

CHAPTER 8.0

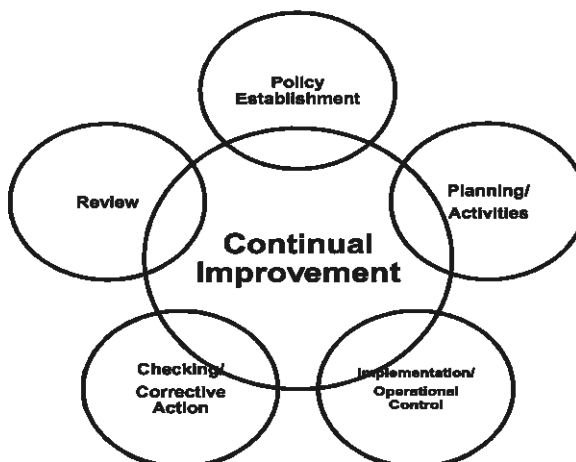
ENVIRONMENTAL MANAGEMENT PLAN (EMP),
ENVIRONMENTAL MONITORING PROGRAMME REPORT (EMPR) AND AUDIT

Organizations including those involved in the operation of a development activities should establish an EMP to address schedules, resources and responsibility for complying with the requirements set by the DOE. The Environmental Quality (Prescribed Activities) (EIA) Order 1987 listed out 19 categories which must incorporate an environmental management plan (EMP) in their report. EMP provides a process by which the project proponent can identify significant environmental aspects that should be addressed. The EMP should be implemented during the construction phase by either the main contractor or the client.

8.1 Introduction

An EMP is the action an organization is taking to determine how it affects the environment, comply with regulations, keep track of environmental management activities, and meet the environmental goals and targets. It also documents key elements of environmental management including the environmental policy, responsibilities, applicable standard operating procedures and best management practices (BMP), record keeping, reports and communication, training, monitoring and corrective action. In summary, the EMP features the “Policy, Planning, Implementation, Checking, Action, Review” cycle for ongoing improvement.

Figure 8.1: Cycle of EMP



Where,

Policy Establishment	:	The establishment of company’s policy in protection and enhancing the quality of environment and the commitment by the top management to ensure continuous compliance with the environmental requirements.
Planning/ Activities	:	The preparation of project planning, which is includes identifying the environmental impacts and establishing the environmental goals.
Implementation/ Operational Control	:	Implementation of activities, which include environmental management, employee training and establishing operational controls.
Checking/ Corrective Action	:	Continuous checking exercise including environmental monitoring, auditing and taking corrective action.
Review	:	The reviewing exercise is an approach to review the progress and taking action to make necessary changes to the existing EMP.

8.2 Environmental Policy

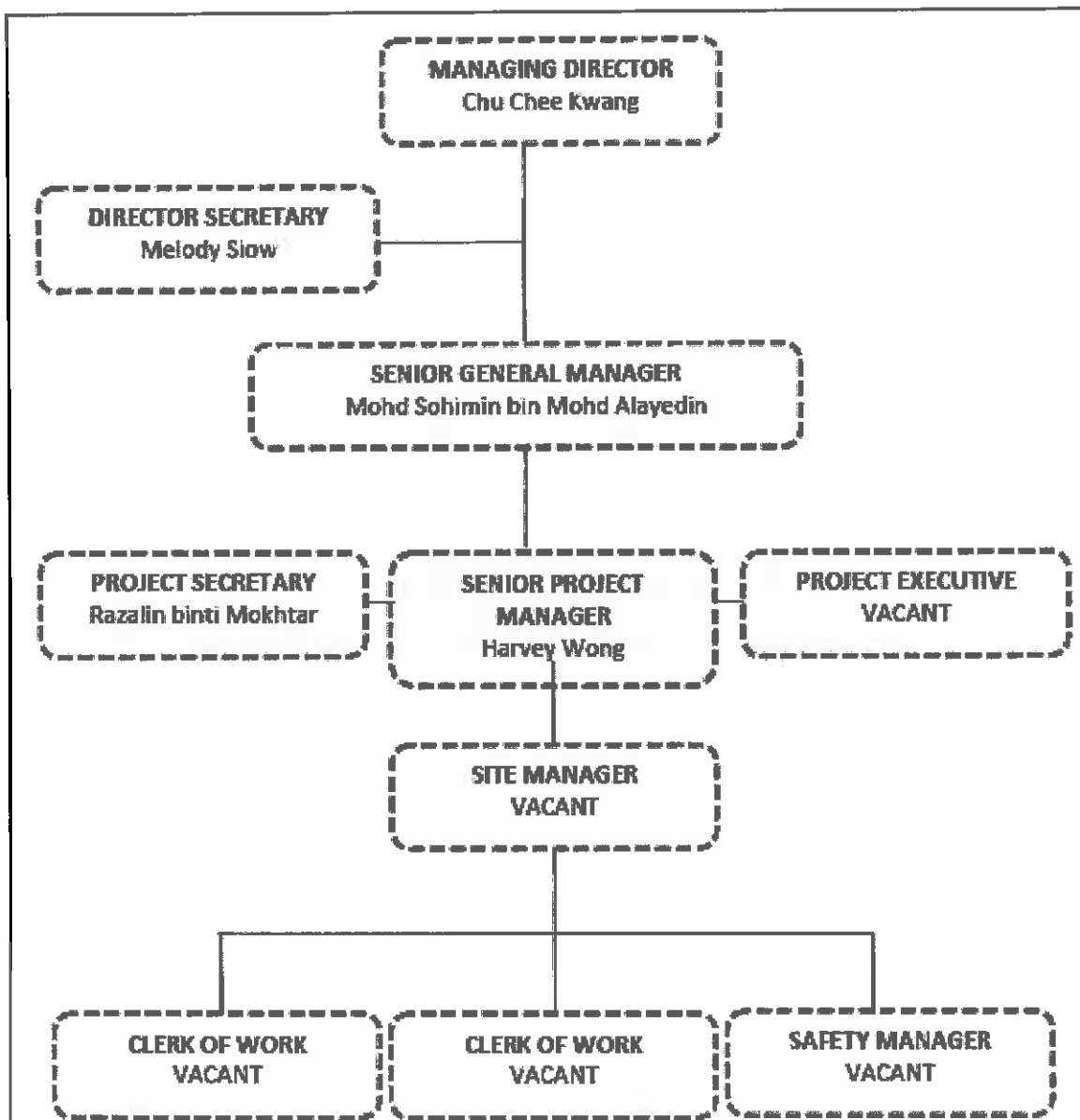
Thus, the above commitment will provide the framework for the preparation of this Environmental Management Plan (EMP). The EMP will incorporate a continuous action plan with the provision of review and budget estimation, which directly reflect the group commitment for implementing the outlined policy. The implementation of the policy shall be executed through the creation of Safety, Health and Environment Department (SHED) within the **Firstwide Plus Sdn Bhd**.

8.3 Organization Structure

Therefore, an organization chart (Environmental Management Team) should be developed comprising the client, contractor and sub-contractors as well as an appointed environmental consultant.

The organization chart should be similar to **Figure 8.2**. Subsequently, the channel of communication should be similar to the organization chart.

Figure 8.2: Organization Chart for Firstwide Plus Sdn Bhd (Environment Management Team)



Source: Firstwide Plus Sdn Bhd, 2013

The appointed environmental consultant should act as an advisor to the main contractor as well as the client in environment requirements such as compliance with the EIA approval conditions, implementation of environmental mitigations measures, etc.

Environment officer which is fully responsible in that on the matters with regards to environmental management and the implementation of all the mitigation measures during construction has to be appointed. The tasks of this officer are:

- i. Supervise works on monitoring construction works Environmental Management Project;
- ii. Conducting inspection and maintenance on pollution control methods; and
- iii. Arrange for site meeting with the project developer and contractor

8.4 Environmental Requirement

The contract document must be prepared between developer and contractor to show environmental responsibility at project site. All development is base on condition of EIA approval.

Project developer have to make the approval conditions of the EIA report and consultant recommendations in the EIA report as a part of the agreement conditions in the tender and contract agreement to any contractor/ sub contractor which are involved in the implementation of this project.

A copy of the approval condition EIA report, together with each document copy which becomes a part of the approval conditions must be displayed at a suitable place which can be seen clearly in the management office.

8.5 Environmental Monitoring Programme Report (EMPr) and Audit

The proposed scope for the EMPr may cover various project activities such as the following:

- i. Monitoring program for the earthwork activities;
- ii. Monitoring program for the infrastructures construction activities;

All activities will monitor all environmental parameters such water, air and noise quality monitoring. Certain scope may differ depending on the intensities and types of activities conducted on ground. To ensure that the objectives of the EMPr are achieved, the following environmental programs should be taken:

- Ensuring the construction activities is properly planned and undertaken to minimize environmental impacts
- Monitoring programs on noise and air quality
- Monitoring programs on water quality (river)
- Proper handling dredged materials, biomass and solid waste
- Maintain inventory on scheduled wastes generated by the operation of the facility
- Organize training and campaign on environmental and safety issues.

The programs will be reviewed periodically and new programs will be added when new objectives are being made. The process of periodical review will help ensure continual improvement in the environment. **Table 8.1**, which showed the proposal of parameter for environmental program. Meanwhile, **Table 8.2** clarified on future sampling station for monitoring water, air, noise, sediment basin and silt curtain.

Table 8.1: Proposal of Parameter for Environmental Program

Component	Parameter/Unit	Frequency
River water quality	pH, BOD, COD, SS, DO and AN	Monthly based on condition of approval
Air quality	Total Suspended Particulates (TSP)	
Noise quality	Leq	
Sediment Basin	Total Suspended Solid (TSS)	

Table 8.2: Future Sampling Monitoring

Environmental Quality	No Stations	Location Description		Co-ordinate
Water (River / Drain)	4	W1	Bridge Sungai Pakgadai	N 01° 28.737' E 103° 34.905'
		W2	Existing drain outside project boundary, beside Setia Eco Garden	N 01° 29.682' E 103° 35.591'
		W3	Existing drain at STP and TNB pump house	N 01° 29.546' E 103° 35.358'
Air	3	A1	In front of International School Tenby, Setia Eco Garden	N 01° 29.577' E 103° 35.465'
		A2	Setia Eco Garden Shop Lot Office	N 01° 29.531' E 103° 35.301'
		A3	Nusa Bayu Housing	N 01° 29.163' E 103° 35.361'
Noise	4	N1	In front of International School Tenby, Setia Eco Garden	N 01° 29.577' E 103° 35.465'
		N2	Existing drain outside project boundary, beside Setia Eco Garden	N 01° 29.682' E 103° 35.591'
		N3	Setia Eco Garden Shop Lot Office	N 01° 29.531' E 103° 35.301'
		N4	Nusa Bayu Housing	N 01° 29.163' E 103° 35.361'
Sediment Basin	5	SB1	Within proposed site	N 01° 29'20.90" E 103° 35'35.42"
		SB2	Within proposed site	N 01° 29'15.10" E 103° 35'30.07"
		SB3	Within proposed site	N 01° 29'6.22" E 103° 35'29.78"
		SB4	Within proposed site	N 01° 28'56.49" E 103° 35'53.12"
		SB5	Within proposed site	N 01° 28'55.52" E 103° 36'2.91"

Source: Perunding UEP Sdn Bhd, 2013

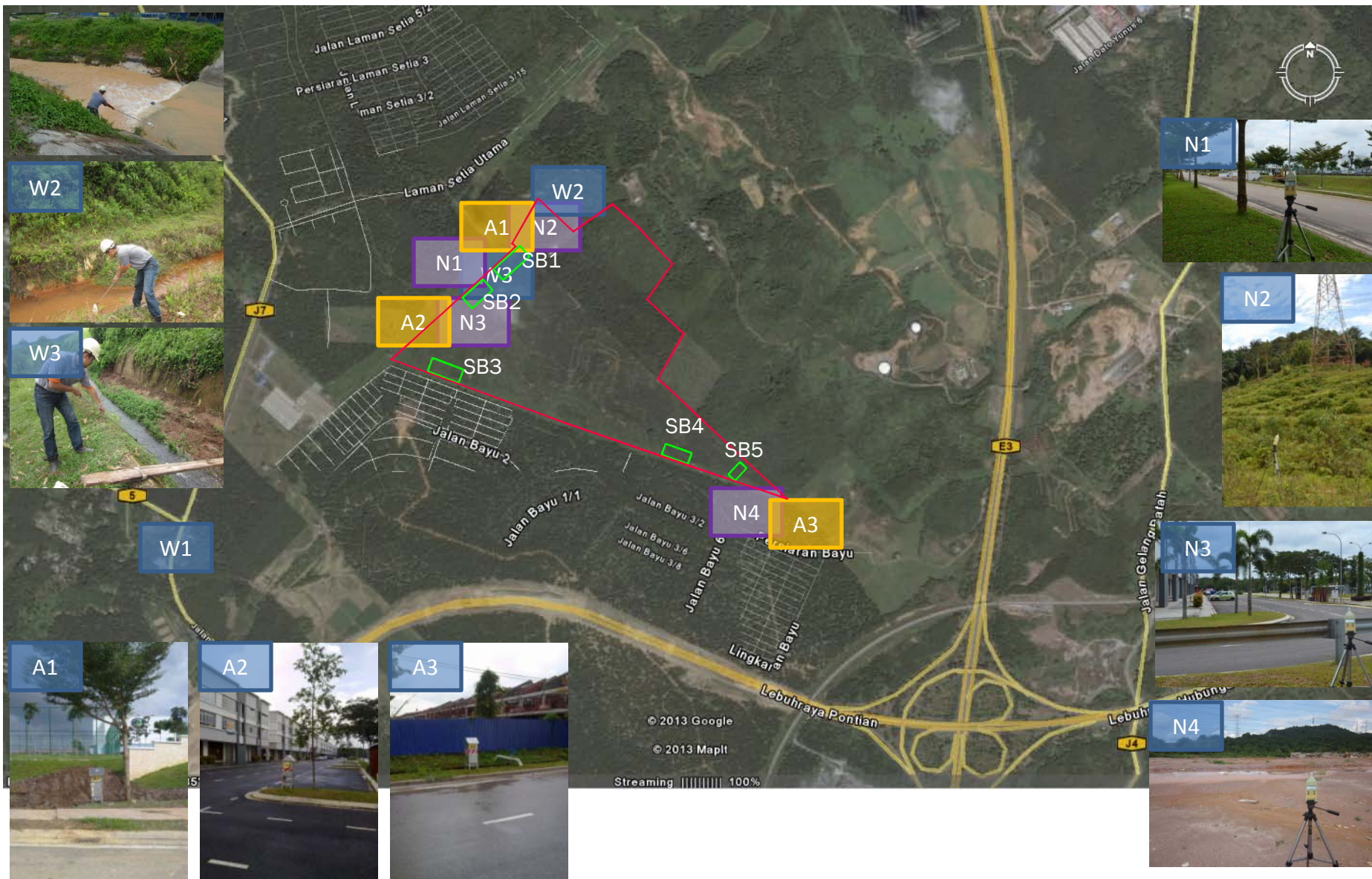


Figure 8.3 :
Future Monitoring Location

Legend:
 W = Water
 N = Noise
 A = Air
 SB - Sediment Basin

— Proposed Site

Sumber: Perunding UEP Sdn. Bhd, 2013

UEP Perunding UEP Sdn. Bhd.
 36A, Jalan Impian Emas 7,
 Taman Impian Emas,
 81300, Skudai, Johor Darul Ta'zim.
 Tel : 07-557 3987 Fax : 07-557 2987
 Email : peruepsb@yahoo.com

The project proponent shall undertake the above monitoring programme, as stated according to the DOE Environmental Impact Assessment (EIA) approval letter as in sampling frequency, sampling stations and format of reporting to ensure compliance of all environmental standards and to avoid adverse environmental impacts. The above monitoring programmes will be initiated during the operation and maintenance phase, when all installations are expected to be commissioned and normal operation could have started. The monitoring programmes proposed are subjected to the amendments and approvals by the DOE.

8.6 Compliance Audit

A yearly environmental audit will be undertaken throughout the construction period. The auditors of Environmental Audit must register with the DOE under the Environmental Auditor Registration Scheme for compliance. A report must be submitted to DOE Johor on a yearly basis starting from the earth work activities of the project development. This audit will be carried out by the project proponent. Following this, the corrective and preventive actions that are recommended will be initiated. Department of Environment will only accept environmental audit report prepared and submitted by Registered Environmental Auditor.

a) Audit Purpose

Assessment of the current environmental performance established by the management system particularly in the treated water discharge and environmental monitoring with respect to its compliance to the Malaysian environmental law, The Environmental Quality Act, 1974 (Act 127), item 34A (2).

b) Audit Report Requirement

The audit report amongst other will include the followings:

- a) Compliance to all monitoring requirements as imposed by DOE.
- b) Compliance to all the standard, criteria and guidelines as imposed by DOE and other authorities.
- c) Compliance to all proposed plans submitted to relevant Government Departments.
- d) Compliance to mitigation measures.
- e) Compliance to any other conditions imposed by the Government.
- f) In any case of non-compliance, a Non-Compliance Report (NCR) will be issued and recorded to analyse the root cause of problems, identify areas where corrective action is needed, improve performance, re-sample or redo the monitoring and increase efficiency.
- g) To prevent any form of pollution on-site.

The compliance audit will be conducted at the project site. The findings and recommendations must be stated in an audit report.

c) Objectives

The main objectives of conducting the Compliance Audit are to determine the compliance status of the construction work on environmental regulatory requirements with respect to relevant regulations of Environmental Quality Act 1974 as follows:

- a) Environmental Quality (Sewage) Regulations, 2009
- b) Environmental Quality (Clean Air) Regulations, 1978

d) Audit Scope

a) Pre-audit Activities

Discuss and review the last environmental audit report (if any).

Site-Audit Activities

- i. Conduct site inspection and review all existing monitoring certificates.
 - ii. Evaluate audit findings to the management and recommend relevant corrective actions.
- b) Site-Audit Activities
- i. Conduct site inspection and review all existing monitoring certificates.
 - ii. Evaluate audit findings to the management and recommend relevant corrective actions.
- c) Post-Audit Activities
- i. Prepare draft report to review the audit facility management.
 - ii. Submit final audit report to the Department of Environment (DOE).

e) Categorization of Audit Data and Findings

The Audit Data and Findings were categorised as follows:

- a) Organisational Audit Findings
- b) Technical Audit Findings
- c) Legislative Audit Findings

i. Organisational Audit Findings

An aspect of environmental interest that has been considered under this scope of work briefly includes the identification of environmental responsibilities such as:

- Environment Officer
- Existing personnel responsible for waste management
- Existing environmental personnel

ii. Technical Audit Findings

This process involves the identification of analysis of analysis of river water, boundary noise, ambient air, air emission monitoring and inventory of scheduled waste at each operation stage and compliance to documented procedure in construction process.

iii. Legislative Audit Findings

This is a study to identify the status of environmental conformance from the local environmental legislation's perspective:

- Identification of applicable environmental laws
- Records of approval and compliance

8.7 Environmental Impacts and Mitigating Measures

Environmental impact can be ensured by project construction activity are as follow:

- i. Degradation of water quality
- ii. Generation of air pollution and dust due to construction activities.
- iii. Noise pollution.
- iv. Oil spill and leakage into waterways.

Mitigation Measures

The mitigation measures will be undertaken during started activities on site. Listed are some of the control measures that can be considered to minimize the impacts:-

- i. Construction should practice the 'SAFETY FIRST' concept, to ensure that safety is never compromised.
- ii. Appropriate garbage bins should be placed at several places around the site to collect solid wastes.
- iii. All construction debris should be deposited at approved dumping areas and vehicles hired for carting away shall have the necessary waste license.
- iv. A monitoring programmed should be implemented during construction period.

However, the above impacts may vary depending on nature of works and impacts during the projects implementation. Details of the subjects shall be highlighted.

8.8 Contingency Plan

In case of accidents, an appropriate contingency ought to be established. Therefore, a contingency plan integrating the actions required to respond to emergency is deemed vital. The contingency plan will serve as the very foundation of the required personnel training program. The contingency plan ran after the management and personnel assigned responsibilities for handling scheduled waste a unique opportunity to plan for emergency incidents.

The potential type of incidents involving the described processes could be anticipated. The followings are some of the potential situations:

- Fire
- Spillage during handling or transportation
- Splashes involving worker injury

An emergency response plan (ERP) is concise information necessary to respond effectively to any of the above incidents. The ERP will be implemented in case of harm could be done to the environment and the personnel in the affected area. This plan is design to minimize hazards to human health or the environment from any accident. The contingency plan will be implemented if an imminent or actual incident could threaten the environment or human health.

(i) Fires

If the fire spreads, it could ignite materials at other locations at the site. The fire could spread to off-site. Use of water or chemical fire suppressant could result in contaminated runoff.

(ii) Spills

The spill could cause the release of contaminating liquids, or the spill can be contained on-site. The spill cannot be contained on-site resulting in off-site soil contamination and/or groundwater or surface water pollution.

(iii) Power Failure

In the case of power failure, the operation of the construction activity will be dependent on the electricity supplied by the generator.

8.9 Emergency Response Plan

The purpose of the Emergency Response Plan (ERP) is to establish a continuing state of emergency readiness and response for the project during construction as well as operation. The ERP will be used to manage emergency incidents to protect life to the maximum extent possible, the environment, property, and to restore the operation to normal operation conditions in the shortest possible time. ERP shall provide the basic administrative structure and protocols necessary to cope with emergency situations through effective use of resources.

This Emergency Response Plan outlines the guidelines to be followed by the operators, contractors and visitors to the filling area. The scope of this plan includes the necessary details covering organization, communications, responsibilities and plan of action which shall be used by all personnel involved in emergency response. The objective of this plan is to provide overall plan of action to be followed in an emergency situation with specific aim of:

- Ensuring the safety of all personnel
- Minimizing damage to property
- Ensuring safety of neighboring residential and public

The reviewing and updating for ERP shall be carried out at least annually. The ERP will be amended when important components become outdated or regulatory changes occur. Whenever changes are made, a revision date and appendix number shall be noted. The updated revision will be issued to all relevant personnel.

An emergency means when there is an unexpected dangerous situation or disaster resulting in fire, gas release, structure damage, oil spillage, accident and others which require prompt emergency action.

Emergency Response Plan (ERP) is developed to ensure a practical, prompt, coordinated and professional response to an emergency situation so as to minimize harmful effects on:

- Human life and health
- the environment
- Property
- The site and surrounding areas, and
- Company image

In order to achieve, the project initiator is responsible for providing:-

- Plans and arrangements for making the necessary resources available.
- Emergency procedures and instructions.
- Communication of the procedure
- Debriefing and post-traumatic stress procedure.
- Information and training regularly to ensure that employees understand the procedures and instructions and how they are on respond.

8.10 Conclusion

The Environmental Management Program (EMP) for the construction and operation of the project when implemented will ensure that the environmental impacts and accidents from the proposed project will be minimized. The EMP will also help in the efficient management of the environment, with respect to planning, monitoring, corrective actions and enforcement not only for developer but also for the Department of Environment or other relevant agencies. The EMP will ensure that legislative requirements for the development are complied with.

The Safety, Health and Environment (SHE) Unit will be responsible for the successful implementation of this EMP. The EMP will be reviewed periodically and will be subjected to changes for continual improvement throughout the project duration.

Figure 8.4: Emergency Procedure

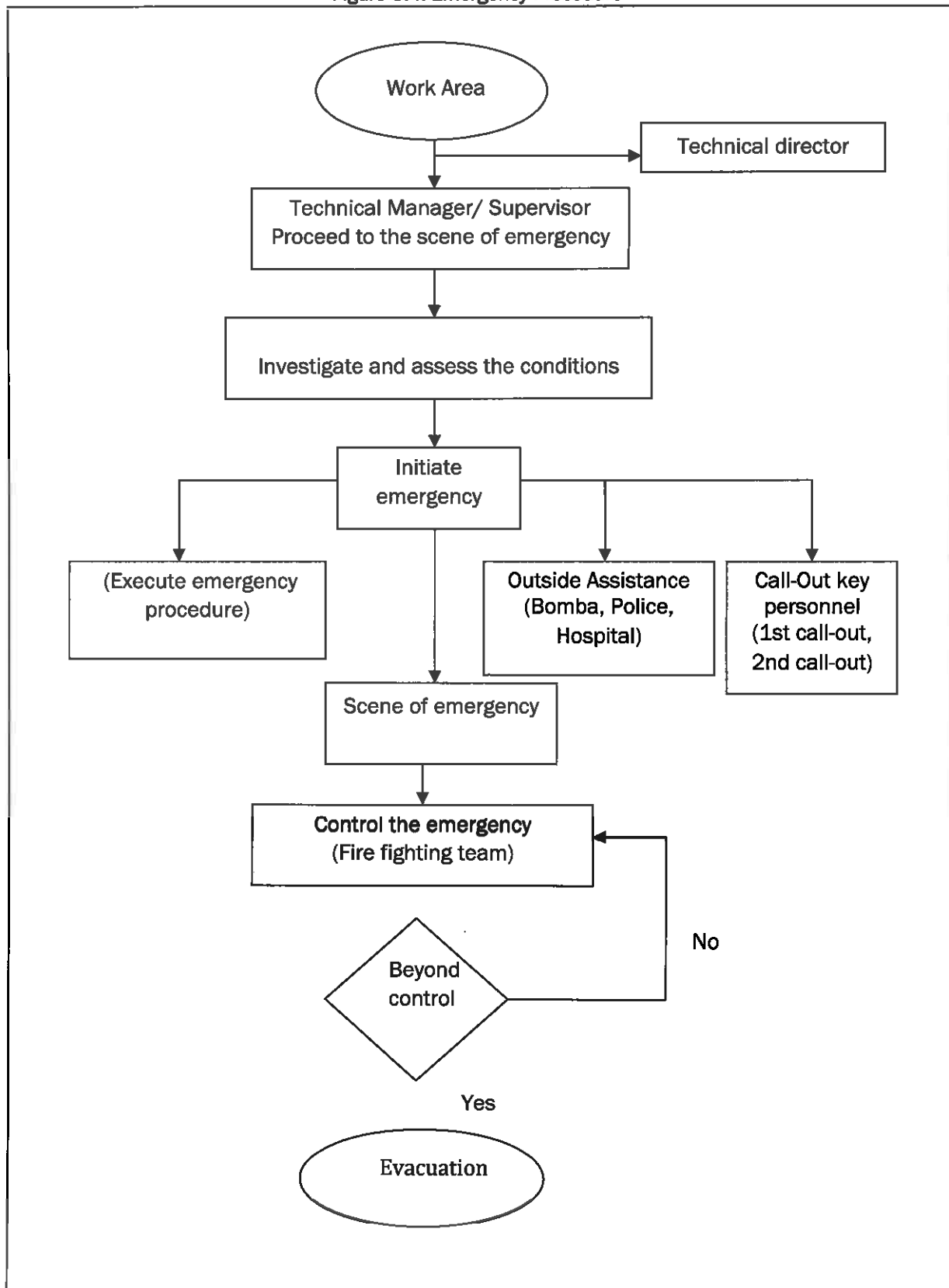


Figure 8.5: Emergency Procedure for Fire during Transportation of Construction Material

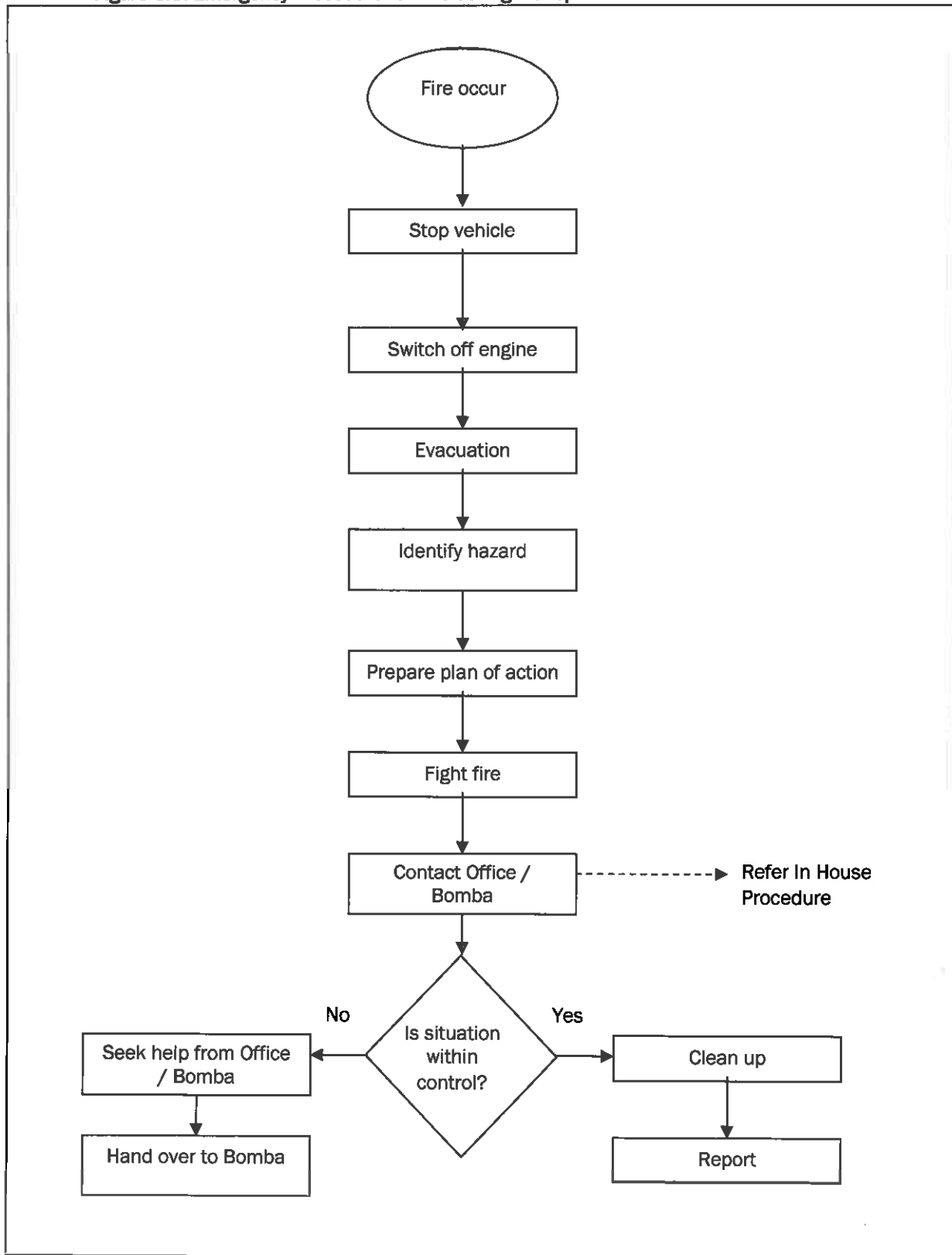


Figure 8.6: In-House Procedure Emergency during Removal/Filling Works (Earth Bunds Collapse or Silt Fence Damage)

