. Environmental Quality (Sewage) Regulations, 2009.
10. Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations, 1985.
11. Environmental Quality (Motor Vehicles Noise) Regulations, 1987.
12. Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015
13. Environmental Quality (Prohibition on the Use of Chlorofluorocarbons and Other Gases as Propellants and Blowing Agents) Order, 1993.
14. Environmental Quality (Prohibition on the Use of Controlled Substance in Soap, Synthetic Detergent and Other Cleaning Agents) Order, 1995.
15. Environmental Quality (Delegation of Powers on Marine Pollution Control) Order, 1993.
16. Environmental Quality (Delegation of Powers on Marine Pollution Control) Order, 1994.
17. Environmental Quality (Delegation of Powers) Order, 1999.

18. Environmental Quality (Delegation of Powers) Order, 2005.

19. Environmental Quality (Delegation of Powers) (Perbadanan Putrajaya) Order, 2002.

20. Environmental Quality (Delegation of Powers) (Investigation on Erosion and Sediment Control) Order, 2012.

21. Environmental Quality (Control of Emission from Diesel Engines) Regulations, 1996.

22. Environmental Quality (Control of Emission from Petrol Engines) Regulations, 1996.

23. Environmental Quality (Control of Petrol and Diesel Properties) Regulations, 2007.

24. Environmental Quality (Refrigerant Management) Regulations, 1999.

25. Environmental Quality (Halon Management) Regulations, 1999.

26. Environmental Quality (Delegation of Powers) (Halon Management) Order, 2000.

27. Environmental Quality (Prescribed Activities) (Open Burning) Order, 2000.

28. Environmental Quality (Compounding of Offences) (Open Burning) Rules, 2000.

29. Environmental Quality (Delegation of Powers) (Investigation of Open Burning) Order, 2000.

30. Environmental Quality (Declared Activities) (Open Burning) Order, 2003.

31. Environmental Quality (Clean Air) Regulations 2014

32. Environmental Quality (Appeal Board) Regulations, 2003.

33. Environmental Quality (Control of Emission from Motorcycles) Regulations, 2003.

34. Environmental Quality (Dioxin and Furan) Regulations, 2004.

35. Environmental Quality (Prescribed Conveyance) (Scheduled Wastes) Order, 2005.

36. Environmental Quality (Scheduled Wastes) Regulations, 2005.

37. Environmental Quality (Control of Pollution from Solid Waste Transfer Station and Landfill) Regulations, 2009.

Appendix 3

GUIDANCE DOCUMENT FOR ADDRESSING SOIL EROSION AND SEDIMENT CONTROL ASPECTS IN THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

REQUIREMENT TO ADDRESS SOIL EROSION AND SEDIMENT CONTROL ASPECTS IN ALL EIA REPORTS

1. All Environmental Impact Assessment (EIA) reports are required to address the aspects of soil erosion and sediment control.

PURPOSE OF THE GUIDANCE DOCUMENT

2. This Guidance Document is prepared to assist project proponents and environmental consultants in addressing the aspects of soil erosion and sediment control in the EIA reports. The information required as specified in this Guidance Document is additional to that required by the EIA Guideline in Malaysia and EIA specific guidelines for different sectors.

CONTENT OF RELEVANT CHAPTERS ADDRESSING SOIL EROSION AND SEDIMENT CONTROL

3. Soil erosion and sediment control shall be discussed in the following chapters in the EIA report.

3.1 Project Description The project concept shall take into consideration the following aspects amongst others: terrain, geology, natural topography, hydrology and natural features.

Specifically, the following principles shall be adopted:-

a. Plan the development to fit the particular topography, soils, drainage patterns, natural features and vegetation of the sites, which is to be reflected in the layout plan.

b. Method statement that describes how the major activities of the project that may cause erosion and sedimentation are going to be undertaken. Taking into consideration site conditions involved, the method statement shall also incorporate appropriate phasing (taking into account rainy seasons or monsoon period), preservation of green areas and buffer zones.

3.2 Project Options describe options for method statement and layout plans and the reasons why a specific method statement and layout plan has been chosen.

3.3 Description of the Existing Environment apart from the information required as described in the EIA Guideline in Malaysia, the following information shall be included:-

a. Geological terrain mapping (for development on hills and highlands) in accordance with the requirements of the Department of Minerals and Geoscience (Manual Pemetaan Geologi Terain, JMG 2006).
b. Erosion risk map.
c. Pre development conditions taking into consideration the following factors:-
rainfall-runoff erosivity factor (R), soil erodibility (K), topographic factor (LS), cover management factor (C), erosion control practice factor (P), volume of runoff (V) and peak flow (Q) for the storm event in order to determine soil loss and sediment yield using Universal Soil Loss Equation (USLE) and Modified Universal Soil Loss Equation (MUSLE).

All factors used in the USLE and MUSLE shall be taken from local conditions and results from studies conducted locally. R= rainfall erosivity data, must be obtained from rainfall station nearest to the project site based on average ten years records.

C = cover management factor must be taken from the published results of studies by the DID Malaysia or other researchers, if unavailable. K= soil erodibility data, must be obtained from results from tests done for the specific site. Tests must be conducted to obtain values for K (erodibility).

3.4 Potential Significant Impacts

Apart from the information required as described in the EIA Guideline, the information on R, K, LS, C, P, V, and Q for the storm event shall be provided and used to determine soil loss and sediment yield using Universal Soil Loss Equation (USLE) and Modified Universal Soil Loss Equation (MUSLE) for the following scenarios:

a. During development/construction:
   i. Without mitigating measures (worst case scenario).
   ii. With mitigating measures.

b. Post development conditions

The calculation to determine the soil loss (USLE) and sediment yield (MUSLE) must be performed according to the stages of construction and phases of development. Mitigation measures shall be instituted to ensure that the pre development's flow conditions at the site are maintained in the post development stage.

The details of USLE and MUSLE calculations in paragraphs 3.3c, 3.4a and 3.4b shall be included as an appendix to the EIA report.

4. Pollution Prevention and Mitigation Measures (P2M2)

4.1 Principles in Erosion and Sediment Control

To prevent erosion and control sediment, the following primary principles shall be adopted:-

a. Integrate project design with site constraints.
b. Preserve and stabilize drainageways.
c. Minimize the extent and duration of disturbance.
d. Control runoff flows onto, through, and from the site in stable drainage structures. e. Install perimeter controls.
f. Stabilize disturbed areas promptly in a timely manner.
g. Protect steep slopes.
h. Use sediment controls to prevent off-site damage.
i. Protect inlets, storm drain outfalls, and culverts.
j. Provide access and general construction controls.
k. Inspect and maintain control measures.
l. Employ experienced and competent personnel.
m. Conduct training on environmental requirements to relevant parties

In addition to the measures taken in conformity with the above principles, erosion and sediment loss from the site shall be effectively controlled by applying appropriate P2M2.

4.2 Pollution Prevention and Mitigation Measures

The following information shall be provided:-
A site plan (which contains existing topographical and hydrological features, and land use) to be superimposed with site development plan (which illustrates the earthwork activities) which depicts pollution prevention and mitigating measures (P2M2) to be implemented on the site. The P2M2 shall include both temporary and permanent measures as described in paragraph 4.1. The drawings shall be drawn to scale and the scale clearly indicated. Drawings shall be legible with standard coding and submitted in A1 or A3 paper depending on the size of the project.

PROFESSIONAL TO PREPARE WRITE-UP ON SOIL EROSION AND SEDIMENT CONTROL IN EIA REPORT

5. The write-up on soil erosion and sediment control as required by this Guidance Document shall be undertaken by an environmental consultant who is knowledgeable and experienced in the subject matter and holds a certification as a professional in erosion and sediment control issued by the Department of Environment.

PROVISION OF FUND FOR SOIL EROSION AND SEDIMENT CONTROL

6. Sufficient fund shall be made available for the implementation of P2M2 and their maintenance, including EMP preparation, auditing, monitoring and emergencies. The commitment of the project proponent on making the fund available for the above purposes shall be clearly stated in the EIA report.

Department of Environment, Malaysia July 19, 2016

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR STREAM CHANNEL

Date : 3. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Construction of Rip - rap for diversion existing stream at disposal area plot 'A'

PURPOSE OF THE MAINTENANCE

To stabilized and protect the banks.

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x30		Work conducted on 03/09 for 10hrs, on 04 /09 for	
2	Dumper	n.xhrs	3x30			
3	Bolders	m3				
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 28.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

Date : 5. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 5th slope and fertilizing 3rd slope of left bank abutment of Susu Dam

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 05/09 for 6hrs & resprayed on 06/09 for 4hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	35		Works conducted on 05/09 for 7hrs & on 06/09 for 7hrs	
6	Workers	n.xhrs	6x14			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abdullah Chong.	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

Date : 6. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Respray works conducted at 5th slope of left bank abutment of Susu Dam

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 05/09 for 6hrs & resprayed on 06/09 for 4hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	0		Works conducted on 05/09 for 7hrs & on 06/09 for 7hrs	
6	Workers	n.xhrs	6x14			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Alvin Choy	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

Date : 11. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 6th slope of left bank abutment of Susu Dam, CH 0+300 (LHS, RHS), CH 0+500, CH 0+800 and CH 0+850 (LHS)

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 11/09 for 4hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	80		Works conducted on 11/09 for 7hrs & on 12/09 for 4 hrs	
6	Workers	n.xhrs	6x14			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name :	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

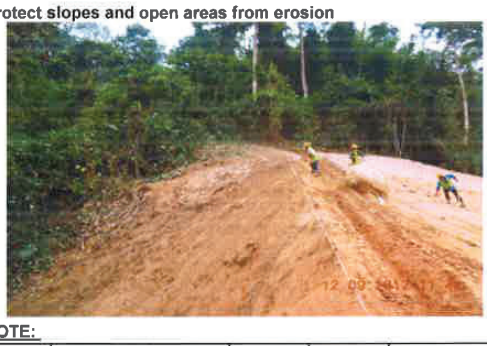
Date : 12. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 1st slope of Telom Outlet at left abutment - Susu Dam area. Respray at CH 0+700 (LHS) - CH 0+300 (LHS). Fertilizing CH 1+700 (2 slope).

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion



NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 12/09 for 3hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	20		Works conducted on 12/09 for 6hrs	
6	Workers	n.xhrs	6x6			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chung	Name : FRANCESCO GAETA
Date :	Date : 1/13/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR STREAM CHANNEL

Date : 18. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Construction of Rip - rap for existing stream RHS & LHS at road to construction Adit

PURPOSE OF THE MAINTENANCE

To stabilized and protect the banks.

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x30		Work conducted on 18/09 for 10hrs, on 19 /09 for	
2	Dumper	n.xhrs	3x30			
3	Bolders	m3				
4						
5						
6						
7						

	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 28.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

METIGATION / INSTALLATION WORK

Date : 18 Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Installed virgolok (coconut fiber roll) to control run off water during rain of mitigation measure approximatelly at RHS & LHS of Lemoi Outlet Portal - Susu dam

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Coconut fiber roll	nos	30		work conducted on 18/09 for 10hrs & 19/09 for 05hrs.	
2	Workers	n.xhrs	5x15hrs			
3						
4						
5						
6						
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Markcm Choy	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SILT TRAP NO. L - 1

Date : 18. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting of silt trap at left abutment of susu dam area

PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

Photo not taken

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x 20		Work conducted on 18/09 for 5hrs	
2						
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Amkan Chng	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature : [signature]	Signature : [signature]

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

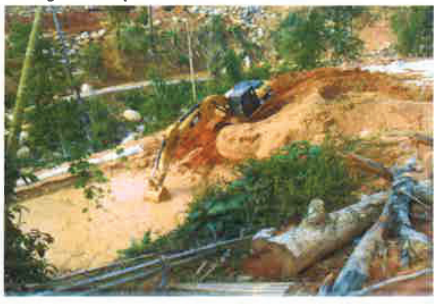
Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SILT TRAP NO. L - 3

Date : 19. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting of silt trap at left abutment of susu dam area



PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x 20		Work conducted on 19/09 for 10hrs, and on 20/09 for 10hrs.	
2						
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abdul Chay	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SILT TRAP NO. L - 2

Date : 19. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting of silt trap and reinstallation of geotextile at left abutment of sueu dam area

PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

Photo not taken

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x 20		Work conducted on 19/09 for 10hrs, and on 20/09 for 10hrs.	
2						
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Alan Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

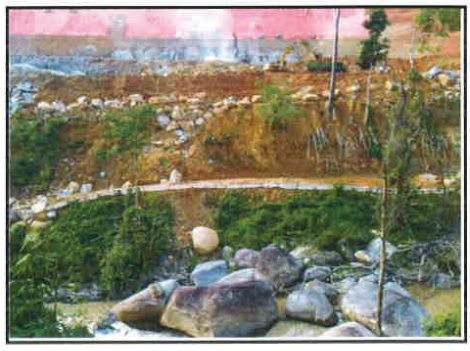
Contract No. TNB 362/2008 - Lot CW2

INSTALLATION/MAINTENANCE JOB FOR SILT FENCE

Date : 19. Sep. 2012

DESCRIPTION OF THE WORK

Susu Dam Area Right Abutment : Maintenance of demolished silt fence at toe of the slope closed to Bertam River.



PURPOSE OF THE WORK

Minimize the sediments flow to the river

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Workers	Nxhrs	5x10		Works conducted on 19/09 for 10 hrs and 20/09 for 10hrs	
2						
3						
4						
5						
6						
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chung	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

METIGATION / INSTALLATION WORK

Date : 20 Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Installed virgolock (coconut fiber roll) to control run off water during rain of mitigation measure approximatelly at RHS slope support - Susu dam

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Coconut fiber roll	nos	20		work conducted on 19/09 for 05hrs & 20/09 for 10hrs.	
2	Workers	n.xhrs	5x15hrs			
3						
4						
5						
6						
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

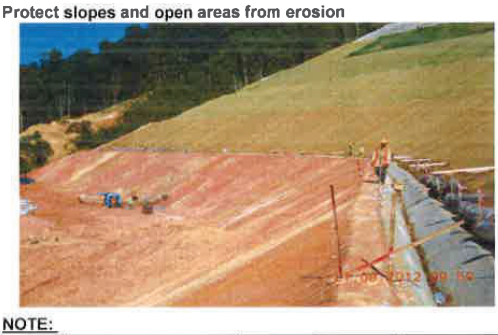
Date : 22. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 7th slope of slope support at left abutment - Susu Dam area. Fertilizing at CH 0+700 RHS road to M.A.T.

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion



NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 22/09 for 4hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	90		Works conducted on 22/09 for 10hrs on 23/09 for 8 hrs, on 24/09 for 10 hrs, on 25/09 for 10hrs	
6	Workers	n.xhrs	6x38			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

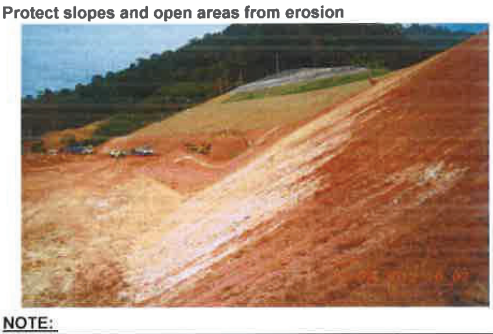
Date : 11. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 6th slope of left bank abutment of Susu Dam, CH 0+300 (LHS, RHS), CH 0+500, CH 0+800 and CH 0+850 (LHS)

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion



NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 11/09 for 4hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	80		Works conducted on 11/09 for 7hrs & on 12/09 for 4 hrs	
6	Workers	n.xhrs	6x14			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : [signature]	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature : [signature]	Signature : [signature]

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

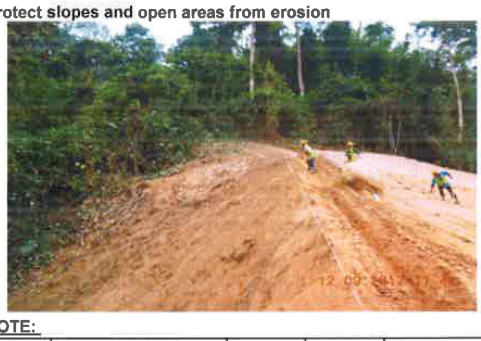
Date : 12. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 1st slope of Telom Outlet at left abutment - Susu Dam area. Respray at CH 0+700 (LHS) - CH 0+300 (LHS). Fertilizing CH 1+700 (2 slope).

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion



NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 12/09 for 3hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5	Vigromate	nos	20		Works conducted on 12/09 for 6hrs	
6	Workers	n.xhrs	6x6			
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

INSTALLATION JOB FOR SILT TRAP AT SWITCHYARD

Date : 24. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Constructed new silt trap at switch yard area

PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x 25		Work conducted on 24/09 for 5hrs, on 25/09 for 10hrs and on 26/09 for 10hrs.	
2	Workers	n.xhrs	5x5		Work conducted on 26/09 for 5hrs.	
3	Geotextile	m3				
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Ang	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27-9-2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

Date : 25. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 1st, 2nd, 3rd platform of disposal area.

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 25/09 for 3hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5						
6						
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 4/10/12	Date : 27.9.2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

HYDROSEEDING WORK

Date : 25. Sept. 2012

DESCRIPTION OF THE MAINTENANCE

Hydroseeding works conducted at 4th, 5th, slope at south slope area and 1st & 2nd of down slope at (east side) area

PURPOSE OF THE MAINTENANCE

Protect slopes and open areas from erosion

NOTE:

ITEM	MATERIAL/EQUIPMENT USED	UNIT	QTY		REMARKS	PHOTO
1	Lorry				Works conducted on 25/09 for 3hrs	
2	Seeds					
3	Glue					
4	Fertilizer					
5						
6						
7						
8						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 4/10/12	Date : 29-9-2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SETTLING POND

Date : 26. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting work of settling tank at disposal area plot A & disposed to the near by area

PURPOSE OF THE MAINTENANCE

To collect the waste of concrete volume

Photo not taken

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 320 D	n.xhrs	1x10		Work conducted on 26/09 for 10hrs.	
2	Dumper	n.xhrs	1x10			
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Alfredo Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27-9-2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SILT TRAP CONTRACTOR PLATFORM

Date : 27. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting of silt trap at contractor platform

PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

Photo not taken

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x15		Works conducted on 26 /09 for 10hrs, and on 27/09 for 5hrs	
2	Dumper	n.xhrs	1x15			
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chong	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 27-9-2012
Signature :	Signature :	Signature :

TM-SALINI CONSORTIUM

Ulu Jelai Hydroelectric Project

Contract No. TNB 362/2008 - Lot CW2

MAINTENANCE JOB FOR SILT TRAP NO. L - 1 & L - 2

Date : 29. Sep. 2012

DESCRIPTION OF THE MAINTENANCE

Desilting of silt trap and reconstruction to combined both silt trap at left abutment of susu dam area

PURPOSE OF THE MAINTENANCE

To collected of the silt volume from slope cutting area

Photo not taken

NOTE:

ITEM	MATERIAL USE	UNIT	QTY		REMARKS	PHOTO
1	Excavator 336 D	n.xhrs	1x		Work conducted on 29/09 for 10hrs.	
2	Dumper	n.xhrs				
3						
4						
5						
6						
7						

For : Person carrying out the maintenance	SMEC	TM-SALINI CONSORTIUM
Name :	Name : Abraham Chay	Name : FRANCESCO GAETA
Date :	Date : 1/10/12	Date : 30-9-2012
Signature :	Signature :	Signature :

Date of EIA Approval	: 24 February 2001
COA Ref. No.	: AS50/013/201/006 Jilid 8
Date of EMP Approval	: 8 October 2008
EMP Approval Ref. No.	: AS50/013/201/006 Jilid 20 (5)
Date of ESCP Approval	: 17 June 2011
ESCP Approval Ref. No.	: Bil.(15) dlm.JPS.PHG.TK 008/30 BHG.3

ENVIRONMENTAL MANAGEMENT

PERFORMANCE MONITORING – ENVIRONMENTAL CONTROL MEASURES

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
A. Silt Traps and Vicinity Area										
1.	Saddle Dam A	ST-2-01	✓	✓	Installed on: 1 Aug 2011 Status: Operational Last Maintenance: -09 Aug 2014: De-silt -09 June 2014: De-silt -24 Feb 2014: De-silt -14 Jan 2014: De-silt -28 Dec 2013: Gabion wall	Proposed Action / Action Taken: Next Maintenance: 09 October 2014	Observation: – Clear discharge is observed from silt trap. – Some section of exposed slope at RHS & LHS Saddle Dam A has yet to be vegetated. Suggestions/Recommendations: - To vegetate the exposed slope immediately. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	Observation: – Clear discharge is observed from silt trap. – Some section of exposed slope at RHS & LHS Saddle Dam A has yet to be vegetated. Suggestions/Recommendations: - To vegetate the exposed slope immediately. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	Observation: – Slightly clear discharge is observed from silt trap. – Some section of exposed slope at RHS & LHS Saddle Dam A has yet to be vegetated. Suggestions/Recommendations: - To vegetate the exposed slope immediately. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	X
2.	Saddle Dam A	ST-2-02	✓	✓	Installed on: 15 Aug 2011 Status: Operational Last Maintenance: -26 July 2014: De-silt -09 June 2014: De-silt earth drain -26 Feb 2014: De-silt -8 Feb 2014: De-silt	Proposed Action / Action Taken: Next Maintenance: 17 October 2014	Observation: - Clear water ponding is observed. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - Outlet has been constructed for this pond. - No discharge is observed. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - Clear discharge is observed. - In progress of land clearing including bushes in the reservoir area. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	✓
5.	Forest Area (Access)	ST-2-05	✓	✓	Installed on: 22 July 2012 Status: Operational Last Maintenance: -5 Dec 2013: De-silting -2 Oct 2013: De-silting	Proposed Action / Action Taken: Next Maintenance: 05 November 2014	Observation: - No discharge is observed. - Dumping activity active has been done. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - No discharge is observed. - Natural vegetation is observed in the pond and surrounding it. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - No discharge is observed. - Natural vegetation is observed in the pond and surrounding it. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	✓
6.	River Diversion	GB 14 (d/stream of ST5)	-	✓	Installed on: May 2012 Status: Operational Last Maintenance:	Proposed Action / Action Taken: Next Maintenance: (To be updated by	Observation: - No access due to natural vegetation and hydroseeding grows very well surrounding the silt trap.	Observation: - No access due to natural vegetation and hydroseeding grows very well surrounding the silt trap.	Observation: - No access due to natural vegetation and hydroseeding grows very well surrounding the silt trap. Suggestions/Recommendations:	X

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
					- 17 November 2013: Close turfing - 9 Oct 2013: Closed-turfing	Contractor)	Suggestions/Recommendations: - To clear the bushes and make an access. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	Suggestions/Recommendations: - To clear the bushes and make an access. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	- To clear the bushes and make an access. - Daily monitoring and regular inspection to be carried out after event of heavy downpour. X	
7.	Spillway	ST-2-06	✓	X	Installed on: 30 June 2011 Status: Closed on 01-03- Last Maintenance: -16 Jan 2014:Replaced plastic sheets -16 Jan 2014: De-silting sump	Proposed Action / Action Taken: Next Maintenance: (To be updated by Contractor)	Observation: - Exposed slope (LHS & RHS) at newly constructed drain has yet to be vegetated. Suggestions/Recommendations: - To protect the exposed slope immediately. - To maintenance regularly the access road. X	Observation: - Exposed slope (LHS & RHS) at newly constructed drain has yet to be vegetated. Suggestions/Recommendations: - To protect the exposed slope immediately. - To maintenance regularly the access road. X	Observation: - Exposed slope (LHS & RHS) at newly constructed drain has yet to be vegetated. Suggestions/Recommendations: - To protect the exposed slope immediately. - To maintenance regularly the access road. X	X
8.	Batching Plant	ST-2-06a	-	✓	Installed on: 5 Sept 2011 Status: Operational Last Maintenance: -6 Dec 2013: Construct earth bund -8 Nov 2013: De-silting	Proposed Action / Action Taken: Next Maintenance: 03 November 2014	Observation: - Dry silt trap is observed. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - No discharge is observed. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	Observation: - No discharge is observed. Suggestions/Recommendations: - Daily monitoring and regular inspection to be carried out after event of heavy downpour. √	✓
9.	Main Dam	ST-2-06d	-	✓	Installed on: 30 March 2012 Status: Operational Last Maintenance: -18 Sep 2014: De-silt -10 June 2014: De-silt -24 Mar 2014: De-silting -24 Feb 2014: De-silting	Proposed Action / Action Taken: Next Maintenance: 18 October 2014	Observation: - No discharge is observed. - Silt trap has been de-silted. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. √	Observation: - No discharge is observed. - Silt trap has yet to be de-silted. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	Observation: - Clear discharge is observed. - Silt trap has yet to be de-silted. - Backflow from river water is observed. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	X
10.	Coffer Dam	ST-2-06e	-	✓	Installed on: 27 Dec 2012 Status: Operational Last Maintenance: -6 Aug 2014: De-silting -8 July 2014: Install dissipater - 6 Feb 2014: De-	Proposed Action / Action Taken: Contractor will rectify the embankment together with construction of permanent gabion wall. Next Maintenance: 06 November 2014	Observation: - No discharge is observed. - Eroded river bank/embankment LHS ship pile has yet to be rectified. Suggestions/Recommendations: - To rectify eroded river bank/embankment immediately. - Daily monitoring and regular inspection/maintenance to be	Observation: - No discharge is observed. - Eroded river bank/embankment LHS ship pile has yet to be rectified. Suggestions/Recommendations: - To rectify eroded river bank/embankment immediately. - Daily monitoring and regular inspection/maintenance to be	Observation: - No discharge is observed. - Eroded river bank/embankment LHS ship pile has yet to be rectified. Suggestions/Recommendations: - To rectify eroded river bank/embankment immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour.	X

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
					silting -30 Dec 2013: Closed turfing -10 Dec 2013: De-silting		carried out after event of heavy downpour. - To plan and provide schedule for maintenance works. X	carried out after event of heavy downpour. - To plan and provide schedule for maintenance works. X	- To plan and provide schedule for maintenance works. X	
13.	Relocation Road (B)	ST-2-15 CH 2550	✓	-	Installed on: 21 February 2014 Status: Operational	Next Maintenance: 03 October 2014	Observation: - No discharge is observed from the silt trap. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. √	Observation: - Slightly turbid discharge is observed from the silt trap due to heavy downpour at night. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	Observation: - Turbid discharge is observed from the silt trap due to heavy downpour. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	X
14.	Relocation Road (B)	ST-2-16 CH 2650	✓	-	Installed on: 23 February 2014 Status: Operational	Next Maintenance: 03 October 2014	Observation: - No discharge from silt trap is observed. - Dry silt trap is observed. - Riprap works in progress along the expose slope. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. √	Observation: - No discharge from silt trap is observed. - Gap is observed at the gabion wall. - Riprap works in progress along the expose slope. Suggestions/Recommendations: - To rectify the gap immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	Observation: - No discharge from silt trap is observed. - Gap at the outlet gabion has yet to be rectified. - Riprap works is in progress along the expose slope. Suggestions/Recommendations: - To rectify the gap immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	X
15.	Relocation Road C5	ST-2-17 CH 3200	✓	-	Installed on: 25 February 2014 Status: Operational Last Maintenance: -12 July 2014: Rectify geotextile	Proposed Action / Action Taken: - Ruptured geotextile has been rectified. Next Maintenance: 03 October 2014	Observation: - No discharge is observed from the silt trap. - Eroded outlet has yet to be rectified. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	Observation: - Turbid discharge is observed from the silt trap due to heavy downpour at night. - Eroded outlet has yet to be rectified. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	Observation: - Turbid discharge is observed from the silt trap due to heavy downpour. - Eroded outlet gabion has yet to be rectified. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour. X	X
16.	Relocation Road	ST-2-18 CH 3600	✓	-	Installed on: 28 February 2014 Status: Operational	Next Maintenance: 03 October 2014	Observation: - Dry silt trap is observed. - Outlet is observed to be eroded. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour.	Observation: - Slightly clear discharge is observed. - Outlet is observed to be eroded. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy	Observation: - Slightly clear discharge is observed. - Outlet gabion is observed to be eroded. Suggestions/Recommendations: - To rectify the outlet immediately. - Daily monitoring and regular inspection/maintenance to be carried out after event of heavy downpour.	X

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
							X	downpour. X	X	
B. Retention Ponds and Vicinity Area										
1.	Reservoir	RP 1	✓	✓	Status: - Construct 2 new RPs on 11 Mar 2013 - Constructed 3 RP - 1st installed on July 2012 - 2nd & 3rd installed on September 2012 Status: Operational Last Maintenance: 13 September 2013: Rectify gaps at the outlet gabion RP 2 13 June 2013: Rectify gaps at the outlet gabion RP 2	Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: (To be updated by Contractor)	Suggestions/Recommendations: – To construct the retention ponds as proposed in the approved ESCP. – To construct the retention pond at strategic locations (lower points to capture silted run-off).	Suggestions/Recommendations: – To construct the retention ponds as proposed in the approved ESCP. – To construct the retention pond at strategic locations (lower points to capture silted run-off).	Suggestions/Recommendations: – To construct the retention ponds as proposed in the approved ESCP. – To construct the retention pond at strategic locations (lower points to capture silted run-off).	✔
2.	Reservoir	RP 2/P02	✓	✓						
3.	Reservoir	RP 3/P03	✓	✓						
4.	Reservoir	RP 4	✓	-						
5	Reservoir	RP 5	✓	-						
6.	Reservoir	RP 6	✓	-						
7.	Reservoir	RP 7	✓	-						
8.	Reservoir	RP8	✓	-						
9.	Reservoir	RP 9	✓	-						
10.	Reservoir	RP 10	✓	-						
11.	Reservoir	RP 01a	✓	✓						
12.	Reservoir	RP 01b	✓	✓						
13.	Reservoir	RP 01c	✓	✓						
14.	Reservoir	RP 11	✓	-						
15.	Reservoir	RP 12	✓	-						
16.	Reservoir	RP 13	✓	-						
17.	Reservoir	RP 14	✓	-						
18.	Reservoir	RP 15	✓	-						
19.	Reservoir	RP 16	✓	-						
20.	Reservoir	RP 17	✓	-						
21.	Reservoir	RP 18	✓	-						
22.	Reservoir	RP 19	✓	-						
23.	Reservoir	RP 20	✓	-						
24.	Reservoir	RP 21	✓	-						
25.	Reservoir	RP 22	✓	-						
26.	Reservoir	RP 23	✓	-			√	√	√	
C. Gabion Walls / Silt Fences and Other Control Facilities										
1.	Temporary Bridge	CD Service Road 1	-	✓	Installed on: December 2011 Last Maintenance: - 20 May 2013: De-silting sump - 01 Apr 2013: Remove excessive earth materials on the bridge.	Proposed Action / Action Taken: Next Maintenance: Everyday monitoring	Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out.	Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out.	Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out.	✔
							√*	√*	√*	

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
2.	Wash Trough	WT	✓	✓	Installed on: 06 November 2012 Status: Operational Last Maintenance: -23 Jan 2014: Carry out maintenance works -16 Jan 2014: De-silting earth drain	Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: Everyday monitoring	Observation: - Maintenance of WT has been carried out. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. √	Observation: - Maintenance of WT has been carried out. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. √	Observation: - Maintenance of WT has been carried out. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. √	✓
3.	Stockpile 1 (behind batching plant)	Exposed slope	-	✓	Installed on: 21 June 2012 Last Maintenance: - 27 May 2014: De-silting - 2 Jan 2014: Closed turfing - 20 Nov 2013: De-silting - 10 Oct 2013: De-silting & erect SF	Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: (To be updated by Contractor)	Observation: - Dead turfing grass has yet to be rectified. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	Observation: - Dead turfing grass has yet to be rectified. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	Observation: - Dead turfing grass has yet to be rectified. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	X
4.	Stockpile 2 (office)	Drainage system	-	✓	Installed on: 12 June 2012 Last Maintenance: - 16 Jan 2014: De-silting - 10 Oct 2013: Erect silt fence - 16 July 2013: De-silting	Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: Everyday monitoring	Observation: - Silted drain is observed in front of office access road. Suggestions/Recommendations: - To de-silt the drain. - To plan and provide schedule for maintenance works. X	Observation: - Silted drain is observed in front of office access road. Suggestions/Recommendations: - To de-silt the drain. - To plan and provide schedule for maintenance works. X	Observation: - Silted drain in front of office access road has yet to be rectified. Suggestions/Recommendations: - To de-silt the drain. - To plan and provide schedule for maintenance works. X	X
5.	Access Road	Dust Control				Proposed Action / Action Taken: Next Maintenance: Everyday monitoring	Observation: - Water browsing has been carried out. Suggestions/Recommendations: - Road wetting to be carried out more regularly. - Reduce speed limit. √	Observation: - Raining season is coming. Suggestions/Recommendations: - Road wetting to be carried out more regularly. - Reduce speed limit. √	Observation: - Raining season, no dust anymore. Suggestions/Recommendations: - Road wetting to be carried out more regularly. - Reduce speed limit. √	✓
6.	Administrator office (RHS access road)	Exposed slope				Proposed Action / Action Taken: Next Maintenance: Everyday monitoring	Observation: - Exposed slope has yet to be vegetated and dead turfed grass is observed. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	Observation: - Exposed slope has yet to be vegetated and dead turfed grass is observed. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	Observation: - Exposed slope has yet to be vegetated and dead turfed grass is observed. Suggestions/Recommendations: - To plan and provide schedule for maintenance works. X	X

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
7.	Canteen (R/LHS access road)	Exposed slope				Proposed Action / Action Taken: Next Maintenance: Everyday monitoring	Observation: - Dead turfed grass has yet to be rectified. Suggestions/Recommendations: - To carry out maintenance works and watering the grass. X	Observation: - Dead turfed grass has yet to be rectified. Suggestions/Recommendations: - To carry out maintenance works and watering the grass. X	Observation: - Dead turfed grass has yet to be rectified. Suggestions/Recommendations: - To carry out maintenance works and watering the grass. X	X
8.	Workers' Camp	Housekeeping	-	-	Last Maintenance: - 20 Nov 2013: Re-leveling	Proposed Action / Action Taken: Next Maintenance: Everyday monitoring	Observation: - Poor housekeeping is observed at canteen area and also at workers' camp has yet to be rectified. - Remnants of open burning are observed everywhere. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. X	Observation: - Poor housekeeping is observed at workers' camp has yet to be rectified. - Remnants of open burning are observed everywhere. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. X	Observation: - Housekeeping is observed at workers' camp has yet to be carried out. - Remnants of open burning are observed at workers' camp near pipe storage. Suggestions/Recommendations: - Daily monitoring and regular inspection/maintenance to be carried out. X	X
9.	Site Office	Oil & Grease; Scheduled Waste (SW)	-	-		Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: Everyday monitoring	Observation: - Oil spill observed at genset area near site office has yet to be rectified. Suggestions/Recommendations: - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	Observation: - Oil spill observed at genset area near site office has yet to be rectified. - No label and contaminated sand is observed. Suggestions/Recommendations: - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	Observation: - No more oil spill at genset area near site office. - Contaminated sand has been collected. - No labelling at schedule waste is observed. Suggestions/Recommendations: - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	X
10.	Temporary access road (d/stream spillway)	Silt control	-	-	Last Maintenance: -3 July 2014: Compacting access road with gravel	Proposed Action / Action Taken: Date to be completed / Date of completion: Next Maintenance: Everyday monitoring	Observation: - Anticipated direct runoff into the river. - Ruptured plastic sheeting is observed. Suggestions/Recommendations: - To construct contour bund and channel it into spillway area. - To plan and provide schedule for maintenance works. X	Observation: - Anticipated direct runoff into the river. - Ruptured plastic sheeting is observed. Suggestions/Recommendations: - To construct contour bund and channel it into spillway area. - To plan and provide schedule for maintenance works. X	Observation: - Anticipated direct runoff into the river. - Direct water pumping is observed but water is clear. Suggestions/Recommendations: - To construct contour bund and channel it into spillway area. - To plan and provide schedule for maintenance works. X	X
11.	Main Dam	Exposed slope	-	-	Last Maintenance: -18 Sep 2014: Re-hydroseeding IPA	Proposed Action / Action Taken:	Observation: - Exposed slope is observed at IPA area has been re-hydroseed.	Observation: - Hydroseeded starts to grow.	Observation: - Hydroseeded starts to grow.	X

No.	Location	Control Measures	Provision		Status (Installation)	Response from Contractor dated 09/10/2014 (Maintenance: Reply to PM-01/10/2014)	Observations/Findings/Suggestions (Last Inspection – 18/09/2014)	Observations/Findings/Suggestions (Recent Inspection – 30/09 & 01/10/2014)	Observations/Findings/Suggestions (Latest Inspection – 14/10/2014)	*Accepted
			ESCP	Actual						(√ / X)
					slope 15 May 2014: Closed turfing has been carried out.	Date to be completed / Date of completion: Next Maintenance: Everyday monitoring	Suggestions/Recommendations: - To use others method to plant the seeds (netting, coil log). - To install sprinkler to watering the hydroseeded grass. - To plan and provide schedule for maintenance works. X	Suggestions/Recommendations: - To install sprinkler to watering the hydroseeded grass. - To plan and provide schedule for maintenance works. X	Suggestions/Recommendations: - To install sprinkler to watering the hydroseeded grass. - To plan and provide schedule for maintenance works. X	
12.	Relocation Road	Exposed slope			Last Maintenance: -	Proposed Action / Action Taken: Constructed check dam at culvert C4. Date to be completed / Date of completion: Next Maintenance: Everyday	Observation: - Exposed slope is observed along relocation. - Riprap works is in progress at slope area. Suggestions/Recommendations: - To vegetate/ protect exposed slope immediately. - To plan and provide schedule for maintenance works. X	Observation: - Turfing works has been started at some area. However still many exposed slope is observed along relocation. - Riprap works is also in progress at slope area. Suggestions/Recommendations: - To vegetate/ protect exposed slope immediately. - To plan and provide schedule for maintenance works. X	Observation: - Turfing works has been started at some area. However still many exposed slope is observed along relocation. - Riprap works is also in progress at slope area. Suggestions/Recommendations: - To vegetate/ protect exposed slope immediately. - To plan and provide schedule for maintenance works. X	X
13.	Batching Plant	Oil & Grease; Scheduled Waste (SW)	-	-	Last Maintenance: - 3 June 2013: Repair broken bund	Proposed Action / Action Taken: Oil spillage has been collected as SW and the area has been rectified. Next Maintenance: Every day morning	Observation: - Oil spill and contaminated soil has yet to be rectified. Suggestions/Recommendations: - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	Observation: - Oil spill and contaminated soil has yet to be rectified. - Poor housekeeping is observed. - Silted earth drain is observed. Suggestions/Recommendations: - To carry out housekeeping and de-silting works immediately. - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	Observation: - Oil spill and contaminated soil has yet to be rectified. - Housekeeping has yet to be to be carried out. - Silted earth drain has yet to be de-silted. Suggestions/Recommendations: - To carry out housekeeping and de-silting works immediately. - SW to be properly contained, labelled, stored and handled/disposed in accordance to the regulations. - Inventory record to be maintained. X	X

*Note: * To be commented by Engineer*
✓ Accepted with condition (Suggestions/Recommendations/ Proper improvement measures taken on site accordingly)*
X Requires improvement actions to be taken immediately

PHOTOS
Areas of Concern on 14 October 2014 and pending issues on 30 September & 01 October 2014

Plate 1a: Exposed slope along the constructed drain (access road).

Plate 1b: Exposed slope is observed (RHS u/stream of ST-2-01; Saddle Dam A).

Plate 1c: Exposed slope is observed (LHS u/stream of ST-2-01; Saddle Dam A).

Plate 1d: Exposed slope is observed (Main Dam).

Plate 1e: Formation of gullies is observed (RHS Main Dam).

Plate 1f: Exposed slope is observed (d/stream spillway).

Plate 1g: Exposed slope is observed (LHS relocation road CH 2150).

Plate 1h: Exposed slope is observed (LHS & RHS relocation road CH 2150).

Plate 1i: Exposed slope is observed (LHS CH 2650 relocation road).

Plate 2a: Silted drain is observed (behind batching plant-access road).

Plate 2b: Silted earth drain has yet to be de-silted (batching plant).

Plate 3a: Turfing has been dead is observed (Main Dam).

Plate 3b: Turfing has been dead is observed (behind batching plant).

Plate 3c: Turfing has been dead is observed (near to the pipe storage).

Plate 4a: Eroded embankment of silt trap is observed (ST-2-06e).

Plate 4b: Outlet to be eroded is observed (ST-2-18).

Plate 5a: Solid waste is observed scatter around (workers' camp).

Plate 5b: Housekeeping for construction waste has yet to be carried out (draw-off tower).

Plate 5c: Poor housekeeping is observed (batching plant).

Plate 5d: Poor housekeeping is observed (batching plant).

Plate 6a: Poor housekeeping is observed (batching plant).

Plate 6b: Oil spill is observed (batching plant).

Plate 6c: Contaminated geotextile and oil ponding is observed (workers' camp).

PHOTOS
Areas of Concern on 14 October 2014

Plate 1a: Remnant of open burning activity is observed (workers' camp near pipe storage).

Plate 1b: Poor housekeeping is observed (drain at workers' camp).

Plate 2a: Silted drain has yet to be de-silted (near main entrance gate).

Plate 2b: Silted silt trap has yet to be de-silted (ST-2-06d).

Plate 3a: Gap is observed at gabion wall (ST-2-16).

Plate 3b: Gap is observed at gabion wall (ST-2-17).

Plate 4a: Exposed slope has yet to be protected (relocation road under bridge).

Plate 4b: Exposed slope has yet to be vegetated (relocation road).

Plate 4c: Exposed slope has yet to be vegetated (relocation road).

Plate 5a: Schedule waste without labelling is observed (workers' camp).

Plate 5b: Oil drums without tray are observed (saddle dam b).

Rectification works

Plate 1a **(Before)**: Oil spill is observed (near genset at site office).

Plate 1a **(After)**: No more oil spill (near genset at site office).

Plate 1b **(Before)**: Contaminated sand is observed in the tray and no labelling (workers' camp).

Plate 1b **(After)**: Contaminated sand has been collected (workers' camp).

Plate 2 **(Before)**: Remnant of open burning activity is observed (workers' camp).

Plate 2 **(After)**: Remnant of open burning activity has been clean up (workers' camp).

Plate 3a **(Before)**: Exposed slope has yet to be protected (relocation road near bridge).

Plate 3a **(After)**: Riprap works is in progress (relocation road near bridge).

Plate 3b **(Before)**: Exposed slope has yet to be vegetated (relocation road).

Plate 3b **(After)**: Exposed slope has been turfed (relocation road).

Plate 3c **(Before)**: Exposed slope has yet to be vegetated (relocation road).

Plate 3c **(After)**: Exposed slope has been turfed (relocation road).

Appendix 4

GUIDANCE DOCUMENT FOR THE PREPARATION OF THE DOCUMENT ON LAND-DISTURBING POLLUTION PREVENTION AND MITIGATION MEASURES (LD-P2M2)

PREFACE

This paper provides guidance for the preparation of LD-P2M2 document which is to be included as a part of the Environmental Management Plan (EMP) to be submitted to the Department of Environment (DOE) for approval.

LD-P2M2 refers to the use of construction methods, processes, materials, and practices that is intended to prevent, reduce, or eliminate the generation of pollutants at the source (development site) during any land-disturbing activity through the protection of natural resources by preservation and conservation, reduction of waste generation and releases or discharges of pollutants to land, air, and water, and incorporation of best management practices (BMPs) and techniques to attain compliance with the conditions stipulated in the EIA approval conditions (Conditions of approval-COA).

The focus of the LD-P2M2 document (or simply LD-P2M2) is on the prevention, mitigation and control of the discharge from the development area containing the major pollutant (suspended solids) resulting from land disturbing activities. This Guidance Document is organized into 8 sections as follows:

Section 1 discusses the following introductory topics: mainstreaming of environmental agenda, definitions, rationale for the establishment of LD-P2M2, purposes of the Guidance Document, overall objective of LD-P2M2, and scope of the Guidance Document.
Section 2.0 explains the legal basis for LD-P2M2.
Section 3.0 lists out the references for LD-P2M2.
Section 4.0 specifies who is eligible to prepare LD-P2M2.
Section 5.0 specifies who is responsible for LD-P2M2 implementation.
Section 6.0 outlines the basic principles to be adopted to reduce impacts from land-disturbing activities.

Section 7.0 specifies the minimum standards** requirements of pollution prevention and mitigation measures.

(Note ** The term “minimum standards” refers to the minimum P2M2 to be adopted, implemented and installed which are capable to achieve the required level of quality or attainment).

Section 8.0 gives a list of the information, documents, maps and drawings required for LD-P2M2 submission.

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1.0 INTRODUCTION

1.1 Mainstreaming of environmental agenda

In concert with the effort of the Department of Environment (DOE) to inculcate self-regulation culture within the regulated sectors, mainstreaming of environmental agenda has been made an integral part and parcel of all the procedures implemented by the DOE, including the EIA procedure. In the EIA perspective, environmental mainstreaming shall be embraced and implemented in all areas related to the EIA project development such as: at all levels of the project developer organizational structure; at all levels of project development decision making process; and at all levels of project development phases (planning, construction, and operation). The considerations, specifications, and details specified in this Guidance Document are in line with the mainstreaming spirit outlined in the EIA Guideline.

1.2 Definitions

For the purpose of this Guidance Document:

a. Land disturbing activity means any project development that is subject to Section 34A EQA 1974 that involves activities such as clearing of trees or vegetation,

excavating, raising or sloping of ground, trenching, grading and blasting.

b. Pollution Prevention and Mitigation Measures (P2M2) refer to Best Management Practices (BMPs) that include activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation as well as other pollutants resulting from land disturbing activities and to manage runoff water to protect and maintain the quality of soil or inland or Malaysian waters and the existing and designated uses of waters before, during, and after land disturbing activities.

1.3 Objective and purpose of guidance document

The overall objective of the Guidance Document is to ensure good quality LD-P2M2s are prepared by competent professionals and the LD-P2M2s are effectively implemented to mitigate and minimize environmental and pollution impact of land disturbing activities.

This Guidance Document has the following purposes:

i. To assist the project proponents and EIA Consultants in the preparation of LD-P2M2 (Land-disturbing Pollution Prevention and Mitigation Measures) Document.

ii. To standardize the format of LD-P2M2 which includes maps, plans and drawings, information required and procedures for LD-P2M2 submission.

iii. To assist the Project Proponent (PP) personnel, especially the Environment Officer in supervising the overall implementation of the significant and site specific ingredients of the LD-P2M2 that include the installation, inspection and maintenance (2I's1M)* of pollution prevention and mitigation measures (P2M2s) as well as in preparing the required documentation and reports (photographs, data collections and corrective actions) on 2I's1M.

*(Note: 2I's1M refers to Installation, Inspection and Maintenance)

1.4 Scope of the guidance document

This Guidance Document covers the following scope:

i. It specifies the requirements and procedure for LD-P2M2s preparation and submission for EIA projects.

ii. LD-P2M2s will be used for future site inspections either by the regulatory agencies or designated project site inspectors and managers for desktop tasks and ground inspections.

iii. LD-P2M2s will assist inspectors to have better understanding of the significant information, documents, maps, drawings related to project implementation which are included in this checklist.

1.5 What is the LD-P2M2 document?

The LD-P2M2 document (or simply LD-P2M2):

a) Is a legal pledge made by the PP to take efforts, measures, actions or due diligence in accomplishing the overarching goal of protecting the environment and in mitigating the environmental impact in the process of implementation of the proposed development.

b) Is a complementary document that provides to the relevant information required for developing and preparing the Erosion Sediment Control Plan (ESCP).

c) Is to be used as a reference document especially for the Environment Officer (EO) to understand and identify site constraints, areas of concern, problem areas, designated and potential discharge points of runoffs, and to develop early planning on how, who, what, where, why, and when to effectively implement the pollution prevention and mitigation measures at the development site.

(Note: Environment Officer here and throughout this Guidance Document refers to the person who has been certified by the Department of Environment and officially appointed or engaged by the project proponent to be responsible for environmental

performance of the project. The responsibilities of the Environmental Officer are described in other documents issued by the DOE).

The LD-P2M2s prepared shall identify, cover and address the following:

i. The locations of potential discharge point(s) of pollutants

ii. The locations of designated discharge point(s) of pollutants

iii. The locations of the P2M2s to be installed

The LD-P2M2 shall incorporate the P2M2s identified to be installed at the land disturbing development areas into the design, construction and operation stage of the development project as stipulated in Section 34A (7) of the EQA. The P2M2s shall be effective in preventing, reducing and controlling pollution as well as preventing non-compliant pollution discharges from reaching any water bodies.

2.0 LEGAL FRAMEWORK

All activities subject to EIA Order, 2015 which involve land disturbing or site preparation activities are required to prepare a LD-P2M2 as part of the EMP submission requirement. Non-compliance with the specifications stipulated in this Guidance Document may be a cause for the rejection of the EMP or will cause a delay in the EMP processing.

3.0 REFERENCES FOR PREPARATION OF LAND-DISTURBING POLLUTION PREVENTION AND MITIGATION MEASURES (LD-P2M2S)

The LD-P2M2 prepared for EIA projects shall be prepared based on the project concept, components and minimum mitigating measures approved in the EIA Conditions of Approval (COA).

For the preparation of LD-P2M2, the preparer can make reference to the following documents:

(a) Department of Irrigation and Drainage – DID. 2010. Guideline for Erosion and Sediment Control in Malaysia

(b) Department of Irrigation and Drainage – DID. 2000. Urban Storm Water Management Manual for Malaysia

(c) Erosion and Sediment Control Planning and Design Manual issued by North Carolina Department of Environment and Natural Resources

(d) Best Management Practices for Construction and Maintenance Activities issued by North Carolina Department of Transportation

(e) Other useful references on the design of BMPs for soil erosion and sediment control:

(i) CESSWI, LLC. 2008. Certified Erosion, Sediment and Storm Water Inspector Exam Review Study Guide. Marion, NC

(ii) CPESC, Inc. 2010. Certified Professional in Erosion and Sediment Control Exam Review Course Workbook. Marion, NC

(iii) Douglas County Department of Public Works. 2004. Grading, Erosion and Sediment Control (GESC) Manual. Douglas County, CO

(iv) Fifield, J. S. 2004. Designing for Effective Sediment and Erosion Control on Construction Sites. Forester Press. Santa Barbara, CA

(v) Fifield, J. S. 2004. Field Manual on ESC. Best Management Practices for Contractors and Inspectors. Forester Press. Santa Barbara, CA

(vi) Sacramento Storm Water Quality Partnership and the City of Roseville 2007. Storm Water Quality Design Manual for the Sacramento and South Placer Regions. Sacramento County, CA

(vii) Virginia Department of Conservation and Recreation. 1992. Virginia Erosion and Sediment Control Handbook, 3rd Ed. Richmond, VA

(viii) Virginia Department of Conservation and Recreation. 1995. Virginia ESC Field Manual. Richmond, VA

4.0 WHO SHALL PREPARE LD-P2M2S?

The LD-P2M2 shall be prepared and signed by a DOE registered consultant who holds a certification as a professional in erosion and sediment control issued by the Department of Environment.

5.0 WHO SHALL BE RESPONSIBLE FOR LD-P2M2 IMPLEMENTATION?

In principle, the Project Proponent (PP) shall be responsible for the implementation of the LD-P2M2.

6.0 MAKE THE MOST OF THE POLLUTION PREVENTION AND MITIGATION MEASURES WHEN IMPLEMENTING THE LAND-DISTURBING ACTIVITY

The focus of the LD-P2M2 is on the prevention, mitigation and control of the discharge from the development area containing the major pollutant (suspended solids) resulting from land disturbing activities. Controlling the sediment-laden runoffs means in some way to control the discharge of other pollutants too that may contain in the sediment strains such as nutrients, bacteria, oxygen demanding materials, heavy metals, petroleum hydrocarbons and synthetic organics. Everyone involved with land disturbing activity shall make the most of the following basic principles in every stage of development when implementing the pollution prevention and mitigation measures:

a) Integrate project design with site constraints.
b) Preserve and stabilize drainage ways.
c) Minimize the extent and duration of disturbance.
d) Control runoff flows onto, through and from the site in stable drainage structures.
e) Install perimeter controls.
f) Stabilize disturbed areas promptly in a timely manner.
g) Protect steep slopes.
h) Use sediment controls to prevent off-site damage.
i) Protect inlets, storm drain outfalls, and culverts.
j) Provide access and general construction controls.
k) Inspect and maintain best management practices and control measures.
l) Employ experienced and competent personnel and consistently conduct relevant training.

7.0 MINIMUM STANDARDS REQUIREMENTS OF POLLUTION PREVENTION AND MITIGATION MEASURES

The minimum standards requirements outlined in the following section 7.0 shall be implemented and complied with wherever relevant by the Project Proponent. These minimum standards requirements shall be attached or inserted in the LD-P2M2 document and shall be the minimum P2M2s that will be adopted, applied, and implemented in the process of carrying out land disturbing activities at the development site.

(**Note:** The term "standards requirements" here refers to the physical or non- physical measures to be taken to prevent, reduce and control the discharge of suspended solids and other pollutants from the development site. The standards requirements are meant to achieve a certain quality or attainment)

7.1 Pollution Prevention and Mitigation Measures (P2M2s)

The Project Proponent shall ensure that:

(i) All relevant parties including project consultant, contractors, and Environmental Officer (EO) understand LD-P2M2 in order to facilitate compliance with the minimum standards requirements.

(ii) All relevant pollution prevention and mitigation measures (P2M2s) especially temporary BMPs at the constructional phase are installed and maintained to mitigate the potential pollution due to land disturbing activities.

The following paragraphs detail out the P2M2s (which include BMPs) to be installed:

(a) Schedule of Phasing, Staging and Sequencing

A project schedule shall be prepared in advance to ensure the jobs involved in project implementation are properly scheduled in order to effectively address and manage the environmental pollution. The schedule shall include the following:

i. Project construction scheduling for all major land-disturbing activities which include work zone(s),

phasing of construction within the work zone(s), staging and sequencing within the phases of construction that coincides with the installation of P2M2s.

ii. Critical Path Method (CPM) may be adopted in establishing work program that shall fit in the elements of pollution prevention and mitigation measures for each phase, stage and sequence of project development.

(b) Scheduled Site Meeting

i. Conduct site meeting prior to start of any construction activity or land-disturbing activity to be attended by PP, project EO, project contractors and/or sub-contractors to discuss in detail all of the relevant scopes of work that have relevance to pollution prevention and mitigating measures.

(c) Construction Markers

i. Physically mark on site to show the limit of the following:-

- Land disturbing from any drainage way or waterway or watercourse within project site;
- Areas not to be worked or disturbed, and
- Buffer area or/and existing vegetation meant for temporary or permanent preservation and for protection.

ii. The construction markers are fences, signs, tapes, flags or other similar marking device.

(d) Stabilized Construction Entrance

i. All entrance/exit roads to the site shall be stabilized and paved for a suitable distance from where these access roads join the existing paved roads or public road where Stabilized Construction Entrance P2M2 and/or Tires Washing Facility shall be constructed from this point inward to the subjected construction site.

ii. Any swept soil or sediment accumulated on pavement or other impervious surfaces from within Stabilized Construction Entrance P2M2 and sediment-laden washed water from Tires Washing Facility are not allowed to be hosed downed and discharged respectively into any off-site drainage way, storm drain inlet or watercourse unless connected to a sediment basin or sediment trap.

(e) Stream/drainage way/waterway/watercourse buffers

i. Retain a 20 metres natural buffer between on-site land disturbance and any watercourse (intermittent or permanent) unless otherwise specified by the relevant authority; or

ii. Provide a vegetated buffer that is less than 20 metres between on-site land disturbance and any watercourse (intermittent or permanent) in combination with additional erosion and sediment controls; or

iii. If not feasible to provide a natural or vegetated buffer of any size between on-site land disturbance and any watercourse (intermittent or permanent), install suitable erosion and sediment controls in combination with all possible perimeter controls.

(f) Perimeter Control

i. Before land-disturbing activities are executed, perimeter control shall be first constructed and made operational. The perimeter control shall include but is not limited to filter or perimeter berms, silt fences, sediment traps, sediment basins, construction entrance, temporary diversion dikes or earth bunds and diversion drains that control discharges from the site.

(**Notes**: A certain amount of initial land disturbance may be required to provide access for equipment to install the perimeter controls, but site clearing and grading should be kept to a minimum until the perimeter controls are in place).

(g) Sediment Basin/Trap

i. Before land-disturbing activities are executed, principal sediment basin/trap shall be first constructed and made operational. Any constructed sediment basin/trap shall install vertical silt marker for the purpose of measuring the depth of accumulated sediment to facilitate maintenance program.

(h) Runoff Management

i. Before land-disturbing activities are executed, key runoff control measures shall be first constructed and made operational. The runoff control measures shall include but is not limited to temporary earth drain, diversion channel and conveyance system that control flows and discharges from and within the site and to be combined with installation of interval check dams along the channel to reduce the runoff velocity.

ii. Slope drains, flexible pipe slope drains or downpipe, rock lined drainage chutes or flume, cascade drain shall be applied to convey upslope runoff down slope without affecting the slope surface.

iii. In-slope or out-slope diversion runoff control P2M2s shall be applied in combination with water bars to divert runoff towards stabilized area or sediment treatment P2M2 prior to discharge.

iv. Any incomplete permanent drainage lines constructed along sloping area, shall not be left unattended without first applying rocks dissipater at the end points or at the toe end of the incomplete adjoining conveyance structure. The anticipated runoff discharge from this point should be diverted using temporary earth drain combined with check dam towards stabilized area or into sediment treatment P2M2s. It is highly recommended that pipe slope drains are used to convey runoff directly into sediment containment system.

(i) Temporary or permanent watercourse diversion

i. Temporary or permanent diversion channel of any watercourse or off-site run-on water shall be protected either by using rock lined channel bed with protected side slope using Turf Reinforcement Mat (TRM) or plastic sheeting or by installing plastic sheeting canvas along the channel with extend across the side slope in combination with constructed check dams or sump slot checks. This has to be done to minimize erosive forces flow velocity along the channel bed and channel side slope surface to prevent it from eroding.

(j) Temporary or permanent watercourse crossing

i. Construction of culvert or bridge for any watercourse crossing, the surface of the filling material (if earth is used) on the inlet and outlet end of the culvert or abutment of the both sides of the bridge shall be covered with appropriate materials such as rocks, Rolled Erosion Control Products (RECPs) and plastic sheeting or turf.

ii. The approach distance of 10 metres or any suitable distance from both sides of the watercourse crossing shall be installed with sediment fence or equivalent along the sides, together with gravels or stone pad and water bar to prevent sediment traction onto the crossing that may potentially enter the stream.

(k) Temporary or permanent roadways

i. Runoff conveyance system such as road ditch, temporary earth drain, catch drains, berm drains, toe drains, slope drains and in-slope or out-slope diversion shall be constructed and conveyed runoff to stabilized area or into sediment treatment P2M2s prior to discharge.

(l) Temporary Stabilization

i. Temporary soil stabilization shall be applied to exposed areas within fourteen (14) days after final formation level is reached on any portion of the site.

ii. Temporary soil stabilization shall be applied within seven (7) days to exposed areas that may not be at final grade but will remain unattended for longer than fourteen (14) days.

iii. Temporary stabilization means a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until further construction activities take place to re-disturb this area.

(m) Stockpile Soil Management

i. Location of the stockpiles area shall be away at a minimum distance of 20 metres from any watercourse.

ii. The stockpiled soil shall be protected from contact with runoff water (including run-on) using a temporary perimeter control such as berms, dikes, fiber rolls, silt fences, sandbag and gravel bags.

(n) Spoil Management Area (Disposal Area)

i. Location of any disposal area shall be away at a minimum distance of 20 metres from any watercourse

ii. All disposal area shall be protected from contact with runoff water (including run-on) using a temporary perimeter sediment barrier such as berms, dikes, fiber rolls, silt fences, sandbags and gravel bags.

iii. All anticipated runoff flowing from any disposal area shall be drained into a sediment trap/basin prior to discharge.

(o) Dewatering practices

i. Accumulated runoff water from excavations, trenches, foundations, vaults, or other similar points of accumulation shall be treated effectively using appropriate controls such as but are not limited to sediment basins / traps, dewatering tank treatment system, active treatment system, bag or sand filters prior to discharge.

(p) Active Treatment System (ATS)

i. Whenever recommended by the consultant, Active Treatment System (ATS) shall be implemented. The installation and operation of the ATS shall be in accordance with good engineering practices, and with design and specifications recommended by the provider of the treatment system.

ii. The Director General of DOE reserves the right to instruct any PP to install ATS system whenever:-

(a) The project site has been found to have violated the total suspended solids discharge standard stipulated in the EIA approval conditions (COAs); or

(b) Analysis of soil investigation in the project site shows that the dispersible fine-grained clays contain more than 10% of dispersible material.

(**Note:** Active Treatment System (ATS) refers to the treatment of runoffs using a mechanical system with the application of coagulants and flocculants to promote the settling of suspended solids out of the aqueous phase. Only coagulants and flocculants which have been approved for use by environmental agencies such as USEPA or similar authorities are allowed to be used.)

(q) Discharge

i. All discharge runoff water from any land-disturbing activities shall be made through a sediment control P2M2 such as sediment basin or trap or any other erosion and sediment controls which is regarded as the designated final discharge(s).

ii. All disturbed areas shall drain to sediment control measures at all times during land-disturbing activities and during site development until stabilized, after which, the sediment controls shall be removed. Any trapped sediment and the disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

iii. The discharge point of the treated runoff shall be released by using a dissipater or other means of outlet protection.

iv. All discharge run off water to offsite area shall only be allowed through a sediment basin or trap or other specified control measures.

(r) Corrective Actions

i. In a case where a required P2M2 was installed incorrectly, or is not effective enough to produce a discharge that complies with the discharge standards, the PP shall install a new or modified P2M2 or additional P2M2 and make it operational by no later than 7 calendar days from the time of discovery.

ii. The PP shall within 7 calendar days of discovering the occurrence of one of the triggering conditions above complete a report as described in the Performance Monitoring Document (PMD) and which shall be reported in the Performance Monitoring Report (PMR). The report details which shall also be recorded in the logbook include the following:

1. Any follow-up actions taken to review the design, installation, and maintenance of P2M2s, including the dates such actions occurred; and

2. A summary of P2M2 modifications taken or to be taken, including a schedule of activities necessary to implement changes, and the date the modifications are completed or expected to be completed; and

3. The PP shall send a report with photographic evidence as soon as practicable whenever corrective actions or measures have been taken or scheduled to be taken, using an online communication medium to the DOE.

iii. In all circumstances, the PP shall immediately take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is taken and an appropriate P2M2 is installed or applied and made operational, including cleaning up any contaminated surfaces so that the material will not be discharged in subsequent storm events.

(s) Site Inspections

i. Site inspections shall be conducted to check and to ascertain that all P2M2s specified in the EIA Report and this document have been properly installed and maintained as well as to determine whether any controls that is clearly not operating as intended or any P2M2s requires replacement, or additional P2M2s are required. The site inspections shall also assess if pollution is effectively being controlled and off-site discharge is being prevented in compliance with the EIA conditions of approval (COAs).

ii. All inspection activities shall be recorded in the PM logbook.

iii. At a minimum, inspections shall be conducted at the site prior to commencement of land clearing

activities and after every storm event during construction and as specified in the established inspection schedule.

iv. At a minimum, the following areas shall be inspected:
   a) All areas that have been cleared, graded, or excavated and that have not yet completed stabilization;
   b) Construction entrances/exits ;
   c) Roadways;
   d) All P2M2s installed or applied at the site;
   e) Material storage areas, spoil area, borrow area, or equipment storage and maintenance areas;
   f) All areas where runoff water typically flows within the site, including drainage ways designed to divert, convey, and/or treat runoff water;
   g) All points of discharge from the site;
   h) All locations where stabilization measures have been implemented at least once every seven (7) days and within 24 hours after the end of a storm event of 12.5 mm or greater.

v. A rain gauge shall be properly maintained at the site so as to determine if a storm event of 12.5 mm or greater has occurred on the site. In a circumstance that a rain gauge is faulty, the storm event information shall be obtained from a weather station that is representative of the project site.

vi. Major observations and incidents of non-compliance shall be recorded in the inspection report, as well as corrective actions and maintenance and shall be recorded in the PM log book.

(t) Maintenance

The PP shall maintain the P2M2s in accordance with the following requirements:

i. Maintenance shall begin as soon as the first P2M2 is installed or applied and shall continue through all the succeeding activities until the permanent erosion control measures are established and functioning. Maintenance method shall be in accordance to design specification.

ii. Unless advised otherwise, maintenance shall occur within seven (7) calendar days of the inspection noted/reported. All maintenance activities shall be recorded in the PM logbook

iii. Sediment Basin/Trap shall be kept in effective operating condition and remove accumulated sediment to maintain at least ½ of the design capacity of the sediment basin/trap at all times.

iv. Sediment shall be removed before it accumulates to one-half of the above-ground height of any perimeter control such as by cleaning out the silt fences when they are 1/2 full of sediment and/or by replacing them when they are torn or lifted, to retain their functionality.

v. Stabilized Construction Entrance or wash trough or Tires Washing Facility shall be maintained so as not to track-out sediment or mud onto any adjacent public roads. In any occasion where sediment has been tracked-out from the project site onto the off-site streets, the deposited sediment shall be removed the end of the same work day by sweeping, shoveling, or vacuuming the surfaces, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked-out sediments into any drainage is prohibited unless it is connected to a sediment basin, sediment trap, or similarly effective control.

(u) Standards and Specifications for P2M2s

i. All P2M2s shall be designed, constructed, installed, and maintained in accordance with good engineering practices and applicable design specifications.

ii. Application of all P2M2s onsite shall be in accordance with standards and specifications indicated, specified, stated, depicted and set forth in:

a. Department of Irrigation and Drainage – DID. 2010. Guideline for Erosion and Sediment Control in Malaysia

b. Department of Irrigation and Drainage – DID. 2000. Urban Storm Water Management Manual for Malaysia

c. Erosion and Sediment Control Planning and Design Manual issued by North Carolina Department of Environment and Natural Resources*

Note: This manual can be accessed at https://enviro.doe.gov.my/

d. Best Management Practices for Construction and Maintenance Activities issued by North Carolina Department of Transportation**

Note: This manual can be accessed at https://enviro.doe.gov.my/

[**Note:** For the use of the manuals mentioned in (c) and (d), credit is hereby given to the Sedimentation Control Commission for granting permission for its use in Malaysia- See the acknowledgement page of this Guidance Document]

7.2 Self-Regulation

(v) Establishment of Environmental Performance Monitoring Committee (EPMC) and Performance Monitoring Documentation

(i) The PP shall establish a project Environmental Performance Monitoring Committee (EPMC) to monitor the environmental performance and

effectiveness of P2M2s, and status of regulatory compliance of the project.

(ii) The EPMC shall be represented by all relevant parties involved in project implementation and chaired by a senior member representing the PP. The chairman shall be responsible for ensuring the decisions of the meeting are responsibly executed. The EPMC shall meet at a minimum, once in a quarter and the minutes of the meeting be maintained.

(iii) The PP through the Environment Officer (EO) shall prepare a Performance Monitoring Document (PMD) that describes in detail how EIA approval conditions (COAs) are going to be complied and how performance monitoring of the P2M2s will be conducted to ensure the optimal functionality of the P2M2s is maintained. The details in the PMD shall include, among others: performance monitoring equipment/instruments, sampling protocols and analysis, monitoring parameters, sampling frequency, preventive and corrective maintenance procedure for the P2M2s, discharge compliance, record keeping, etc.

(iv) The PP through the EO shall establish and execute an environmental performance monitoring (PM) program to monitor and evaluate the effectiveness of the P2M2s, inspect, maintain, take corrective actions on the P2M2s to ensure their functionality and effectiveness throughout the entire process of the land disturbing activities.

(v) The PP shall set up a “mini laboratory” to facilitate the implementation of environmental performance monitoring program. This mini laboratory shall be adequately equipped with relevant resources including portable analytical testing equipment such as in-situ total suspended solids meter, turbidity meter, etc.

(vi) The PP through the EO shall establish and maintain proper records using a log book (called the

Performance Monitoring logbook) that contains among others, Checklist of P2M2s List Sheet, Installation Sheet, Maintenance Sheet, Site and P2M2 Inspection Sheet, Photograph Folder Sheet, Corrective Action Sheet, Performance Monitoring Sheet, etc. The PMD and PMR shall be maintained for five years upon completion of project development. For a reference, see Appendix I and Appendix II for the samples of the PMD conducted at two different development project sites.

(vii) The PP is required to keep a current copy of the PMD and PM log book at the site or at an easily accessible location, so that it can be made available at the time of an onsite inspection or upon request by the Department of Environment inspector. This log book shall be maintained or updated by weekly/ event-based inspections.

(viii) The PP through the EO shall prepare a Performance Monitoring Report (PMR) that discusses the results of the performance monitoring conducted as described in the PMD. Wherever relevant, PMR shall include data interpretation and assessment of the effectiveness of the P2M2s by making comparison of the performance monitoring parameters with their recommended ranges (or standards). Statistical techniques and graphical presentation of the performance monitoring parameters shall be used wherever appropriate. PMR shall also make some definitive conclusions on the overall performance of the P2M2s and suggest improvement measures to be taken if necessary. PMR shall be submitted to the EPMC as established by the PP for the EIA project.

8.0 LD-P2M2 SUBMISSION CHECKLIST

INSTRUCTIONS

(i) All relevant items cited in Section 8.1, 8.2, 8.3 and 8.4 checklist are required to be identified, addressed, discussed, assessed, evaluated and presented in the LD-P2M2 document according to appropriate chapters.

(ii) All relevant items cited in Section 8.3 and 8.4 checklist are required to be illustrated or depicted in a minimum of three (3) sheets of plan or map or drawing to be referred to as LD-P2M2 Plan which contains the following:
(a) Map of site plan with the existing site conditions (pre-development),
(b) Map of site development plan (during development) and
(c) Overlaid map of (a) and (b).

(iii) Maps shall be clear and legible where they may be provided with more than one sheet to commensurate with the size and complexity of the drainage areas as well as the terrain of the project site.

(iv) The LD-P2M2 document shall include a legal pledge by the Project Proponent (PP) to comply with the Minimum Standards requirement of P2M2s as outlined in Section 7 of this Guidance Document (PP).

ITEM	PAGE	MARK √ - Yes X - No NA - Non Applicable	REMARKS
8.1 PROJECT ACTIVITY AND IMPLEMENTATION			
(a) Phasing plan if relevant			
(b) Project implementation schedule			
(c) Description of the construction activity			
(d) Construction schedule for each major land disturbance complete with timeline or chart for the installations of P2M2s			
(e) Typical method statement for site clearing, cut and fill, excavation of foundation, drilling of borehole, in-stream works and construction of temporary / permanent stream / river crossing and diversion that incorporate the significance elements of pollution prevention and mitigation measures.			

ITEM	PAGE	MARK √ - Yes X - No NA - Not Applicable	REMARKS
(f) Estimated start date, completion date and stabilization schedule for each major land-disturbing activities or construction activities phases, stages and sequences.			
8.2. Information and Analysis on Project Development			
These information and analysis shall contain the following:			
(a) Weather and rainfall data.			
(b) Site runoff velocity and flow rate, both pre and during development			
(c) Description of site soil characteristics: i. Soil types ii. Soil test erodibility iii. Soil hydrologic group iv. Dispersible fine clay: Percentage of dispersible material v. Anticipated excavation depth for the proposed land disturbing activity			
(d) Description of adjacent areas, such as streams, lakes, residential areas, and roads that might be affected by the land disturbance.			
(e) List of streams and rivers identified on-site. (Use coding for unnamed streams and rivers).			
(f) List of receiving streams and rivers. (Use coding for unnamed streams and rivers).			
(g) List of existing drainage identified on-site.			

ITEM	PAGE	MARK √ - Yes X - No NA - Not Applicable	REMARKS
(h) List of P2M2s proposed. Please also make reference to P2M2s Description can be accessed through: https://enviro.doe.gov.my			
(i) Identify access roads and other outsourced components (such as mobile batching or premix plant) that are located outside the proximity of the project boundary.			
(j) Earthworks cut and fill volume.			
(k) Availability of rocks material.			
(l) Biomass management.			
(m) Solid (construction waste) and domestic waste management.			
(n) Spill Prevention and Control from fuel and chemical use or storage.			
(o) Hazardous Waste Management.			
(p) Soil loss prediction using the Universal Soil Loss Equation (USLE), sediment yield calculation using Modified Universal Soil Loss Equation (MUSLE) and runoff estimation for pre, during and post development accounted for both with and without the implementation of LDP2M2s. All of the data and parameters used in the calculations shall be measured or rationally determined, and identified. If secondary sources are used, they shall be clearly identified.			
(q) Calculation of proposed sediment trap/basin based on drainage area disturbed and projected runoff flow direction from each disturbed land segment that will drain into the proposed sediment trap/basin.			

ITEM	PAGE	MARK √ - Yes X - No NA - Not Applicable	REMARKS
8.3. Map of site plan with the existing site conditions (pre-development).			
(I) Site map which refers to:			
(a) Topography survey map showing: i. Contours ii. Elevation iii. Slopes			
(b) Geological Terrain Mapping (if relevant).			
(c) Erosion risk map.			
(d) Drainage pattern showing: i. Delineation of watercourses. ii. Delineation of natural drainage depression. iii. Flow path and direction for the different drainage areas. iv. Marks and labels of drainage area(s) or drainage divides.			
(II) Land use showing:			
i. Trees. ii. Vegetation area. iii. Roads and infra-structures (inclusive of drainage system). iv. Buildings. v. Utilities.			
(III) Adjacent within 150 metres from project site:			
i. Watercourses (Flowing into or from site). ii. Roads and infra-structures (inclusive of drainage system). iii. Buildings and utilities. iv. Vegetation area.			
(IV) Use map scale and size of: i. 1:500 for area less than 20 hectares; ii. 1: 1000 for area more than 20 hectares iii. Size: A3 or A1.			

ITEM	PAGE	MARK √ - Yes X - No NA - Not Applicable	REMARKS
8.4. Map of site development plan			
(a)Depict the existing contour and proposed level.			
(b) Indicate the total site area.			
(c) Indicate the total disturbance area with line showing the area to be disturbed.			
(d) Show the cut and fill area.			
(e) Show the direction of the proposed earthwork movement.			
(f) Mark the limit of disturbance of each of the phase construction.			
(g) Identify and mark the temporary or permanent stream or river crossing.			
(h) Identify and mark the temporary or permanent stream or river diversion.			
(i) Identify and mark on-site temporary access or construction or haul road			
(j) Identify and mark site office area.			
(k) Identify and mark stockpile areas.			
(l) Identify and mark temporary preservation of existing vegetation.			
(m) Identify and mark permanent preservation of existing vegetation.			
(n) Identify and mark material staging area or equipment storage area.			
(o) Identify and mark workshop/ maintenance or engineering work area.			
(p) Identify and mark generators set and/ or motorized equipment area.			
(q) Identify and mark Vehicle and Equipment Washing Facility.			
(r)Identify and mark petroleum-based material/refueling, chemicals and skid tank area.			

ITEM	PAGE	MARK √ - Yes X - No NA - Not Applicable	REMARKS
(s) Identify and mark schedule waste storage area.			
(t) Identify and mark workers camp location.			
(u) Identify and mark sanitary facilities location.			
(v) Identify and mark batching plant location.			
(w) Identify and mark concrete wash P2M2 location.			
(x) Identify and mark spoil (unsuitable material) area or disposal area.			
(y) Identify and mark borrow area.			
(z) Identify and mark the location(s) of all proposed P2M2s application.			
(aa) Identify and mark all of the designated point(s) of water discharge and also any other potential point(s) of water discharge to off-site drainage ways.			
(bb) Provide the GPS location (WGS 84) of the construction ingress/egress and all designated point(s) of water discharge for the site.			
(cc)Use map scale and size of: 1:500 for area less than 20 hectares; 1: 1000 for area more than 20 hectares Size: A3 or A1.			

DEPARTMENT OF ENVIRONMENT (HEADQUARTERS)

19th JULY, 2016

Appendix 5

LIST OF GUIDELINES/ TECHNICAL GUIDANCE DOCUMENTS

NO	GUIDELINES/ GUIDANCE DOCUMENTS	DATE OF PUBLICATION
1	Technical Guidance Document On The Design and Operation Of Industrial Effluent Treatment Systems (DOE-IETS-9), Sixth Edition 2015	Sixth Edition 2015
2	Technical Guidance Document On Performance Monitoring Of Industrial Effluent Treatment Systems (DOE-IETS-1), Seventh Edition 2015	Seventh Edition 2015
3	Technical Guidance Document On Performance Monitoring of Air Pollution Control Systems (DOE-APCS-5), First Edition 2006	First Edition 2006
4	Self Regulation Approach - Mainstreaming of Environmental Agenda in Industrial Premises - Resource Book For The Course On Certified Environmental Professionals in IETS Operation (Biological Processes)	First Edition 2012
5	Self Regulation Approach - Mainstreaming of Environmental Agenda in Industrial Premises - Resource Book For The Course On Certified Environmental Professionals in IETS Operation (Physical Chemical Processes)	First Edition 2012
6	A Guidebook on Performance Monitoring for Industrial Effluent Treatment System Operators	First Edition 2015
7	Environmental Professional Certification Program – Self Regulation Approach , Mainstreaming of Environmental Agenda in Industrial Premises, 2015	First Edition 2015
8	A Guidebook on Performance Monitoring of Scrubber	First Edition 2015
9	A Guidebook on Performance Monitoring of Bag Filter Dust Collector	First Edition 2015
10	A Guidebook on Identification and Classification of Scheduled Wastes	First Edition 2015
11	Panduan Pengurusan Buangan Terjadual Daripada Bengkel/Woksyop	First Edition 2015

NO	GUIDELINES/ GUIDANCE DOCUMENTS	DATE OF PUBLICATION
12	Manual Panduan Pemeriksaan BMPs Untuk Kawalan Hakisan dan Sedimen	First Edition 2015
13	Industrial Processes & the Environment (Handbook No.1) ; Metal Finishing – Electroplating	First Edition 2000
14	Industrial Processes & the Environment (Handbook No.2) ; Raw Natural Rubber Industry	First Edition 2000
15	Industrial Processes & the Environment (Handbook No.3) ; Crude Palm Oil Industry	First Edition 2000
16	Industrial Processes & the Environment (Handbook No.4) ; Textile & Apparel Industry	First Edition 2000
17	Industrial Processes & the Environment (Handbook No.5) ; Food Industry – Rice Noodle Processing	First Edition 2000

Appendix 6

28 Ogos 2015
28 August 2015
P.U. (A) 195

WARTA KERAJAAN PERSEKUTUAN

FEDERAL GOVERNMENT GAZETTE

PERINTAH KUALITI ALAM SEKELILING (AKTIVITI YANG DITETAPKAN) (PENILAIAN KESAN KEPADA ALAM SEKELILING) 2015

ENVIRONMENTAL QUALITY (PRESCRIBED ACTIVITIES) (ENVIRONMENTAL IMPACT ASSESSMENT) ORDER 2015

DISIARKAN OLEH/
PUBLISHED BY
JABATAN PEGUAM NEGARA/
ATTORNEY GENERAL'S CHAMBERS

P.U. (A) 195

AKTA KUALITI ALAM SEKELILING 1974

PERINTAH KUALITI ALAM SEKELILING (AKTIVITI YANG DITETAPKAN) (PENILAIAN KESAN KEPADA ALAM SEKELILING) 2015

PADA menjalankan kuasa yang diberikan oleh subseksyen 34A(1) Akta Kualiti Alam Sekeliling 1974 [*Akta 127*], Menteri, selepas berunding dengan Majlis, membuat perintah yang berikut:

Nama

1. Perintah ini bolehlah dinamakan **Perintah Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan kepada Alam Sekeliling) 2015**.

Tafsiran

2. Dalam Perintah ini—

"kawasan sensitif alam sekitar" ertinya—

(a) mana-mana kawasan yang ditetapkan sedemikian dalam rancangan pemajuan atau rancangan fizikal negara di bawah Akta Perancangan Bandar dan Desa 1976 [*Akta 172*]; atau

(b) mana-mana kawasan yang ditetapkan sebagai kawasan perlindungan alam sekitar atau kawasan pemuliharaan alam sekitar di bawah mana-mana Enakmen di Negeri Sabah atau mana-mana Ordinan di Negeri Sarawak;

"laporan" ertinya laporan penilaian kesan kepada alam sekeliling.

Aktiviti yang ditetapkan

3. (1) Aktiviti yang dinyatakan dalam Jadual Pertama dan Jadual Kedua ialah aktiviti yang ditetapkan.

(2) Aktiviti yang dinyatakan dalam Jadual Pertama tidak memerlukan pameran awam dan ulasan awam melainkan jika diarahkan selainnya, secara bertulis, oleh Ketua Pengarah.

(3) Aktiviti yang dinyatakan dalam Jadual Kedua memerlukan pameran awam dan ulasan awam.

(4) Walau apa pun subperenggan (1), aktiviti yang berikut juga ialah aktiviti yang ditetapkan:

(a) apa-apa aktiviti yang ditetapkan yang dibahagikan kepada saiz atau kuantum yang lebih kecil daripada saiz atau kuantum yang dinyatakan dalam Jadual Pertama dan Jadual Kedua; atau

(b) apa-apa aktiviti yang melibatkan pertambahan saiz atau kuantum yang menyebabkan aktiviti itu dikategorikan sebagai aktiviti yang ditetapkan.

(5) Pameran awam dan ulasan awam yang disebut dalam subperenggan (2) dan (3) ialah suatu pameran laporan, di tempat dan dalam tempoh yang ditentukan oleh Ketua Pengarah, bagi mendapatkan ulasan awam berhubung dengan laporan itu.

Pemakaian bagi Negeri Sarawak dan Sabah

4. (1) Perintah ini terpakai bagi Negeri Sarawak berkenaan dengan aktiviti yang ditetapkan yang dinyatakan dalam butiran yang berikut:

(a) butiran 2, 6, 9 dan 10 dan subbutiran 11*(a)* dan *(b)* dan 14*(a)* Jadual Pertama; dan

(b) butiran 2, 6, 9, 10, 11, 16 dan 17 dan subbutiran 14*(a)* Jadual Kedua.

(2) Perintah ini terpakai bagi Negeri Sabah berkenaan dengan aktiviti yang ditetapkan yang dinyatakan dalam butiran yang berikut:

(a) butiran 2, 6, 9, dan 14 dan subbutiran 11*(a)* dan *(b)* Jadual Pertama; dan

(b) butiran 2, 6, 9, 11, 14 dan 17 Jadual Kedua.

Pembatalan, kecualian dan peralihan

5. (1) Perintah Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan kepada Alam Sekeliling) 1987 [*P.U. (A) 362/1987*], yang kemudian ini disebut "Perintah yang dibatalkan" dalam perenggan ini, dibatalkan.

(2) Perintah ini tidak menjejaskan mana-mana aktiviti yang ditetapkan di bawah Perintah yang dibatalkan jika laporan telah diluluskan oleh Ketua Pengarah sebelum berkuat kuasanya Perintah ini.

(3) Laporan berkenaan dengan mana-mana aktiviti yang ditetapkan di bawah Perintah yang dibatalkan yang telah diterima oleh Ketua Pengarah sebelum mula berkuat kuasanya Perintah ini hendaklah diuruskan seolah-olah Perintah ini tidak dibuat.

(4) Jika Ketua Pengarah tidak meluluskan laporan di bawah subperenggan (3) dan orang yang mengemukakan laporan itu mengemukakan semula laporan itu untuk kelulusan selepas berkuat kuasanya Perintah ini, laporan itu hendaklah diuruskan mengikut Perintah ini.

JADUAL PERTAMA
[Subperenggan 3(1) dan (4)]

1. PERTANIAN:

(a) Skim kemajuan tanah yang meliputi kawasan seluas 20 hektar atau lebih tetapi kurang daripada 500 hektar untuk menjadikan hutan kepada pengeluaran pertanian.

(b) Pembangunan estet pertanian yang meliputi kawasan seluas 500 hektar atau lebih yang melibatkan perubahan dalam jenis kegunaan pertanian.

2. AERODROM:

Peluasan aerodrom yang melibatkan landasan terbang sepanjang 1,000 meter atau lebih.

3. SALIRAN DAN PENGAIRAN:

(a) Pembinaan tasik buatan manusia dan pembesaran tasik bukan semula jadi dengan kawasan permukaan seluas 100 hektar atau lebih.

(b) Skim pengairan yang meliputi kawasan seluas 500 hektar atau lebih.

4. PERIKANAN:

Projek akuakultur berasaskan penggunaan tanah beserta dengan pembersihan hutan paya bakau, hutan paya gambut atau hutan paya air tawar yang meliputi kawasan seluas 20 hektar atau lebih tetapi kurang daripada 50 hektar.

5. PERHUTANAN:

(a) Pengubahan hutan pada ketinggian 300 meter atau lebih di atas purata aras laut kepada kegunaan lain tanah yang meliputi kawasan seluas 20 hektar atau lebih tetapi kurang daripada 100 hektar.

(b) Pembalakan, atau penebangan atau pengambilan kayu bagi maksud pengubahan hutan kepada kegunaan tanah yang lain yang meliputi kawasan seluas 100 hektar atau lebih tetapi kurang daripada 500 hektar.

(c) Pembalakan, atau penebangan atau pengambilan kayu daripada hutan pada ketinggian kurang daripada 300 meter di atas purata aras laut yang meliputi kawasan seluas 100 hektar atau lebih, di luar hutan simpan kekal.

(d) Pengubahan kawasan—

(i) hutan paya bakau;

(ii) hutan paya gambut; atau

(iii) hutan paya air tawar,

bagi kegunaan perindustrian, perumahan atau pertanian yang meliputi kawasan seluas 20 hektar atau lebih tetapi kurang daripada 50 hektar.

(e) Pembangunan ladang hutan yang meliputi kawasan seluas 100 hektar atau lebih tetapi kurang daripada 500 hektar.

6. INDUSTRI:

(a) Kimia:

Keupayaan pengeluaran setiap keluaran atau gabungan keluaran sebanyak 100 tan atau lebih sehari.

(b) Simen:

Loji pengisaran simen dengan keupayaan pengeluaran simen sebanyak 200 tan atau lebih sehari.

(c) Kapur:

Pengeluaran kapur 100 tan atau lebih sehari menggunakan relau putar atau 50 tan atau lebih sehari dengan menggunakan relau tegak.

(d) Petrokimia:

Keupayaan pengeluaran setiap keluaran atau gabungan keluaran kurang daripada 50 tan sehari.

(e) Limbungan kapal:

Tanan berat muatan 5,000 tan atau lebih.

7. PENEBUSGUNAAN TANAH:

Penebusgunaan kawasan pantai atau penebusgunaan tanah sepanjang tebing sungai yang melibatkan kawasan kurang daripada 50 hektar.

8. PERLOMBONGAN:

(a) Pemprosesan bijih di luar kawasan tenemen mineral, termasuk pemekatan aluminium, kuprum, emas, besi, tantalum atau elemen nadir bumi.

(b) Perlombongan pasir di darat atau sungai atau di kawasan pantai atau di laut wilayah yang tidak melebihi 3 batu nautika yang diukur dari garis air surut, meliputi kawasan seluas 20 hektar atau lebih.

(c) Perlombongan pasir di kawasan pelantar benua.

9. PETROLEUM:

(a) Pembangunan—

(i) medan minyak;

(ii) medan gas; atau

(iii) medan minyak dan gas.

(b) Pembinaan sepanjang 30 kilometer atau lebih—

(i) talian paip luar pantai;

(ii) talian paip daratan; atau

(iii) talian paip luar pantai dan talian paip daratan.

(c) Pembinaan—

(i) kemudahan pengasingan, pemprosesan, pengendalian dan penstoran minyak;

(ii) kemudahan pengasingan, pemprosesan, pengendalian dan penstoran gas; atau

(iii) kemudahan pengasingan, pemprosesan, pengendalian dan penstoran minyak dan gas.

(d) Pembinaan depoh keluaran bagi penstoran petrol, gas atau diesel yang mempunyai keupayaan penstoran tergabung sebanyak 60,000 tong atau lebih

(tidak termasuk stesen servis) dalam jarak 3 kilometer dari kawasan perdagangan, perindustrian atau kediaman.

10. PELABUHAN:

(a) Peluasan pelabuhan yang melibatkan penambahan sebanyak 50 peratus atau lebih dalam keupayaan pengendalian setahun.

(b) Peluasan pelabuhan perikanan yang melibatkan penambahan sebanyak 50 peratus atau lebih dalam keupayaan pendaratan ikan setahun.

11. PENJANAAN DAN PEMANCARAN KUASA:

(a) Pembinaan stesen janakuasa stim yang menggunakan bahan api fosil (selain arang batu) dan mempunyai keupayaan 10 megawatt atau lebih, dengan atau tanpa talian pemancar.

(b) Pembinaan stesen janakuasa kitar padu, dengan atau tanpa talian pemancar.

(c) Pembinaan talian pemancar di kawasan sensitif alam sekitar.

12. PEMBANGUNAN DI KAWASAN PANTAI DAN BUKIT:

(a) Pembinaan bangunan atau kemudahan yang mempunyai 80 bilik atau lebih di kawasan pantai.

(b) Pembinaan resort atau hotel peranginan bukit pada ketinggian 300 meter atau lebih di atas purata aras laut yang meliputi kawasan seluas 20 hektar atau lebih.

13. PEMBANGUNAN DI KAWASAN CERUN:

Pembangunan atau pembersihan tanah yang meliputi kawasan yang kurang daripada 50 peratus kawasan cerun yang berkecerunan melebihi atau sama dengan 25^0 tetapi kurang daripada 35^0.

14. PENGOLAHAN DAN PELUPUSAN BUANGAN:

(a) Buangan terjadual:

(i) Pembinaan loji pulih guna (luar tapak).

(ii) Pembinaan loji pengolahan air buangan (luar tapak).

(iii) Pembinaan kemudahan penstoran (luar tapak).

(b) Sisa pepejal:

(i) Pembinaan loji pengkomposan.

(ii) Pembinaan loji pulih guna atau loji kitar semula.

(c) Kumbahan:

(i) Pembinaan loji pengolahan kumbahan dengan 20,000 kesetaraan populasi atau lebih.

(ii) Kemudahan rawatan enap cemar.

15. PENGOREKAN:

(a) Pengorekan induk.

(b) Pelupusan bahan buangan yang dikorek.

16. PERUMAHAN:

Pembangunan perumahan yang meliputi kawasan seluas 50 hektar atau lebih.

17. PEMBANGUNAN ESTET INDUSTRI:

Pembangunan estet perindustrian yang meliputi kawasan seluas 20 hektar atau lebih.

18. BANDAR BAHARU:

Pembinaan bandar baharu yang terdiri daripada 2,000 unit kediaman atau lebih yang meliputi kawasan seluas 100 hektar atau lebih.

19. KUARI:

Pengkuarian bahan batuan.

20. JALAN:

(a) Pembinaan lebuh raya ekspres.

(b) Pembinaan lebuh raya.

(c) Pembinaan jalan, terowong atau jambatan yang melintasi atau bersebelahan atau berdekatan dengan kawasan sensitif alam sekitar.

21. BEKALAN AIR:

Pemajuan air bawah tanah bagi bekalan air perindustrian, pertanian atau kawasan bandar sebanyak 4,500 meter padu atau lebih sehari.

JADUAL KEDUA
[Subperenggan 3(1) dan (4)]

1. PERTANIAN:

(a) Skim kemajuan tanah yang meliputi kawasan seluas 500 hektar atau lebih untuk menjadikan hutan kepada pengeluaran pertanian.

(b) Kawasan baru penternakan babi yang mempunyai sebanyak 2,000 populasi babi dirian atau lebih.

2. AERODROM:

(a) Pembinaan aerodrom baharu yang melibatkan landasan terbang sepanjang 1,000 meter atau lebih.

(b) Pembinaan aerodrom di dalam atau bersebelahan atau berdekatan dengan mana-mana taman negeri, taman negara, taman laut negara, pulau sekeliling taman laut atau kawasan sensitif alam sekitar.

3. SALIRAN DAN PENGAIRAN:

(a) Pembinaan tasik buatan manusia dan pembesaran tasik bukan semula jadi dengan kawasan permukaan seluas 50 hektar atau lebih di dalam atau bersebelahan atau berdekatan dengan kawasan sensitif alam sekitar.

(b) Mana-mana saliran kawasan tanah bencah, habitat hidupan liar atau hutan darat yang meliputi kawasan seluas 20 hektar atau lebih.

4. PERIKANAN:

Projek akuakultur berasaskan penggunaan tanah beserta dengan pembersihan hutan paya bakau, hutan paya gambut atau hutan paya air tawar yang meliputi kawasan seluas 50 hektar atau lebih.

5. PERHUTANAN:

(a) Pengubahan hutan pada ketinggian 300 meter atau lebih di atas purata aras laut kepada kegunaan lain tanah yang meliputi kawasan seluas 100 hektar atau lebih.

(b) Pembalakan atau pengubahan hutan kepada kegunaan tanah yang lain di dalam—

(i) kawasan tadahan di kolam takungan air yang digunakan bagi bekalan air perbandaran, pengairan atau penjanaan kuasa hidro;

(ii) kawasan yang bersebelahan atau berdekatan dengan mana-mana taman negeri, taman negara atau taman laut negara;

(iii) mana-mana taman negeri, taman negara atau taman laut negara; atau

(iv) kawasan yang diwartakan sebagai hutan tadahan air di bawah Akta Perhutanan Negara 1984 [*Akta 313*].

(c) Pembalakan, atau penebangan atau pengambilan kayu dari hutan pada ketinggian 300 meter atau lebih di atas purata aras laut yang meliputi kawasan seluas 100 hektar atau lebih, di luar kawasan hutan simpan kekal.

(d) Pembalakan, atau penebangan atau pengambilan kayu yang meliputi kawasan 500 hektar atau lebih.

(e) Pembangunan ladang hutan yang meliputi kawasan seluas 500 hektar atau lebih.

(f) Pengubahan kawasan—

(i) hutan paya bakau;

(ii) hutan paya gambut; atau

(iii) hutan paya air tawar,

bagi kegunaan perindustrian, perumahan atau pertanian yang meliputi kawasan seluas 50 hektar atau lebih.

(g) Pembersihan kawasan hutan paya bakau, hutan paya gambut atau hutan paya air tawar di pulau yang bersebelahan dengan mana-mana taman laut negara.

6. INDUSTRI:

(a) Bukan besi:

(i) Peleburan utama aluminium (semua saiz).

(ii) Peleburan utama kuprum (semua saiz).

(iii) Peleburan utama bukan besi yang lain (mengeluarkan 50 tan keluaran atau lebih sehari).

(b) Simen:

Dengan keupayaan pengeluaran klinker sebanyak 30 tan atau lebih sejam.

(c) Besi dan keluli:

(i) Menggunakan bijih besi sebagai bahan mentah bagi pengeluaran 100 tan atau lebih sehari.

(ii) Menggunakan besi sekerap sebagai bahan mentah bagi pengeluaran 200 tan atau lebih sehari.

(d) Petrokimia:

Keupayaan pengeluaran setiap keluaran atau gabungan keluaran sebanyak 50 tan atau lebih sehari.

(e) Pulpa, atau pulpa dan kertas:

Keupayaan pengeluaran 50 tan atau lebih sehari.

(f) Industri kitar semula kertas:

Keupayaan pengeluaran 50 tan atau lebih sehari.

7. PENEBUSGUNAAN TANAH:

(a) Penebusgunaan kawasan pantai atau penebusgunaan tanah sepanjang tebing sungai yang melibatkan kawasan seluas 50 hektar atau lebih.

(b) Penebusgunaan kawasan pantai atau penebusgunaan tanah sepanjang tebing sungai di dalam atau bersebelahan atau berdekatan dengan kawasan sensitif alam sekitar.

(c) Penebusgunaan bagi pulau buatan manusia.

8. PERLOMBONGAN:

(a) Perlombongan bahan galian dalam kawasan baharu yang melibatkan operasi berskala besar.

(b) Perlombongan bahan galian di dalam atau bersebelahan atau berdekatan dengan kawasan sensitif alam sekitar.

9. PETROLEUM:

(a) Pembinaan loji penapisan minyak.

(b) Pembinaan loji penapisan gas.

(c) Pembinaan loji penapisan minyak dan gas.

10. PELABUHAN:

(a) Pembinaan pelabuhan baharu.

(b) Pembinaan pelabuhan perikanan baharu.

11. PENJANAAN DAN PEMANCARAN KUASA:

(a) Pembinaan stesen janakuasa yang menggunakan bahan api arang batu yang mempunyai keupayaan 10 megawatt atau lebih dengan atau tanpa talian pemancar.

(b) Pembinaan stesen janakuasa yang menggunakan bahan api nuklear dengan atau tanpa talian pemancar.

12. PEMBANGUNAN DI KAWASAN PANTAI, TAMAN NEGARA DAN TAMAN NEGERI:

Pembangunan kemudahan pelancongan, kemudahan rekreasi atau kemudahan lain—

(a) di dalam mana-mana taman negara atau taman negeri; atau

(b) di mana-mana pulau dalam perairan sekeliling yang telah diwartakan sebagai taman laut atau rizab laut di bawah Akta Perikanan 1985 [*Akta 317*].

13. PEMBANGUNAN DI KAWASAN CERUN:

(a) Pembangunan atau pembersihan tanah yang meliputi 50 peratus atau lebih kawasan cerun yang berkecerunan lebih daripada atau sama dengan 25^0 tetapi kurang daripada 35^0 .

(b) Pembinaan jalan, terowong atau jambatan yang melintasi kawasan cerun yang berkecerunan melebihi atau sama dengan 35^0 .

14. PENGOLAHAN DAN PELUPUSAN BUANGAN:

(a) Buangan terjadual:

(i) Pembinaan loji rawatan terma.

(ii) Pembinaan loji pulih guna luar tapak bagi buangan bateri asid plumbum.

(iii) Pembinaan loji pulih guna luar tapak atau kemudahan rawatan yang mengeluarkan jumlah air buangan yang ketara yang terletak di hulu pengambilan bekalan air awam.

(iv) Pembinaan kemudahan tapak penimbusan tanah selamat.

(b) Sisa pepejal:

(i) Pembinaan loji rawatan terma.

(ii) Pembinaan kemudahan tapak penimbusan sanitari.

(iii) Pembinaan stesen pemindahan.

15. PEMBINAAN EMPANGAN:

(a) Pembinaan empangan atau kolam takungan air bagi maksud pengairan, tebatan banjir, kawalan pengelodakan, rekreasi, bekalan air atau apa-apa sebab lain dengan kawasan permukaan seluas 100 hektar atau lebih.

(b) Empangan dan skim kuasa hidroelektrik dengan salah satu atau kedua-dua yang berikut:

(i) empangan yang ketinggiannya 15 meter atau lebih dan struktur sampingan yang meliputi kawasan seluas 40 hektar atau lebih;

(ii) kolam takungan air dengan kawasan permukaan seluas 100 hektar atau lebih.

16. PENGANGKUTAN:

(a) Pembinaan laluan atau landasan cabang baharu bagi projek pengangkutan laju massa.

(b) Pembinaan landasan laluan atau landasan cabang baharu kereta api.

17. BAHAN RADIOAKTIF DAN BUANGAN RADIOAKTIF:

Mana-mana aktiviti yang dinyatakan dalam Jadual ini dan Jadual Pertama yang menggunakan bahan radioaktif dan menghasilkan buangan radioaktif.

Dibuat 5 Ogos 2015
[as(s)91/110/919/014 S.K 02 Jld 2; PN(PU2)280/XVI]

DATO' SRI DR. HAJI WAN JUNAIDI BIN TUANKU JAAFAR
Menteri Sumber Asli dan Alam Sekitar

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ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY (PRESCRIBED ACTIVITIES) (ENVIRONMENTAL IMPACT ASSESSMENT) ORDER 2015

IN exercise of the powers conferred by subsection 34A(1) of the Environmental Quality Act 1974 [*Act 127*], the Minister, after consultation with the Council, makes the following order:

Citation

1. This order may be cited as the **Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015**.

Interpretation

2. In this Order—

"environmentally sensitive area" means—

(a) any area specified as such in the development plan or national physical plan under the Town and Country Planning Act 1976 [*Act 172*]; or

(b) any area specified as enviromental protection area or enviromental conservation area under any Enactment in the State of Sabah or any Ordinance in the State of Sarawak;

"report" means a report of an environmental impact assessment.

Prescribed activities

3. (1) The activities specified in the First Schedule and the Second Schedule are prescribed activities.

(2) The activities specified in the First Schedule do not require public display and public comment unless otherwise instructed, in writing, by the Director General.

(3) The activities specified in the Second Schedule require public display and public comment.

(4) Notwithstanding subparagraph (1), the following activities are also prescribed activities:

(a) any prescribed activity which has been divided into a size or quantum smaller than the size or quantum specified in the First Schedule and the Second Schedule; or

(b) any activity involving the increase in size or quantum resulting such activity to be categorized as prescribed activities.

(5) Public display and public comment referred to in subparagraphs (2) and (3) are a display of a report, at a place and within the time determined by the Director General, to obtain public comment in relation to that report.

Application to the State of Sarawak and Sabah

4. (1) This Order shall apply to the State of Sarawak in respect of the prescribed activities specified in the following items:

(a) items 2, 6, 9 and 10 and subitems 11*(a)* and *(b)* and 14*(a)* of the First Schedule; and

(b) items 2, 6, 9, 10, 11, 16 and 17 and subitem 14*(a)* of the Second Schedule.

(2) This Order shall apply to the State of Sabah in respect of the prescribed activities specified in the following items:

(a) items 2, 6, 9 and 14 and subitems 11*(a)* and *(b)* of the First Schedule; and

(b) items 2, 6, 9, 11, 14 and 17 of the Second Schedule.

Revocation, saving and transitional

5. (1) The Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987 [*P.U. (A) 362/1987*], hereinafter referred to as "the revoked Order" in this paragraph, is revoked.

(2) This Order shall not affect any prescribed activity under the revoked Order where a report has been approved by the Director General before the coming into operation of this Order.

(3) A report in respect of any prescribed activity under the revoked Order which has been received by the Director General before the coming into operation of this Order shall be dealt with as if this Order has not been made.

(4) If the Director General does not approve the report under subparagraph (3) and the person who submitted the report re-submits it for approval after the coming into operation of this Order, the report shall be dealt with in accordance with this Order.

FIRST SCHEDULE

[Subparagraphs 3(1) and (4)]

1. AGRICULTURE:

(a) Land development schemes covering an area of 20 hectares or more but less than 500 hectares to bring forest into agricultural production.

(b) Development of agricultural estates covering an area of 500 hectares or more involving changes in types of agricultural use.

2. AERODROME:

Expansion of an aerodrome involving a runway of 1,000 metres or longer.

3. DRAINAGE AND IRRIGATION:

(a) Construction of man-made lakes and enlargement of artificial lakes with surface areas of 100 hectares or more.

(b) Irrigation schemes covering an area of 500 hectares or more.

4. FISHERIES:

Land based aquaculture projects accompanied by clearing of mangrove forest, peat swamp forest or fresh water swamp forest covering an area of 20 hectares or more but less than 50 hectares.

5. FORESTRY:

(a) Conversion of forest at 300 meters or more above mean sea level to other land use covering an area of 20 hectares or more but less than 100 hectares.

(b) Logging, or cutting or taking of timber for the purpose of conversion from forest to other land use covering an area of 100 hectares or more but less than 500 hectares.

(c) Logging, or cutting or taking of timber from forest at less than 300 meters above mean sea level covering an area of 100 hectares or more, outside permanent reserved forest.

(d) Conversion of an area of—

(i) mangrove forest;

(ii) peat swamp forest; or

(iii) fresh water swamp forest,

for industrial, housing or agricultural use covering an area of 20 hectares or more but less than 50 hectares.

(e) Development of planted forest covering an area of 100 hectares or more but less than 500 hectares.

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6. INDUSTRY:

(a) Chemical:

Production capacity of each product or combined products of 100 tonnes or more per day.

(b) Cement:

Cement grinding plant with cement production capacity of 200 tonnes or more per day.

(c) Lime:

Production of 100 tonnes or more per day of burnt lime using rotary kiln or 50 tonnes or more per day of burnt lime using vertical kiln.

(d) Petrochemicals:

Production capacity of each product or combined product of less than 50 tonnes per day.

(e) Shipyards:

Dead weight tonnage of 5,000 tonnes or more.

7. LAND RECLAMATION:

Coastal reclamation or land reclamation along river banks involving an area of less than 50 hectares.

8. MINING:

(a) Ore processing outside mineral tenement area, including concentrating of aluminium, copper, gold, iron, tantalum or rare earth element.

(b) Sand mining on land or river or in coastal area or in territorial waters not exceeding 3 nautical miles measured from the low-water line, involving an area of 20 hectares or more.

(c) Sand mining in continental shelf area.

9. PETROLEUM:

(a) Development of—

(i) oil field;

(ii) gas field; or

(iii) oil and gas field.

(b) Construction of 30 kilometres or more in length of—

(i) off-shore pipelines;

(ii) on-shore pipelines; or

(iii) off-shore pipelines and on-shore pipelines.

(c) Construction of—

(i) oil separation, processing, handling and storage facilities;

(ii) gas separation, processing, handling and storage facilities; or

(iii) oil and gas separation, processing, handling and storage facilities.

(d) Construction of product depot for the storage of petrol, gas or diesel which has the combined storage capacity of 60,000 barrels or more (excluding service station) within 3 kilometres from any commercial, industrial or residential area.

10. PORTS:

(a) Expansion of port involving an increase of 50 percent or more in handling capacity per annum.

(b) Expansion of fishing port involving an increase of 50 percent or more in fish landing capacity per annum.

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11. POWER GENERATION AND TRANSMISSION:

(a) Construction of steam generated power station using fossil fuels (other than coal) and having the capacity of 10 megawatts or more, with or without transmission line.

(b) Construction of combined cycle power station, with or without transmission line.

(c) Construction of transmission line in environmentally sensitive area.

12. DEVELOPMENT IN COASTAL AND HILL AREA:

(a) Construction of building or facilities with 80 rooms or more in coastal area.

(b) Construction of hill-station resort or hotel at 300 meters or more above mean sea level covering an area of 20 hectares or more.

13. DEVELOPMENT IN SLOPE AREA:

Development or land clearing less than 50 per cent of an area with slope greater than or equal to 25^0 but less than 35^0.

14. WASTE TREATMENT AND DISPOSAL:

(a) Scheduled waste:

(i) Construction of recovery plant (off-site).

(ii) Construction of wastewater treatment plant (off-site).

(iii) Construction of storage facility (off-site).

(b) Solid waste:

(i) Construction of composting plant.

(ii) Construction of recovery plant or recycling plant.

(c) Sewage:

(i) Construction of sewage treatment plant with 20,000 population equivalent or more.

(ii) Sludge treatment facilities.

15. DREDGING:

(a) Capital dredging.

(b) Disposal of waste dredged materials.

16. HOUSING:

Housing development covering an area of 50 hectares or more.

17. INDUSTRIAL ESTATE DEVELOPMENT:

Development of industrial estate covering an area of 20 hectares or more.

18. NEW TOWNSHIP:

Construction of new township consisting of 2,000 housing accommodation units or more or covering an area of 100 hectares or more.

19. QUARRY:

Quarrying of rock material.

20. ROAD:

(a) Construction of expressways.

(b) Construction of highways.

(c) Construction of road, tunnel or bridge traversing or adjacent or near to environmentally sensitive areas.

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21. WATER SUPPLY:

Groundwater development for industrial, agricultural or urban water supply of 4,500 cubic metres or more per day.

SECOND SCHEDULE
[Subparagraphs 3(1) and (4)]

1. AGRICULTURE:

(a) Land development schemes covering an area of 500 hectares or more to bring forest into agricultural production.

(b) New pig farming area of 2,000 or more standing pig population.

2. AERODROME:

(a) Construction of a new aerodrome involving a runway of 1,000 metres or longer.

(b) Construction of aerodrome in or adjacent or near to any state park, national park, national marine park, island surrounding marine park or environmentally sensitive area.

3. DRAINAGE AND IRRIGATION:

(a) Construction of man-made lakes and artificial enlargement of lakes with surface areas of 50 hectares or more in or adjacent or near to environmentally sensitive area.

(b) Any drainage of wetland, wild-life habitat or of dry inland forest covering an area of 20 hectares or more.

4. FISHERIES:

Land based aquaculture projects accompanied by clearing of mangrove forest, peat swamp forest or fresh water swamp forest covering an area of 50 hectares or more.

5. FORESTRY:

(a) Conversion of forest at 300 meters or more above mean sea level to other land use covering an area of 100 hectares or more.

(b) Logging or conversion of forest to other land use within—

(i) a catchment area of reservoirs used for municipal water supply, irrigation or hydro-power;

(ii) an area adjacent or near to any state park, national park or national marine park;

(iii) any state park, national park or national marine park; or

(iv) an area gazetted as water catchment forest under the National Forestry Act 1984 [*Act 313*].

(c) Logging, or cutting or taking of timber from forest at 300 meters or more above mean sea level covering an area of 100 hectares or more, outside permanent reserved forest.

(d) Logging, or cutting or taking of timber covering an area of 500 hectares or more.

(e) Development of planted forest covering an area of 500 hectares or more.

(f) Conversion of an area of—

(i) mangrove forest;

(ii) peat swamp forest; or

(iii) fresh water swamp forest,

for industrial, housing or agricultural use covering an area of 50 hectares or more.

(g) Clearing of mangrove forest, peat swamp forest or fresh water swamp forest on islands adjacent to any national marine park.

5. INDUSTRY:

(a) Non-ferrous:

(i) Primary smelting aluminium (all sizes).

(ii) Primary smelting copper (all sizes).

(iii) Primary smelting other non-ferrous (producing 50 tonnes product or more per day).

(b) Cement:

With clinker production capacity of 30 tonnes or more per hour.

(c) Iron and steel:

(i) Using iron ore as raw materials for production of 100 tonnes or more per day.

(ii) Using scrap iron as raw materials for production of 200 tonnes or more per day.

(d) Petrochemicals:

Production capacity of each product or combined product of 50 tonnes or more per day.

(e) Pulp, or pulp and paper:

Production capacity of 50 tonnes or more per day.

(f) Recycle paper industry:

Production capacity of 50 tonnes or more per day.

7. LAND RECLAMATION:

(a) Coastal reclamation or land reclamation along river banks involving an area of 50 hectares or more.

(b) Coastal reclamation or land reclamation along river banks within or adjacent or near to environmentally sensitive areas.

(c) Reclamation for man-made island.

8. MINING:

(a) Mining of minerals in new areas involving large scale operation.

(b) Mining of minerals within or adjacent or near to environmentally sensitive area.

9. PETROLEUM:

(a) Construction of oil refineries.

(b) Construction of gas refineries.

(c) Construction of oil and gas refineries.

10. PORTS:

(a) Construction of a new port.

(b) Construction of a new fishing port.

11. POWER GENERATION AND TRANSMISSION:

(a) Construction of coal fired power station and having the capacity of 10 megawatts or more with or without transmission line.

(b) Construction of nuclear-fuel power station with or without transmission line.

12. DEVELOPMENT IN COASTAL AREA, NATIONAL PARK AND STATE PARK:

Development of tourist facilities, recreational facilities or other facilities—

(a) in any national park or state park; or

(b) on any island in surrounding waters which has been gazetted as a national marine park or marine reserve under the Fisheries Act 1985 [*Act 317*].

13. DEVELOPMENT IN SLOPE AREA:

(a) Development or land clearing of 50 per cent or more of an area with slope greater than or equal to 25^0 but lesser than 35^0.

(b) Construction of road, tunnel or bridge traversing an area with slope greater than or equal to 35^0.

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14. WASTE TREATMENT AND DISPOSAL:

(a) Scheduled waste:

(i) Construction of thermal treatment plant.

(ii) Construction of off-site recovery plant for lead acid battery wastes.

(iii) Construction of off-site recovery plant or treatment facility that generates significant amount of wastewater which is located at the upstream of public water supply intake.

(iv) Construction of secure landfill facility.

(b) Solid waste:

(i) Construction of thermal treatment plant.

(ii) Construction of sanitary landfill facility.

(iii) Construction of transfer station.

15. CONSTRUCTION OF DAM:

(a) Construction of dam or impounding reservoir for the purpose of irrigation, flood mitigation, control of siltation, recreational, water supply or any other reason with a surface area of 100 hectares or more.

(b) Dam and hydro-electric power scheme with either or both of the following:

(i) dam of 15 metres or more in height and ancillary structures covering a total area of 40 hectares or more;

(ii) reservoir with a surface area of 100 hectares or more.

16. TRANSPORTATION:

(a) Construction of new routes or branch line for a mass rapid transport project.

(b) Construction of new railway route or railway branch lines.

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17. RADIOACTIVE MATERIALS AND RADIOACTIVE WASTE:

Any activity specified in this Schedule and the First Schedule using radioactive materials and generating radioactive wastes.

Made 5 August 2015
[as(s)91/110/919/014 S.K 02 Jld 2; PN(PU2)280/XVI]

DATO' SRI DR. HAJI WAN JUNAIDI BIN TUANKU JAAFAR
Minister of Natural Resources and Environment

Appendix 7

AN EXAMPLE OF ENVIRONMENTAL ASSESSMENT MATRIX

PROJECT ACTIVITIES	
SITE INVESTIGATION	SURVEY
	INVESTIGATION
	LAND ACQUISITION
CONSTRUCTION	ACCESS ROADS
	SITE CLEARING
	EXCAVATION
	DRAINAGE
	EROSION CONTROL
	UTILITIES
	ABANDOMENT
OPERATION AND MAINTENANCE	EQUIPMENT OPERATION
	WASTE DISPOSAL AND RECOVERY
	PRODUCT STORAGE
	SPILLS AND LEAKS
	ABONDMENT PLAN

Key:

- Insignificant and excluded from Matrix
- Environmental impact that is potentially but on a temporary basis and will assue equilibrium after certain period of time
- Environmental impact that is potentially significant but about which there is insutificient data to make a reliable prediction. Close monitoring and control is recommended
- Potentially significant adverse environmental impact for which a design solution has been identified
- Residual and significant adverse environmental impact
- Significant environmental anhancement

Key:

- Insignificant and excluded from Matrix
- Environmental impact that is potentially but on a temporary basis and will assue equilibrium after certain period of time
- Environmental impact that is potentially significant but about which there is insutificient data to make a reliable prediction. Close monitoring and control is recommended
- Potentially significant adverse environmental impact for which a design solution has been identified
- Residual and significant adverse environmental impact
- Significant environmental anhancement

				PROJECT ACTIVITIES														
				SITE INVESTIGATION			CONSTRUCTION							OPERATION AND MAINTENANCE				
				SURVEY	INVESTIGATION	LAND ACQUISITION	ACCESS ROADS	SITE CLEARING	EXCAVATION	DRAINAGE	EROSION CONTROL	UTILITIES	ABANDOMENT	EQUIPMENT OPERATION	WASTE DISPOSAL AND RECOVERY	PRODUCT STORAGE	SPILLS AND LEAKS	ABONDMENT PLAN
			Identification of Activites															
ENVIRONMENTAL COMPONENTS	PHYSICOCHEMICAL	LAND	Landforms															
			Soil Profile															
			Soil Composition															
			Slope Stability															
			Subsidence and Compaction															
			Seismicity															
			Flood Plains/Swamps															
			Land Use															
			Engineering and Mineral Resources															
			Buffer Zones															
		SURFACE WATER	Shore Line															
			Bottom Interface															
			Flow Variation															
			Water Quality															
			Drainage Pattern															
			Water Balance															
			Flooding															
			Existing Use															
		GROUND WATER	Water Table															
			Flow Regime															
			Water Quality															

Key:

- Insignificant and excluded from Matrix
- Environmental impact that is potentially but on a temporary basis and will assue equilibrium after certain period of time
- Environmental impact that is potentially significant but about which there is insutificient data to make a reliable prediction. Close monitoring and control is recommended
- Potentially significant adverse environmental impact for which a design solution has been identified
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			PROJECT ACTIVITIES																													
			SITE INVESTIGATION			CONSTRUCTION												OPERATION AND MAINTENANCE														
			SURVEY	INVESTIGATION	LAND ACQUISITION	ACCESS ROADS	SITE CLEARING	EXCAVATION	DRAINAGE	EROSION CONTROL	UTILITIES	ABANDOMENT	EQUIPMENT OPERATION	WASTE DISPOSAL AND RECOVERY	PRODUCT STORAGE	SPILLS AND LEAKS	ABONDMENT PLAN														
		Recharge																														
		Aquifer Characteristics																														
		Existing Use																														
	ATMOSPHERE	Air Quality																														
		Air Flow																														
		Climatic Changes																														
		Visibility																														
	NOISE	Intensity																														
		Duration																														
		Frequency																														
BIOLOGICAL	SPECIES AND POPULATIONS	Terrestrial Vegetation																														
		Terrestrial Wildlife																														
		Other Terrestrial Fauna																														
		Aquatic/Marine Flora																														
		Fish																														
		Other Aquatic/Marine Fauna																														
	HABITATS AND COMMUNITIES	Terrestrial Habitats																														
		Terrestrial Communities																														
		Aquatic Habitats																														
		Aquatic Communities																														
		Estuarine Habitats																														
		Estuarine Communities																														

Key:

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			PROJECT ACTIVITIES														
			SITE INVESTIGATION			CONSTRUCTION							OPERATION AND MAINTENANCE				
			SURVEY	INVESTIGATION	LAND ACQUISITION	ACCESS ROADS	SITE CLEARING	EXCAVATION	DRAINAGE	EROSION CONTROL	UTILITIES	ABANDOMENT	EQUIPMENT OPERATION	WASTE DISPOSAL AND RECOVERY	PRODUCT STORAGE	SPILLS AND LEAKS	ABONDMENT PLAN
		Marine Habitats															
		Marine Communities															
HUMAN	HEALTH AND SAFETY	Physical Safety															
		Psychological Well-Being															
		Parasitic Disease															
		Communicable Disease															
		Physiological Disease															
	SOCIAL AND ECONOMIC	Employment															
		Housing															
		Education															
		Utilities															
		Amenities															
		Property & Settlement															
	AESTHETIC AND CULTURAL	Landforms															
		Biota															
		Wilderness															
		Water Quality															
		Atmospheric Quality															
		Climate															
		Tranquility															
		Sense of Community															
		Community Structure															

Key:

- Insignificant and excluded from Matrix
- Environmental impact that is potentially but on a temporary basis and will assue equilibrium after certain period of time
- Environmental impact that is potentially significant but about which there is insutificient data to make a reliable prediction. Close monitoring and control is recommended
- Potentially significant adverse environmental impact for which a design solution has been identified
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				PROJECT ACTIVITIES														
				SITE INVESTIGATION			CONSTRUCTION							OPERATION AND MAINTENANCE				
				SURVEY	INVESTIGATION	LAND ACQUISITION	ACCESS ROADS	SITE CLEARING	EXCAVATION	DRAINAGE	EROSION CONTROL	UTILITIES	ABANDOMENT	EQUIPMENT OPERATION	WASTE DISPOSAL AND RECOVERY	PRODUCT STORAGE	SPILLS AND LEAKS	ABONDMENT PLAN
			Man-Made Objects															
			Historic Places or Structure															
			Religious Places or Structure															
			Landscape															

Appendix 8

GUIDANCE DOCUMENT FOR PREPARING TERMS OF REFERENCE (TOR)

A. INTRODUCTION

The process for preparing an Environment Impact Assessment (EIA) report can be a rather complicated and long process, especially if the project itself is a mega project involving multiple disciplines and located within a sensitive environment. In this regard, DOE needs to streamline the initial information that is provided by the Project Proponent at the conception stage of the project in accordance with the Section 34A (2C) of Environmental Quality Act 1974, so as to steer the Project Proponent in preparing a 'focused' EIA report which would be used to address all significant environmental issues that are predicted in the EIA during the construction and operational stage.

B. TERMS OF REFERENCE (TOR)

The TOR document can provide DOE with a snapshot picture of the Project Proponent's overall project scheme and his plan for addressing potential environmental issues that are predicted to arise at the early stage of the project. The TOR is also a good indication that the Project Proponent (and his consultants) have given adequate consideration in the potential environmental issues that may arise during the construction and operation of the project, and that relevant mitigating measures are well thought early enough to be incorporated into the design and planning of the construction & operational methodologies for the project. More importantly, however, the TOR serves as the "blueprint" for the Environmental Impact Assessment which will be prepared by the Project Proponent, and to facilitate the DOE during the review and vetting of the completed EIA report.

Typically, the TOR is complemented by an Environmental Scoping Information (ESI) which provides further elaboration and shall serves as evidence on how the Project Proponent derives the TOR for his project. In essence, the TOR can be regarded as the "executive summary" of the ESI, which can also be used to outline the skeletal framework for the EIA report to be prepared in detail at the later stage.

The contents of a typical TOR are shown below, as an example. This should not be taken as a "fix format" for a TOR because all projects are different and the Project Proponent should prepare a specific TOR that suits his project needs. The sample TOR shown below is for guidance only.

CONTENTS OF A TYPICAL TOR FOR EIA REPORT

No	Contents	Description
1	Introduction	This Terms of Reference is for the preparation of an Environmental Impact Assessment (EIA) Study for "Project Title"
2	List of Consultants/ Study Team	Details of each individuals (must be registered with DOE) who will carry out the EIA study, which include:- DOE Registration number. Academic background. Experience. Area of study. Declaration (signatures). The EIA consultant team is to be led by a Team/Project leader/ manager who is responsible for the EIA report. Include contact details (complete address, phone and fax numbers) of the appropriate and responsible person(s) to whom enquiries regarding EIA should be directed
3	Scope of Project	List out those components of the Project which fall under the Prescribed Activities under the EIA Order, and describe with enough details to understand the scope of the significant project work components, without the technical details, including a well described engineering implementation programme of the Project.
4	Alternatives Consideration	Outline alternative solutions (project site, technologies, etc) that will be studied or described to justify that the Project will result in the least environmental impacts.
5	Significant Environmental Impacts to be studied	List and describe those significant environmental impacts which will potentially be affected by the project works or components which will need to be covered in detail in the EIA

No	Contents	Description
6	Study Boundaries	Delineate study boundaries for each of the above significant environmental elements to be investigated, and identifying the critical groups of sensitive receptors and how the impacts on the sensitive receptors will be studied
7	Assessment Standards	List out standards, criteria, acceptable limits, etc that will be used to assess the environmental impacts to be investigated.
8	Timeline of studies	Details of all studies/investigations to be carried out: who, where, when, how, etc. with indicative dates
9	Consideration of Concurrent Projects	List out potential concurrent or planned project that may result in cumulative impacts
10	Description of modelling tools, assessment methodologies	List out modelling tools, methodologies, etc for undertaking impact assessment and evaluation of significance. The extent of accuracy of these tools will also need to be provided, including, name of models, applicability of models and tools, verifiability of results, how results are verified, grid size (for water modelling)
11	Possible Mitigation Measures	Outline possible mitigation measures or best management practices from similar projects that may be used to address the environmental impacts on this project.

C. ENVIRONMENTAL SCOPING INFORMATION (ESI)

1. Purpose of ESI

As mentioned above, the ESI provide further elaboration to the Terms of Reference, by demonstrating to DOE that the Project Proponent has given due consideration to his project and the potential environmental issues that may result from the construction and operation of the project. Scoping is a critical activity which should take place at the **early stage** in the EIA process. It is designed to identify and assess the key **environmental impacts and issues** of concern that are required to be considered in detail during the EIA for a particular project. Scoping shall ensure that matters which are **of most importance** are addressed in most detail and valuable resources are not spent on **nonsignificant matters**.

From the DOE's perspective, the purpose of scoping is for the Project Proponent to identify the matters which shall be covered in the **environmental information** to be submitted to the DOE. The scoping activity will result in the preparation of an Environmental Scoping Information (ESI).

In general, an ESI is prepared to identify the **key concerns** associated with a proposed Project and specifically will serve the following purposes:

- To enable DOE to evaluate the adequacy of the T**erms of Reference (TOR)** on whether all the critical issues and concerns to be assessed have been included. (Note: On the same note, TOR shall also ensure that time, manpower, and financial resources **shall NOT** be spent on **unimportant matters**).

- To furnish DOE with adequate information on the **general concept** of the proposed Project including the initial proposed works while omitting the unnecessary details. The information provided in the ESI is simple, direct and concise, leaving out substantial background and technical details which should be covered in the EIA Report.

- To provide DOE with sufficient understanding into the **environmental issues** resulting from the proposed Project, so as to guide the Project Proponent and DOE in the identification of specific environmental aspects that require further detailed assessment.

2. Extent of Environmental Scoping Information (ESI)

The Environmental Scoping Information (ESI) shall focus mainly on the important issues and significant impacts to be addressed or covered by the Project Proponent in the EIA. Resources shall NOT be spent on trivial matters.

3. Coverage of Environmental Scoping Information (ESI)

The following is an **indicative list** of information which shall be included in an ESI:

i. Introduction to ESI

- Introduction: *Provide a short introduction to the ESI*
- Preparer: *Provide the name, designation, contact number and affiliation company of the ESI preparer*
- The need for EIA: *Describe the need for an EIA for the Project*

ii. Basic Information of Project

- Project Title: *Provide name of Project*
- Purpose and Nature of Project: *Provide brief description on the Project's background, previous studies, statement of need, and Project concept, size, components and outline of process technologies, and Project development phases including future phases*.
- Identification of Project Proponent: *Provide Project Proponent's name and address. If the Proponent is a Joint Venture partnership, the Joint Venture partners shall be identified, together with the Project Manager for the Joint Venture*.
- Location and Scale of Project: *Provide coordinates of Project, extent of Project coverage, and maps at appropriate scales*.
- History of Site: *Describe brief history of the site where Project is to be sited*.
- Project justification: *Describe any alternatives evaluated during early proposal (e.g., location, siting, technology, process) and summarize the criteria used to compare options and select the preferred Project proposal*.
- Number and Types of Prescribed Projects: *Describe which category Project falls under the EQA and states the criteria that made the activity falls under the Prescribed Activity*.
- Previously Approved EIA Reports or Studies: *List out any previous EIAs or studies that were conducted for other projects around the proposed Project site.*
- Regional Setting of Project: *Describe how the Project is placed in the regional biophysical and social context.*

- Name and Telephone Number of Contact Person: *Provide contacts of key personnel of Project proponent, normally no more than 2 persons.*

iii. Alternative Consideration

- Outline alternative solutions (project option, project site, technologies, etc) that will be studied or described to justify that the Project will result in the least environmental impacts.

iv. Major Elements of the Environment in the Vicinity of Project Site and Study Boundaries

A relatively comprehensive list of elements of the environment is mentioned in this paragraph. Attention shall be given only to the more significant elements associated with the proposed Project.

- Air Quality: *Briefly describe the prevailing air streams and wind directions at the Project site, and identify the list of air sensitive receivers within a study boundary of 500 meter.*
- Noise and Vibration: *Briefly describe the existing noise contributors at and around the project site, and identify the list of sensitive noise receptors within a study boundary of 500 meter.*
- Water Quality: *Briefly describe the existing waterbodies and rivers at and around the project site, and identify the list of water sensitive receivers within a study boundary of 500 meter.*
- Hydrology and Hydrogeology: *Briefly describe the hydrology and hydrogeology at and around the project site within a study boundary of 1000 meter.*
- Flood risk: *Briefly describe the existing risk of flooding and flood defense infrastructure at and around the project site within a study boundary of 500 meter.*
- Erosion risk: *Briefly describe the existing risk of erosion and erosion mitigation infrastructure at and around the project site within a study boundary of 500 meter.*
- Waste Management: *Briefly describe the existing sources of solid and hazardous waste arising at and around the Project site.*

- Ecology: *Briefly describe the existing habitats (land and marine, including bathymetric characteristics for marine projects) at and around the Project site within a study boundary of 500 meter.*
- Cultural Heritage: *Briefly describe any historical evidence of cultural importance at and around the Project site within a study boundary of 500 meter*.
- Land Contamination: *Briefly describe the existing and previous land uses at and around the Project site that may have caused any land contamination within a study boundary of 500 meter.*
- Groundwater: *Briefly describe the existing uses of groundwater at and around the Project site and the existing and previous land uses that may have caused any groundwater contamination within a study boundary of 1000 meter.*
- Landuse, Landscape and Visual: *Briefly describe the existing landuse and landscape at and around the Project site within a study boundary of 500 meter meter and identify a list of visually sensitive receptors.*
- Traffic: *Briefly describe the existing traffic conditions at and around the Project site within a study boundary of 3000 meter.*
- Hazards and Risk Assessment: *Briefly describe any existing hazardous installations at and around the Project site or risks associated with the project itself within a study boundary of 500 meter (including possibilities such as seismic & geological events)*
- Socio-economy: *Briefly describe the socio-economic conditions at and around the Project site within a study boundary of 500 meter.*
- Geology: *Briefly describe the topographical and geological features at and around the Project site within a study boundary of 500 meter, and may include information on mineral deposits and soil characteristic.*

v. Outline of Planning and Implementation Program

- Relevant Policies: *Briefly describe government policies (federal, state, or local) which are relevant to the Project.*

- Project Implementation: *Briefly describe who will implement and construct the Project works, and who will undertake the detailed EIA studies.*
- Project Time Table: *Provide indicative dates when the project will commence and end.*
- Interactions with other Projects: *List out all concurrent or planned projects in the vicinity of this Project. The purpose of this list is to enable DOE to assess the significance of cumulative impacts from all the projects.*
- Project Assessment Timeline: *Provide a proposed target timeline for the whole assessment process. The time table for proposed studies and investigations shall be included, and as a minimum, shall include:-* TOR submission; TOR *public review (if relevant); environmental studies; consultation program; EIA report submission; EIA report public display; Project proponent's response to public comments*.
- Proposed studies: *Describe scope of works of studies/investigations/surveys that will be undertaken to obtain the baseline information on the major elements of the environment.*

vi. Possible Impacts on the Environment

Note: A relatively comprehensive list of impacts is mentioned in this paragraph. Attention shall given only to the more **significant impacts** associated with the proposed Project.

*Outline the methodologies used in the impact analysis/ assessment and provide a brief **qualitative** description of the potential impacts during construction and operational phases of project implementation on the following:*

- Air Quality
- Noise and Vibration
- Water Quality
- Hydrology and Hydrogeology
- Flood risk

- Erosion risk
- Waste Management
- Ecology
- Cultural Heritage
- Land Contamination
- Groundwater
- Landuse, Landscape and Visual
- Traffic
- Hazards / Risk Assessment
- Socio-economy
- Geology

vii. Mitigation Measures to be incorporated in the Design

Qualitatively *describe the proposed pollution prevention and mitigation measures (P2M2) or generally referred to as* ***best management practices*** *that will be implemented to address the impacts from pre-construction (including feasibility studies and design), construction and operational phases of the Project implementation as described in "Possible Impacts on the Environment" section of the ESI.*

viii. Use of Previously Approved EIA Reports or Studies

Outline and describe any relevant information that is referenced from the previous EIAs or studies that were identified in Section 3(ii) above and briefly discuss how this information is suitable to be used for this Project.

ix. List of Drawings, Flowcharts, Diagrams, and Photographs

Provide the following:

- *Clear, colored and readable maps, diagrams and photographs to illustrate the nature of the Project and its general layouts indicating the location of the Project and all its components and Project boundaries.*
- *Macro scale maps (1:50,000 & 1:25,000), plans, photographs or satellite images, clearly identifying the location of the proposed project location.*

- *An updated satellite image to indicate the recent existing environment may be used. The coverage of the landuse map must be at least within 5 km radius (interval of 250m). For large scale projects such as the construction of dams or impounding reservoirs, the coverage of the landuse map may be beyond 5 km radius depending on the catchment area.*
- *Other types of map that may be relevant to the key and critical issues of the proposed Project. They may include cadastral map, topography and geological map, bathymetry map, hydrological map, coral population map, etc.*
- *For industrial-based projects, clear and readable flow chart of the production processes and explanation on the processes and the Project's maximum capacity*

x. References

Provide a list of documents and studies used to prepare the Environmental Scoping Information (ESI).

Note: The items listed in Section 3 are not exhaustive. Other items shall be included whenever relevant. The ESI shall be included with the TOR submission as an annex or appendix.

Issued by:

Director General
Department of Environment
July…., 2016

Note: Please submit three (3) hardcopy and **a softcopy** (in PDF format) of the Term of Reference with Environmental Scoping Information to:

Director General
Department of Environment
Ministry of Natural Resources & Environment
Level 1-4, Podium 2 & 3, Wisma Sumber Asli
No. 25, Persiaran Perdana, Precinct 4
62574 PUTRAJAYA
(Attn. to: Director of Assessment Division)

Appendix 9

FIRST / SECOND SCHEDULE

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NAME OF PROJECT PROPONENT

PROJECT TITLE

VOLUME X/Y

PROPOSED PROJECT GRAPHICS (ILLUSTRATION)

MONTH/YEAR

Table of Content

EIA Report format

The format of the Report and its content are explained as follows:-

EIA Report Format for Preliminary Pages

At a minimum, the preliminary pages shall include the Environmental Pledge by the Project Proponent, the Declaration by the Qualified Person (i.e. EIA Consultant) and the Executive Summary. These are briefly described below:

(a) Project Proponent's Environmental Pledge

The Project Proponent shall make a declaration on the EIA Report prepared by the Qualified Person (EIA Consultant). The declaration shall be type written on the official letterhead of the company of the Project Proponent as follows:-

"I hereby declare that the entire EIA Report is the product of the Qualified Person (i.e. the EIA Consultant) engaged by my company

and all the facts stated in the Report and the accompanying information are to the best of my knowledge and belief true and correct, and that I have not withheld or distorted any material facts. I agree and I undertake the responsibility to implement all the pollution prevention and mitigation measures (P2M2s) described in the EIA Report, in the Environmental Management Plan (EMP), and in the LD-P2M2* as proposed by the EIA Consultant. I have allocated sufficient funds for the above purpose.

Name of Project Proponent: ……..

NRIC Number: …….

Designation: …….

Signature: …… Date: …….

Company's stamp:

(Note*: LD-P2M2 stands for Land Disturbing Pollution Prevention and Mitigation Measures)

(b) Qualified Person's Declaration

The EIA Consultant team leader shall make a declaration on the EIA Report which shall be type written on the official letterhead of the company of the EIA Consultant as follows:-

"I declare that the entire EIA Report is the product of my own work and the work of my team members (i.e. other consultants who are also Qualified Persons) who worked under my supervision and all the facts stated in the Report and the accompanying information are to the best of my knowledge and belief true and correct and that I have not withheld or distorted any material facts. I have briefed the Project Proponent on the content of the Report and highlighted to him all the pollution prevention and mitigation measures (P2M2s) described in it, and in the Environmental Management Plan (EMP), and in the LD-P2M2*, and the Project Proponent has agreed to implement them (i.e. P2M2). "

Name of EIA Consultant team leader: ……..

NRIC Number: …….

Designation: …….

Signature: …… Date: …….

Company's stamp:

(Note*: LD-P2M2 stands for Land Disturbing Pollution Prevention and Mitigation Measures)

(c) Executive Summary

The Executive Summary is an important part of the EIA Report. It shall be well written not only because it will be read widely and reviewed by the DOE, other authorities, and the public, but it is also an essential gateway for the Report to get read. The Executive Summary shall be written in a non-technical language and provides a summary of the proposed project, main issues associated with its implementation, and the pollution prevention and mitigating measures (P2M2s) to be taken to prevent and mitigate the potential impacts to the receptors.

The Executive Summary shall be concise and written in English and Bahasa Malaysia. The format of both versions shall be similar. The Executive Summary, in addition to summarizing the main findings and issues, shall contain the following information:

(i) Name / Title of project

(ii) A description of the project and the environment

(iii) Name and contact details of the Project Proponent (Contact person, address, telephone number, e-mail address)

(iv) Name of the registered EIA consulting firm and contact details (EIA team leader, address, telephone number, e-mail address)

(v) Location of the project (including where applicable, coordinates, lot numbers, sub-district and district name)

(vi) Relevant maps showing project location and sensitive receptors

(vii) Flow diagrams of main processes (for industrial and other relevant activities)

(viii) A tabulation of potential impacts, their magnitude and proposed pollution prevention and mitigation measures (P2M2s) as shown below:

Table: Summary of potential impacts, their magnitude and proposed pollution prevention and mitigation measures

Significant potential impacts	Magnitude of significant potential impacts	P2M2*	Reference page**

(Notes-

*P2M2s: Pollution prevention and mitigation measures. P2M2s shall be those which can be described as state of the art technologies or best available technologies, or industry best practices.

** Reference page: page in the EIA Report)

(ix) A description of performance monitoring (PM) program and compliance monitoring (CM) for pollution prevention and mitigation measures (P2M2) and tabulation of relevant PM parameters, recommended limits, monitoring locations and frequencies.

(x) Whenever applicable, a description of impact monitoring program (IM), monitoring locations and frequencies.

The soft copy version (portable document format - PDF) of THE Executive Summary shall be submitted to the DOE (EIA Secretariat) together with the soft copy of the full EIA Report. The softcopy will be uploaded to the Enviro Knowledge Management Centre (EKMC) and website of the DOE for public display.

EIA Report Format for Main Text

The EIA Report format for the main text or body of the EIA Report shall contain at least the following chapters explained as follows:

Chapter 1: Introduction

1.1 Title of Project

The project title shall identify the type of proposed project and its specific location. The title shall also indicate if the project is part of a larger project proposal.

This Chapter shall contain at a minimum the following information:

(i) Name / Title of project

(ii) Name and contact details of the Project Proponent (Contact person, address, telephone number, e-mail address)

(iii) Name of the registered EIA Consulting firm (EIA team leader, ad dress, telephone number, e-mail address)

(iv) Location of the project (including where applicable, coordinates, lot numbers, sub-district and district name)

(v) Relevant maps showing project location and sensitive receptors

1.2 Project Proponent and Qualified Persons

This chapter shall state clearly the identity of the Project Proponent whether it is a public or private organization. The details of the EIA consulting firm and the consultants engaged for the EIA study shall be provided. The EIA consultant team shall be led by a team leader who shall be responsible for supervising the conduct of the EIA study and for coordinating the writing of entire EIA Report. All the members of the EIA consulting team (the team leader and the subject matter consultants (SMCs) shall be Qualified Persons registered with the DOE under the EIA Consultant Registration Scheme (www.doe.gov.my.)

1.3 Legal Aspects

1.2.1 Prescribed activity is subject to section 34A, Environmental Quality Act, 1974

This subparagraph shall state clearly that the proposed development project is a prescribed activity and EIA study is carried out and EIA Report is prepared to comply with the legal requirement under section 34A, Environmental Quality Act, 1974.

1.2.2 Conformance of proposed project to government's development plans

This subparagraph shall make a definitive statement stating that the proposed project concept and project location is in line with any development plans, policies or decisions of the Government of Malaysia prior to the EIA study, namely (but not limited to the following):-

(i) National Physical Plan.

(ii) Structure Plan.

(iii) Local Plan.

(iv) Regional Plan (inter-state planning).

(v) Guidelines on Siting and Zoning of Industries and Residential Area.

Chapter 2: Terms of Reference of EIA Study

This chapter shall provide the TOR of the EIA study which has been endorsed by the DOE. The reference of the endorsement shall be cited (example TOR meeting or DOE's letter).

Chapter 3: Statement of Need

The statement of need shall outline the background of the project and the reasons for it being proposed. It shall establish social, economic or other needs for the project and shall conclude with a definitive statement of the aim of the project. The statement of need for the proposed project shall be substantiated.

Chapter 4: Project Options

This chapter shall discuss project options including the advantages and disadvantages from the perspective of technical, economic, social, and environmental aspects of the following alternatives (wherever applicable):

(i) Site Options

(ii) Project Options (including "no project option", and "scaled-down project option")

(iii) Technology Options

(iv) Raw Materials Options

(v) Construction Method Options

(vi) Layout Options
(vii) Alignment Options
(viii) Operation Options

Chapter 5: Project Description

This chapter shall provide information and discuss the following aspects:

(i) A description of the project concept with the following details: size and capacity, land requirements, raw materials, energy source and consumption, water source and consumption, labor requirements, transportation, support facilities, investment, market, and special infrastructural requirements

(ii) Maps and diagrams (photographs might also be useful to describe some projects)

(iii) A summary of the technical, economic, and environmental features that are essential to the project

(iv) Proposed project implementation schedule and project lifespan (wherever applicable)

(v) Comparison with the existing plant/project in Malaysia or elsewhere

(vi) Operation and maintenance activities

Chapter 6: Existing Environment

This chapter shall explain clearly the sources of information used to describe the existing (or baseline) environment. The description of the existing environment shall conform to the following specifications, wherever appropriate:

(i) The zone of study is a minimum 5 kilometers radius from project boundaries except for linear projects where the zone of study is a minimum of 0.5 kilometers

(ii) The baseline conditions of the physico-chemical, biological, social, and economic setting prior to the implementation of the project is described in qualitative and quantitative terms

(iii) Special attention is given to environmental sensitive areas, and areas of special or unique scientific, socio- economic or cultural values

Uncertainties of information obtained shall be discussed.

Chapter 7: Evaluation of Impacts

1.1 Identification and Prediction Assessment of Impacts

This subchapter shall present an analysis of the impacts identified and predicted which shall be described in quantitative and qualitative terms. An assessment matrix such as the one shown in Appendix 7 shall be used to summarize the characteristics of the impacts. The impacts shall be characterized from the following aspects: their magnitude, extent, duration, and significance.

The discussion on impact identification and prediction shall cover following aspects and conform to the following requirements:

(a) The zone of impact shall be identified based on size and complexity of the project and supported by appropriate modeling exercise;

(b) The nature of the environmental effect (e.g. air quality changes; water quality changes);

(c) The source of the impact (e.g. oil-fired furnace chimney emission); and

(d) The nature of the impact (e.g. human health, visual esthetics).

1.2 Detailed Examination of Impacts

This subchapter contains information on the potential impacts predicted as a result of the implementation of the project and how the impacts were assessed. The methodologies used for predicting the impacts shall be described. For example, for air pollution impact studies, the outputs of modeling exercise (i.e. the highest short term and long term averages of pollutant concentrations at specific receptors) shall be presented and compared with the air quality standards. To indicate general

impacts of pollutant emission in the study area, contours of pollutant concentration shall also be presented on a map using ArcGIS as GIS platform.

Similarly for other impact studies involving the modeling of water quality, ground water quality, noise, risk, sediment dispersion, oil slick and liquefied natural gas (LNG) spill, hydrology and hydrodynamics, etc., the outputs shall be presented in an easy to understand fashion. All modeling exercises shall undergo all the stages of modeling, namely, model verification, calibration, and validation. The uncertainties in the models shall be discussed thoroughly. Copies of model files in electronic format shall be submitted to the DOE's.

Depending on the characteristics of the project, impact studies may also involve economic evaluation of environmental impacts and risk assessment, which shall be performed wherever relevant.

1.3 Project Evaluation

In this subchapter the EIA Consultant shall attempt to quantify the environmental and development tradeoffs anticipated from the proposed project by using the cost-benefit evaluation technique.

Chapter 8: Mitigation Measures

8.1 Adherence to DOE Guidelines

In the process of identifying the appropriate pollution prevention and mitigation measures (P2M2s), the technologies and practices which can be described as "the state of the art" or "best available technologies" (BATs), or "industry best practices" shall be evaluated and discussed in this subchapter. This applies to all stages of project implementation including the construction and operation stages.

The requirements and specifications stipulated in the following documents issued by the DOE shall be adhered to:

(a) Guidance Document for addressing soil erosion and sediment control aspect in EIA Report as per Appendix 3.

(b) Guidance Document for the preparation of Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2) as per Appendix 4.

(c) Other relevant guidelines and guidance documents issued by the DOE pertaining to environmental-related system and management as per Appendix 5.

Other documents issued by the DOE from time to time related to EIA process which may cover other environmental aspects shall also be adhered to.

8.2 Proposed Mitigation Measures

This subchapter contains a discussion of all the mitigation measures which have been adopted and incorporated into the design and implementation of the project to effectively eliminate, prevent, minimize predicted adverse impacts. For each potential adverse impact, at each stage of project implementation, the mitigation measure shall be identified, documented and costed. Mitigation measures include all actions and activities taken, put in place, or executed which could be structural, non-structural, procedural, or administrative in nature, to mitigate the adverse impacts. The Project Proponent shall provide evidence to show his commitment to implement all the proposed pollution prevention and mitigation measures (P2M2s).

Chapter 9: Environmental Management Plan (EMP)

9.1 Land Disturbing Pollution Prevention and Mitigation Measures

If the proposed development project involves any activity that disturbs land surface, a plan to mitigate soil erosion on the project site shall be prepared and presented in this subchapter. The requirements and specifications stipulated in the Guidance Document for the Preparation of the Document on Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2) shall be complied with.

9.2 Proposed Monitoring Programme

Environmental monitoring comprises three types of monitoring, namely: Performance monitoring (PM), compliance (CM), and

impact monitoring (IM). Each type shall be detailed out in this chapter.

9.2.1 Performance monitoring (PM)

This subchapter shall contain a description of performance monitoring (PM) program for all pollution prevention and mitigation measures (P2M2) proposed for the project. A tabulation of relevant PM parameters, recommended limits, monitoring locations and frequencies, and instrumentation and personnel required shall also be discussed.

9.2.2 Compliance monitoring (CM)

A description of compliance monitoring (CM) program for all pollution prevention and mitigation measures (P2M2) shall be included in this subchapter. A tabulation of relevant CM parameters, discharge or emission standard, monitoring locations and frequencies, and instrumentation and personnel required shall also be presented.

9.2.3 Impact monitoring (IM)

The requirement on impact monitoring (IM) shall be evaluated on a case to case basis. The general consideration is that, IM is required only in cases where pollution prevention and mitigation measures (P2M2s) conforming to the category of best available technologies (BATs) cannot be clearly identified or there exist uncertainties in the long term impact to the receptors. The above evaluation shall be presented in this chapter. If IM is required, a description of the IM program, monitoring parameters, monitoring locations and frequencies shall be described. A discussion of how long the IM program will be carried out, instrumentation and personnel required shall also be presented.

9.2.4 Environmental auditing

Proposal for performing an environmental audit of the project, after its completion, to assess the overall

environmental compliance, the compliance with the environmental mainstreaming requirements and the fulfillment of the Environmental Pledge by the Project Proponent shall be discussed in this subchapter.

Chapter 10: Study Findings

In this Chapter the EIA Consultant shall draw appropriate conclusions of the study findings from the perspective of the impacts of the proposed project. The conclusions shall be summarized in a series of brief statements which refer to the relevant sections of the Report.

References

Provide full citation of all the references used.

Appendices

The appendices may include the following:

(a) Input data and results of any modelling studies (soft and hard copy)

(b) Supporting documents such as Site Suitability Assessment, Environmental Scoping Information, etc.

(c) Other relevant documents such as list of attendance, meeting minutes, and photographs of public engagements, etc.

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