



# **PUTRAJAYA ENVIRONMENTAL MANAGEMENT GUIDE FINAL REPORT**



**KTA Tenaga sdn bhd**

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## LIST OF ABBREVIATIONS

DOE	Department of Environment
EIA	Environmental Impact Assessment
EMAR	Environmental Monitoring and Audit Report
EMCP	Environmental Management Compliance Plan
EMP	Environmental Management Plan
EMR	Environmental Management Report
EMS	Environmental Management System
EMU	Environmental Management Unit, PHSB
ER	Engineer's Representative
EU	Environment Unit, Perbadanan Putrajaya
EQA	Environmental Quality Act
PAP	Project Abandonment Plan
PCP	Project Closure Plan
PHSB	Putrajaya Holdings Sdn. Bhd.
TCPA	Town and Country Planning Act

## SUMMARY OF GUIDE

This Guide is organised into six Chapters. They are:

- Chapter 1 describes the background and objective of the Guide, highlights the environmental policy of Putrajaya and outlines the strategies adopted by the Perbadanan to achieve the environmental vision for Putrajaya.
- Chapter 2 provides an outline of the organisational structure in the Perbadanan Putrajaya and in the City Planning Department. It also describes the functions of the various Departments in the Perbadanan, the functions of the various Divisions within the City Planning Department, and the functions of the various Units within the Landscape and Environment Division. The role of Putrajaya Holdings Sdn. Bhd. in environmental administration in Putrajaya is also described.

This Chapter also outlines the various stages in the planning submission and approval process. It also describes the submission requirements for planning permission for the layout plan and for the erection of both temporary and permanent buildings.

This Chapter also describes in detail the requirements of the Environmental Management Plan (EMP) or Environmental Management Report (EMR), which are required to be prepared and submitted for approval, at the planning permission stage, for all projects in Putrajaya.

- Chapter 3 highlights the environmental quality objectives and standards to be attained in Putrajaya. The details of the standards are provided in the appendices of this Guide.
- Chapter 4 presents the environmental related legislation in the country and the agencies responsible for implementing them. It also outlines the legislative controls for the abatement of pollution in some areas of environmental concern, the environmental



quality standards for compliance and other environmental related guidelines.

- Chapter 5 describes the environmental requirements in Putrajaya. The need for all project stakeholders to develop and implement an environmental management system, based on the ISO14001 model, in Putrajaya is described. Also, details on the partnership approach between all project stakeholders for environmental management in Putrajaya is also described. This is followed by a list of environmental requirements to be complied for the planning and design, construction and operation stages of a project in Putrajaya.
- Chapter 6 describes the environmental management system in Putrajaya. It highlights how the Perbadanan is implementing the 17 elements of the ISO 14001 model in Putrajaya. All staff in the City Planning Department of the Perbadanan, project proponents, their consultants, contractors and project operators in Putrajaya are required to be familiar with the system.

## 1.1 BACKGROUND

1.1.1 Putrajaya will be the new Federal Government Administrative Centre and has been envisioned as a "City in a Garden", with generous open spaces and parks, and a 600-hectare man-made lake as its principal landscape feature.

1.1.2 The presence of the large lake surrounded by generous open spaces and parks provides the setting for a harmonious and refreshing environment, designed to ease the pressure and stress of modern living.

1.1.3 Physically, the masterplan for Putrajaya has grouped the development into four components as follows:

- (a) Putrajaya Lake and Wetlands
- (b) A green network of parks and gardens
- (c) Core Area Precincts
- (d) Peripheral Area Precincts

1.1.4 Administratively, Putrajaya is divided into 20 Precincts as shown in Fig. 1.1. Five of the precincts are located in the Core Area, linked by the 100m wide, 4.2km long Putrajaya Boulevard. They are:

- 1. Government Precinct
- 2. Mix Development Precinct
- 3. Civic & Cultural Precinct
- 4. Commercial Precinct
- 5. Sport & Recreation Precinct

1.1.5 Appendix 1 provides additional background information.

Fig. 1.1 Masterplan of Putrajaya  
See Appendix 1 - Additional Background Information on Putrajaya

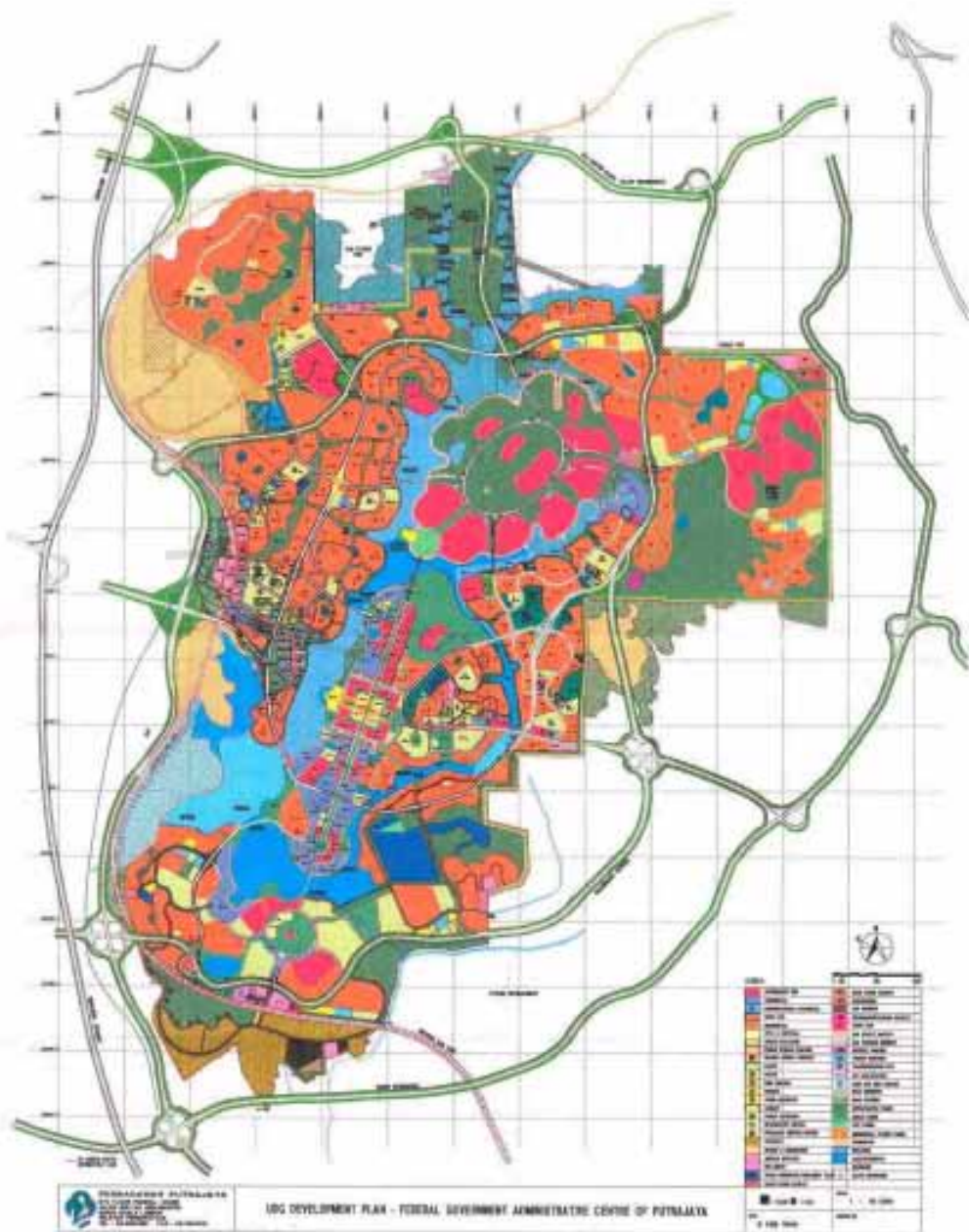


FIGURE 1.1 MASTERPLAN OF PUTRAJAYA

## 1.2 OBJECTIVE OF GUIDE

1.2.1 To achieve the above vision of a "City in a Garden" for Putrajaya the masterplan for Putrajaya has incorporated the best in city planning and landscape architecture. Thus, emphasis is given to the preservation of its eco-culture and environmental considerations have to be incorporated in all stages of its planning, design, construction and operation.

1.2.2 The Perbadanan Putrajaya, as the Authority responsible for the Kawasan Perbadanan Putrajaya, recognises that there is a need to ensure that all project proponents in Putrajaya comply with the environmental considerations and legislative requirements, including the Department of Environment (DOE) EIA Approval Conditions (Appendix 2), for Putrajaya. Thus, it has prepared this Environmental Management Guide to facilitate compliance by all project proponents, which include their consultants and contractors.

*See Appendix 2 - EIA Approval Conditions for Putrajaya*

1.2.3 The Guide is intended to:

- Define the environmental policy and strategy of Putrajaya.
- Explain what is required of project proponents in terms of submission for planning approval in Putrajaya to comply with Section 21 of the Town and Country Planning Act (TCPA), 1976 (Amended 1995), especially compliance with the environmental requirements in Putrajaya.

*See Appendix 3 - Extracts from Town and Country Planning Act, 1976*

- Highlight the environmental legislation, guidelines and requirements that have to be complied by all project proponents.



- Highlight the environmental management system in Putrajaya and provide project proponents, their consultants and contractors with specific information on their roles and responsibilities for the effective implementation of the system.

### 1.3 ENVIRONMENTAL POLICY OF PUTRAJAYA

The environmental policy of Putrajaya are summarised below:

#### **Vision**

- 1.3.1 "The planning of Putrajaya emphasises the preservation of its eco-culture while promoting an active, lively and caring society. Putrajaya's harmonious and refreshing environment is designed to ease the pressure and stress of modern living."

#### **Mission**

- 1.3.2 "To promote, enhance and sustain the best environmental management practices in Putrajaya."

- 1.3.3 To achieve the above environmental vision and mission for Putrajaya the following policies have been adopted:

- To incorporate environmental considerations in all aspects of Putrajaya's developments.
- To ensure that the uniqueness, diversity and quality of Putrajaya's environment are preserved towards maintaining health, prosperity, security and well-being for the present and the future.

#### 1.4 ENVIRONMENTAL STRATEGY OF PUTRAJAYA

To ensure that the above environmental policies are complied the following strategies have been adopted:

- 1.4.1 Environmental management and control measures shall be incorporated in all development stages.
- 1.4.2 Environmental monitoring procedures, which are pragmatic, auditable and comply with the DOE's EIA Approval Conditions shall be developed and implemented.
- 1.4.3 A framework for the review of activities from the perspective of management shall be developed.
- 1.4.4 Identification of chains of command and assignment of responsibilities for environmental controls and initiatives shall be carried out.
- 1.4.5 Manuals of best practices, checklists and other working forms to aid information gathering shall be developed, the purpose of which will be to:
- Provide an early warning system for the occurrence of negative environmental impacts and incidences of non-compliance.
  - Chart the environmental successes of a project.
- 1.4.6 Development and implementation of programs to promote environmental awareness among all stakeholders in Putrajaya, which includes the staff of the Perbadanan Putrajaya, all project proponents, their consultants and contractors, and the residents of Putrajaya.

- 1.47 Development and promotion of research projects to support the management and preservation of Putrajaya's environment. They include projects to support the management of Putrajaya Lake and its associated wetlands, Taman Wetlands and the Botanical Garden.

## 2.1 ENVIRONMENTAL ADMINISTRATION IN PUTRAJAYA

### 2.1.1 Perbadanan Putrajaya

2.1.1.1 Perbadanan Putrajaya was incorporated on March 1, 1996 under the Perbadanan Putrajaya Act, 1995, as a corporate body to administer and manage the Kawasan Perbadanan Putrajaya on behalf of the Federal Government.

2.1.1.2 The Perbadanan can exercise all the powers of a local government, such as the powers to regulate and promote the orderly development of land within the Kawasan Perbadanan Putrajaya.

2.1.1.3 Thus, the laws that apply to local government, such as the Local Government Act 1976, the Town and Country Planning Act 1976 and the Street, Drainage and Building Act 1974, also apply to the Kawasan Perbadanan Putrajaya.

2.1.1.4 The DOE is responsible for enforcing most of the legislation under the Environmental Quality Act (EQA) 1974. However, for effective enforcement of some of the legislation under the Act the DOE requires the local authorities to enforce some of the environmental related legislation pertinent to them, such as the planning requirements in the Town and Country Planning Act (TCPA) 1976 and the Earthworks By-laws under the Street, Drainage and Building Act 1974.



2.1.1.5 One such legislator, where the DOE depends on the local authorities for enforcement, is the Environmental Impact Assessment (EIA) for prescribed activities. The DOE has the powers to ensure that project proponents of prescribed activities carry out an EIA study before implementation of its project. However, it depends on the local authorities and other pertinent government agencies to enforce a number of the EIA approval conditions. Thus, the Perbadanan, as the local government for Putrajaya, will ensure that all the EIA Approval Conditions for Putrajaya, pertinent to it, shall be complied by all project proponents in Putrajaya.

2.1.1.6 The organisational structure of the Perbadanan is shown in Figure 2.1. There are four departments in the Perbadanan. They are:

- Corporate Services Department
- City Services Department
- City Planning Department
- City Development Department

Fig. 2.1 Organisational Structure of the Perbadanan

2.1.1.7 The Corporate Services Department is responsible for all corporate services of the Perbadanan, such as finance, information technology (IT), property management and administration, human resources and public relations.

2.1.1.8 The City Services Department is responsible for all city services of the Perbadanan, such as planning and delivery of services like health control, enforcement, traffic management, recreation and social services.

2.1.1.9 The City Planning Department is responsible for the planning of the city, administration of the land and the management of the physical features of the city's environment, landscape, parks and Putrajaya Lake.



Fig. 2.1 Organizational Structure of the Perbadaman

2.1.1.10 The City Development Department is responsible for building control and development in the city, tenders and contracts, development co-ordination, valuation and assessment.

## **2.1.2 City Planning Department**

2.1.2.1 The City Planning Department has the responsibility to ensure that all projects in Putrajaya are planned and implemented, in accordance with all legislative requirements, and complies with the Putrajaya Masterplan. It is also responsible for the management of the landscape and the environment in the city.

2.1.2.2 The organisational structure of the Department is given in Figure 2.2. The Department comprises of 3 Divisions. They are:

- City Planning Division
- Landscape and Environment Division
- Land Administration Division

Fig. 2.2 Organisational Structure of the City Planning Department

2.1.2.3 The City Planning Division is responsible for the planning of the city. All planning-related functions and activities of the city are managed by this Division.

2.1.2.4 The Landscape and Environment Division is responsible for all functions and activities related to the management of the physical features of the city's environment, landscape, parks and Putrajaya Lake.

2.1.2.5 The Land Administration Division is responsible for the land administration in the city. All land administration-related functions and activities of the city are managed by this Division.

# **PUTRAJAYA ENVIRONMENTAL MANAGEMENT GUIDE**

Produced by

**City Planning Department  
Perbadanan Putrajaya**

Prepared by

**KTA Tenaga Sdn. Bhd.**  
in association with  
**Perunding Utama Sdn. Bhd.**

November 1998



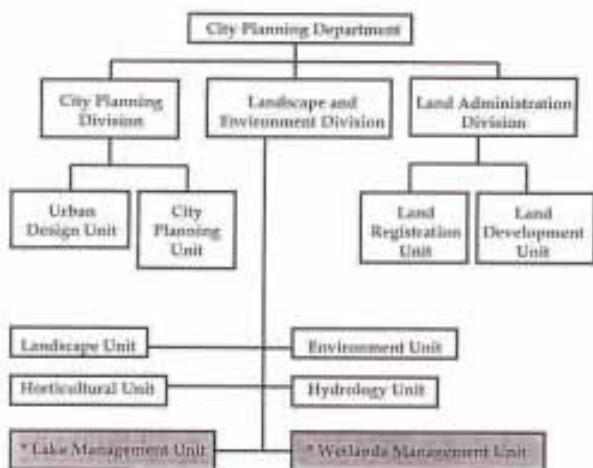


Fig.2.2 Organisational Structure of the City Planning Department

\* Proposed Units

2.1.2.6 The contact details of the Department are as follows:

Jabatan Perancangan Bandar  
Perbadanan Putrajaya  
Pusat Pentadbiran Kerajaan Persekutuan  
62675 PUTRAJAYA  
Tel: 03-825-0025  
Fax: 03-825-4341

### 2.1.3 Landscape and Environment Division

2.1.3.1 The functions of the Landscape and Environment Division are carried out by six Units. They are the Landscape Unit, Environment Unit, Horticultural Unit, Hydrology Unit, Lake Management Unit and the Wetlands Management Unit.

2.1.3.2 The Lake Management Unit and the Wetlands Management Unit have been proposed but are not formed yet. Thus, they have been shaded in Figure 2.2 to differentiate them from the other four existing Units.

2.1.3.3 The Landscape Unit is responsible for all the landscape planning and management in Putrajaya.

2.1.3.4 The Environment Unit (EU) is responsible for all the environmental planning and management in Putrajaya. It shall be responsible for the following:

- Approving all the environmental management plans and reports (EMP and EMR) at the planning stage.
- Approving the Project Abandonment Plan (PAF) and Project Closure Plan (PCP) during the construction stage.
- Conducting surprise compliance audit of a contractor's site during the construction stage.
- Conducting surprise compliance audit of a project operator's site during the operation stage.
- Ensuring that all environmental requirements in Putrajaya are complied through enforcement of all pertinent legislation, if required.

2.1.3.5 The Horticultural Unit is responsible for ensuring the healthy growth of all plants, trees and vegetation in the parks, gardens and landscape of Putrajaya.

2.1.3.6 The Hydrology Unit is responsible for all the engineering issues related to water management and drainage in Putrajaya.

2.1.3.7 The Lake Management Unit is responsible for monitoring and managing the water quality, flora and fauna of Putrajaya Lake.

2.1.3.8 The Wetlands Management Unit is responsible for monitoring and managing the water quality, flora and fauna in all the wetlands in Putrajaya.

#### **2.1.4 Putrajaya Holdings Sdn. Bhd.**

2.1.4.1 Putrajaya Holdings Sdn. Bhd. (PHSB) is the main project proponent in Putrajaya. It is responsible to the Department of Environment (DOE) for ensuring that all the EIA Approval Conditions for Putrajaya (see Appendix 2) are complied.

CHAPTER 2.0 PLANNING AND ENVIRONMENTAL ADMINISTRATION IN PUTRAJAYA	Revision : 1.0
	Date : 16 November 1998
<p>2.1.4.2 PHSB has set-up an Environmental Management Unit (EMU) to discharge its responsibility to the DOE for environmental management in Putrajaya. The contact details are:</p> <p>The EMU Putrajaya Holdings Sdn. Bhd. Pusat Pentadbiran Kerajaan Persekutuan 62675 PUTRAJAYA Tel: 03-826-2526 Fax: 03-826-2479</p>	
<p>2.1.4.3 The EMU (PHSB) has been given certain administrative responsibilities for environmental management in this Guide, during the planning and construction stages of a project, to ensure that it can discharge its responsibilities to the DOE effectively.</p>	
<p>2.1.4.4 All project proponents, their consultants and contractors are required to comply with the EMU (PHSB)'s instructions, where pertinent, during the planning and construction stages of their projects.</p>	
<p>2.1.4.5 In particular, all project proponents are required to ensure that they introduce the following clause in all their consultancy service agreements and works contracts:</p> <p>"The consultant/contractor is required to comply with all pertinent administrative, planning and environmental requirements as described in the latest version of the Putrajaya Environmental Management Guide. They include complying with all pertinent instructions from the Perbadanan Putrajaya and the Environmental Management Unit of Putrajaya Holdings Sdn. Bhd."</p>	
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## 2.2 PLANNING SUBMISSION, APPROVAL AND COMPLIANCE

### 2.2.1 Planning Submission and Approval Process

2.2.1.1 In accordance with Section 19 of the TCPA, 1976 (Amended 1995), all project proponents have to submit an application for planning permission to the Perbadanan in respect of any proposed development projects in Putrajaya. The application has to comply with the format specified by the Perbadanan, as prescribed under Section 21 of the Act, and shall be accompanied by all required documents, plans and fees.

*See Appendix 7 - Extract from Town and Country Planning Act, 1976*

2.2.1.2 To facilitate the evaluation of the planning permission applications the Perbadanan has classified the development project plan submissions into 4 categories. They are:

- Layout Plan
- Building Erection Plan
- Temporary Building Erection Plan
- Other types of development Plan

2.2.1.3 The Layout Plan submissions involve applications for approval for the layouts of the infrastructures and plot sizes for any proposed land-conversion development projects.

2.2.1.4 The Building Erection Plan submissions involve project proposals for the erection of any buildings on the approved Layout Plans.

2.2.1.5 The Temporary Building Erection Plan submissions involve project proposals for the erection of any temporary buildings in Putrajaya.

2.2.1.6 The "Other types of development Plan" submissions involve any development project proposals that does not fall into any of the above 3 categories, such as highways, bridges, laying of trunk utilities, etc.

2.2.1.7 Application checklists, indicating the documents required for the processing of the planning permission applications, for 3 typical categories of development projects in Putrajaya have been prepared. They are as follows:

- **Borang SA** - Application checklist for Layout Planning approval
- **Borang PB** - Application checklist for Building Erection Planning approval
- **Borang PBS** - Application checklist for Temporary Building Erection Planning approval

See Appendix 4 - Borang SA  
See Appendix 5 - Borang PB  
See Appendix 6 - Borang PBS

2.2.1.8 For the "Other types of development Plan" submissions project proponents are advised to contact the City Planning Unit of the City Planning Division, Jabatan Perancangan Bandar for details on the pertinent checklist of documents required for their proposed projects.

2.2.1.9 Figure 2.3 gives the flowchart of the planning submission and approval process. It highlights the actions to be taken by both the project proponent and the Perbadanan, and the interfacing between them at the various stages of the approval process.

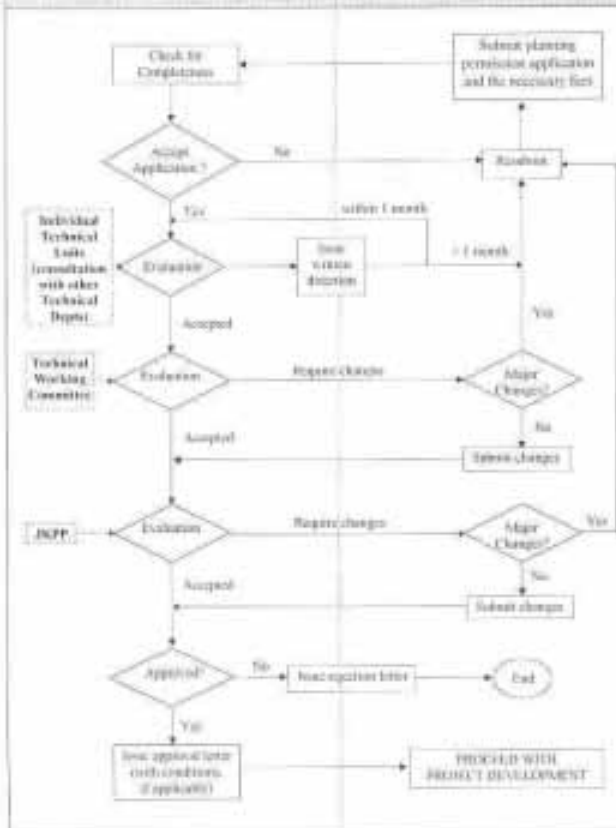


Figure 2.3 Flowchart of planning submission and approval process



## 2.2.2 Compliance to Planning Permission Conditions

2.2.2.1 In accordance with Section 20 of the Town and Country Planning Act, 1976 (Amended 1995), all project proponents granted planning permission shall carry out their development in conformity with the planning permission granted, together with all the conditions attached to it.

*See Appendix 3 – Extracts from Town and Country Planning Act, 1976*

2.2.2.2 The preservation and protection of the environment in Putrajaya is very important. Thus, one of the conditions attached to all planning permissions granted in Putrajaya is that all project proponents are required to implement and comply with all the environmental management requirements specified in this Guide during the planning and construction stage of a project.

2.2.2.3 To facilitate compliance at each stage of a project the Perbadanan requires the project proponent or its contractor to submit specified environmental related plans and reports for approval at each stage of a project. The details of the reports to be submitted are described below.

*See Section 2.3.2 Environmental Management Plan (EMP)*

*See Section 2.3.7 Environmental Management Report (EMR)*

*See Section 3.4.2 Environmental Management Compliance Plan (EMCP)*

*See Section 3.4.3 Environmental Monitoring and Audit Report (EMAR)*

2.2.2.4 The Perbadanan would like to draw the attention of all project proponents to the penalty for non-compliance to the conditions attached to the planning permission granted for a project. According to Section 28 of the Town and Country Planning Act, 1976 (Amended 1995), a project proponent can be served a notice to discontinue with the development until it complies with the planning permission conditions.

2.2.2.5 If the project proponent continues with the project development, after being served a notice to discontinue, it is committing an offence under the Act and can be liable, on conviction, to a fine not exceeding RM50,000, and a further fine of RM1000, for each day during which the development is carried out after the first conviction for the offence.

*See Appendix 3 - Extracts from Town and Country Planning Act, 1966*

2.2.2.6 Under Section 25 of the Act the Perbadanan can also order to be modified or revoke an approved planning permission, if it appears to be in the public interest.

2.2.2.7 It is an offence under Section 26 of the Act for a person to commence or allow any development in contravention of Section 19 or 20 of the Act, or to continue with a development once the planning permission approval has been revoked.

2.2.2.8 An offence committed under this Section of the Act can result in the person, on conviction, to a fine not exceeding RM100,000, and a further fine of RM1000, for each day during which the offence continues after the first conviction for the offence.

## **2.3 LAYOUT PLANNING APPROVAL SUBMISSION REQUIREMENTS**

### **2.3.1 Development Proposal Report**

2.3.1.1 As part of the submission for the Layout Planning Approval application all project proponents are required to submit the documents itemised in the application checklist "Borang SA" in Appendix 4.

2.5.1.2 There are 13 items in the checklist. They are:

1. A covering letter from a registered planner.
2. Completed Form A (First Schedule), a copy of which is given in Appendix 4.
3. A copy of the ownership status of the land.
4. A copy of the letter of appointment of the project consultants.
5. A copy of the company profiles of the project consultants.
6. Eight copies of the **Development Proposal Report**, duly certified by a registered planner. The format and contents of the Report has to comply with those itemised in the checklist 'Borang 5A1' given in Appendix 4.
7. Eight copies of the following plans as described in detail in Appendix 4.
  - Layout Plan certified by a registered planner.
  - Slope analysis plan certified by a registered engineer
  - Earthworks plan certified by a registered engineer
  - Infrastructure and Utility Plans certified by a registered engineer for the 9 infrastructure and utilities indicated in Appendix 4.
  - Inventory of existing trees certified by a registered horticulturist
  - Landscape concept certified by a registered landscape architect
8. A copy of a perspective drawing (birds-eye view) of the project.
9. Model of the proposed buildings, either in the form of model layout or in the form of 3D computer simulation.
10. Approval letter, conditions and certified plans from the 9 utility agencies and companies indicated in Appendix 4.
11. Fifteen copies of a summary of the Development Proposal Report in A3 size format for the purpose of the JKPP (Planning and Development Committee) meeting.

<b>CHAPTER 2.0</b> <b>PLANNING AND ENVIRONMENTAL</b> <b>ADMINISTRATION IN PUTRAJAYA</b>	Revision : 1.0 Date : 16 November 1998
<p>12. A copy of the layout plan and perspective drawing (birds-eye view) mounted on a mounting board in a size that is acceptable for presentation.</p> <p>13. A CD containing the digital format of the plans, drawings and Development Proposal Report as described in items (6), (7), (8) and (9) above.</p> <p>2.3.1.3 Items (1) to (8) above are required to be submitted at the time of submission of the application for planning approval.</p> <p>Items (9) to (11) have to be submitted 3 days before the JKKP meeting.</p> <p>Item (12) has to be submitted at the time of the JKKP meeting.</p> <p>Item (13) has to be submitted before the approval letter for planning permission will be issued.</p> <p>2.3.1.4 (1) The checklist and format of the <b>Development Proposal Report</b> is given in "Borang SA1" in Appendix 4. The Report is a compilation of reports prepared and certified by registered professionals in the various subject areas related to the development.</p>	
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2.3.1.5 The items in the checklist are:

1. Title of report and introduction.
2. Location and site plans
3. Analysis and report on the existing site conditions for the 13 topics highlighted in Appendix 4.
4. Development proposal (the requirements are described in detail in Appendix 4).
5. Supporting reports on the following subjects:
  - (a) Geotechnical
  - (b) Earthworks
  - (c) Traffic Impact Assessment
  - (d) Hydrological-related information
  - (e) Utility facilities
  - (f) Landscape
  - (g) Environmental Management Plan (EMP)
  - (h) Schedule of development phases
  - (i) Schedule of estimated selling price of premises

2.3.1.6 An important component of the Development Proposal Report is the EMP. All project proponents are required to ensure that a comprehensive EMP is prepared and certified by a qualified and accredited environmental professional.

See Section 2.3.2 Environmental Management Plan (EMP)  
for Appendix 7 Recommended EMP Format

**Note:** In the preparation of the EMP the project proponent is required to list down all the project components it will be responsible for erecting within the layout plan, according to contract work packages. For each of the project component it is required to define the details of the environmental management requirements, during the construction and operation stage, in the EMP. The EMP, if it is approved, will only cover the environmental management requirements for those project components listed and detailed in the EMP.

### 2.3.2 Environmental Management Plan (EMP)

2.3.2.1 Depending on the significance of the environmental impacts of a project during the construction and operation stage an Environmental Management Plan (EMP) or an Environmental Management Report (EMR) has to be prepared by the project proponent and approved by the Perbadanan during the planning stage of a project.

2.3.2.2 The EMP is a mandatory requirement for the submission for planning permission approval for any Layout Plan.

2.3.2.3 The EMP is also required for any projects in Putrajaya that will have major negative environmental impacts during the construction and/or operation stage, that are not covered (see Note in item 2.3.1.6) under the EMP for its Layout Plan. Examples of some projects that require EMP are hospitals, sewage treatment plants, bridges, highways, dams, railways and utility services trunk pipelines.

2.3.2.4 The EMP is a comprehensive document, specifying all the environmental management requirements during the planning, construction and operation stages of a project. It has to be prepared and certified by a qualified environmental professional, with pertinent experience in some or all aspects of the environmental issues related to the project. The professional should also be accredited by the DOE or some other locally recognised environmental professional body.

2.3.2.5 For projects with minor negative environmental impacts during the construction and operation stage, an EMR has to be prepared. The EMR can be prepared by any environmental professional.

2.3.2.6 Figure 2.4 shows the flowchart for the submission of the EMP and EMR during the planning stage. It highlights the actions to be taken by the project proponent, the EMU (PTISB) and the EU (Perbadanan), and the interfacing between them at the various stages of the submission and approval process.

2.3.2.7 The EMP shall comprise of 8 Chapters. They are:

- (a) Introduction
- (b) Conditions of Layout Plan Approval (If Applicable)
- (c) Environmental Planning
- (d) Environmental Management - Construction Stage
- (e) Environmental Management - Operations Stage
- (f) Environmental Monitoring and Audit
  - (i) Environmental Monitoring
  - (ii) Environmental Audit
- (g) Roles and Responsibilities
- (h) Appendices

2.3.2.8 (a) **Introduction**

(1) A brief description of the proposed project and the important aspects of the existing environment that will be affected by it, from the planning, construction and operation perspectives of the project should be provided here.

(2) Also, a summary of the pertinent qualifications and experience of the consultant/staff appointed to be responsible for preparing the EMP should also be provided here. The accreditation certificate of the consultant/staff, with the DOE or any locally recognised environmental professional body, should be provided together with his/her detail CV in the appendices of the plan.





**Note:** The environmental consultant/staff should endorse the EMP, on its content page, using the following format:

"This EMP has been prepared by me in accordance with the best environmental professional practice and has complied with all pertinent guidelines given in the Environmental Management Guide of Putrajaya."

..... Date .....

..... (Signed) .....

Name of consultant/staff  
Accreditation Number  
Accreditation Body

**2.3.2.9 (b) Conditions of Layout Plan Approval (if applicable)**

(1) If the EMP being prepared is required for Layout Plan Approval this Chapter is not applicable .

(2) This Chapter is applicable for projects that require EMP but are not covered (see item 2.3.2.3) by the approval for the 'Layout Plan' EMP or EMPs associated with the projects. The project proponent is required to provide in this Chapter a list of the Conditions of Layout Plan Approval applicable to its project, if any. The Conditions can be obtained from the project proponent/s responsible for getting the approval/s for the Layout Plan/s associated with the projects.

### 2.3.2.15 (h) Appendices

The appendices should contain all pertinent details related to the EMP. All items in it are to be properly referenced within the EMP. In addition, the appendices should also include plans giving information on the following items:

- Topography of project site together with the slope analysis
- Location of existing streams and water bodies
- Location of logistic roads and excess earth stockpile area
- Earthworks zoning and phasing
- Earthworks cut and fill areas
- Location of proposed silt traps, silt fence, detention ponds, temporary and permanent drains, areas to be turfed or hydroseeded, oil and grease traps.
- Site erosion and sedimentation analysis and maps
- Location of service area and diesel storage area

## 2.4 BUILDING ERECTION PLANNING APPROVAL SUBMISSION REQUIREMENTS

### 2.4.1 Development Proposal Report

2.4.1.1 As part of the submission for the Building Erection Planning Approval application all project proponents are required to submit the documents itemised in the application checklist "Borang PB" in Appendix 5.

2.4.1.2 There are 12 items in the checklist. They are:

1. A covering letter from a registered planner.
2. Completed Form A (First Schedule), a copy of which is given in Appendix 4.
3. A copy of the ownership status of the land.
4. A copy of the letter of appointment of the project consultants.
5. A copy of the company profiles of the project consultants.

Detailed description for each of the planning design compliance measures should be provided as appendices to the plan and be referenced from the appropriate cells in the table.

See Chapter 4 Environmental Legislation  
See Chapter 5 Environmental Requirements in Putrajaya  
See Appendix 7: Table A7.1 - Environmental Planning Compliance Table

(5) The areas of environmental concern should be grouped under the sub-headings given in item 5.3.2.1.

#### **2.3.2.11 (d) Environmental Management - Construction Stage**

(1) The project proponent is required to provide here a systematic assessment of all the possible environmentally-polluting activities, of each proposed project component, and specify the associated control measures to ensure compliance to the environmental management requirements in Putrajaya, during the construction stage.

(2) Also, for each project component the project proponent is required to identify and prepare a list of the likely emergencies that may occur during the construction stage.

(3) To facilitate the presentation of the identified polluting activities and their associated control measures, for each project component, a 3-column table (Table A7.2 in Appendix 7) with the following headings should be prepared - Project Activities, Compliance Reference and Control Measures. The project proponent is required to:

- (i) list down all the environmentally-polluting activities associated with the project component,
- (ii) highlight the section reference in the pertinent guidelines and legislation where the environmental pollution control compliance requirements is specified,

(iii) describe the control measures it plans to implement during the construction stage.

Detailed description for each of the control measures should be provided as appendices to the plans and be referenced from the appropriate cells in the table.

See Chapter 4 Environmental Legislation  
See Chapter 5 Environmental Requirements in Putrajaya  
See Appendix 7, Table A7.2 - Environmental Pollution Control Table

(4) The project activities should be grouped under the items given in Section 5.4.4.

See Section 5.4.4 Environmental Control Requirements

(5) For the purpose of this EMP the project proponent is only required to specify the control measures in this Chapter. Details on the implementation plans, for the specified control measures, shall be given in the Environmental Management Compliance Plan (EMCP) later by the successful contractor.

See Section 5.4.2 Environmental Management Compliance Plan (EMCP)

(6) The successful contractor is required to prepare the EMCP for review and approval by the EMU (PHSB). The EMCP has to be approved by the EMU (PHSB) before the start of any construction work for any pertinent project component.

#### **2.3.2.12 (e) Environmental Management - Operations Stage**

(1) The project proponent is required to provide here, a systematic assessment, of all the possible environmentally-polluting activities (if any) of each proposed project component and specify the associated control measures to be implemented to ensure compliance to the environmental management requirements in Putrajaya, during the operations stage.

(2) Also, for each project component the project proponent is required to identify and prepare a list of the likely emergencies that may occur during the operation stage.

(3) To facilitate the presentation of the identified polluting activities and their associated control measures, for each project component, a 3-column table (Table A7.2 in Appendix 7) with the following headings should be prepared - Project Activities, Compliance Reference and Control Measures. The project proponent is required to:

- (i) list down all the possible environmentally-polluting activities associated with the project component (if any) during the operations stage,
- (ii) highlight the section reference in the pertinent guidelines and legislation where the environmental pollution control compliance requirements is specified,
- (iii) describe the control measures that should be implemented during the operations stage.

Detailed description for each of the control measures should be provided as appendices to the plan and be referenced from the appropriate cells in the table.

*See Chapter 4 Environmental Legislation  
See Chapter 5 Environmental Requirements in Putrajaya  
See Appendix 7: Table A7.2 - Environmental Pollution Control Table*

(4) The project activities should be grouped under the items given in Section 3.5.2.

*See Section 3.5.2 Environmental Control Requirements*

(5) For the purpose of this EMP the project proponent is only required to specify the control measures in this Chapter. The implementations of the specified control measures shall be the responsibility of the project operator.

(6) The project operator is required to give an undertaking to the Perbadanan that it will implement all the necessary control measures to ensure compliance with all the environmental requirements in Putrajaya during the operations stage.

#### 2.3.2.13 (f) Environmental Monitoring and Audit

(1) The project proponent is required to provide here the environmental monitoring programs and audit requirements for its proposed project during the construction and operation stage. They should comply with all the compliance audit and monitoring requirements specified by the Perbadanan in this Guide.

See Chapter 3 Environmental Requirements in Putrajaya

(2) The monitoring programs shall be implemented by the successful contractor and project operator later. The audit requirements for the construction stage will be used by:

- the successful contractor to conduct a self-audit of its site, and by
- the EMU (PHSB) to conduct independent compliance audits of the contractor's site.

The audit requirements for the operation stage will be used by the Perbadanan to conduct compliance audits of the project's operation by the project operator.

#### (i) Environmental Monitoring

(1) An evaluation of the environmental receptors that will be impacted by the project should be carried out. Based on the evaluation pertinent monitoring programs should be developed for the water quality, air quality and noise associated with the proposed project for the construction and operation stage. A monitoring program for any silt trap discharges should also be carried out for the construction stage.

(2) For each of the program the quality standards to be maintained, monitoring frequency and submission requirements have to be provided. A monitoring location plan shall also be provided.

**Note:** The results of the monitoring programs during the construction stage shall be submitted by the contractor to the EMU (PHSB) every fortnightly.

**Note:** The results of the monitoring programs during the operation stage shall be submitted by the project operator to the Perbadanan, as and when required by the Perbadanan.

#### (ii) Environmental Audit

(1) For each of the project component the project proponent is required to identify the audit items, applicable to the project component, on a copy of the Environmental Audit Checklist given in Appendix 10.

*See Appendix 10 Environmental Audit Checklist*

(2) The project proponent is also required to prepare a 3-column table (Table A7.3 in Appendix 7) with the following headings: Audit Items, Compliance Reference and Compliance Requirements. It is required to:

- (a) list down all the audit items applicable to the project component,
- (b) highlight the section reference in this Guide where compliance requirements is specified, and
- (c) describe the specific compliance requirements for each of the audit items.



Where pertinent, detailed description *for* each of the audit items should be provided as appendices to the plan and be referenced from the appropriate cells in the table.

*See Chapter 4 Environmental Legislation  
See Chapter 5 Environmental Requirements in Putrajaya  
See Appendix 7 Table A7.3 - Environmental Audit Table*

(3) The audit items should be organised under 2 groups - Construction Stage and Operation Stage.

(4) For the purpose of this EMP the project proponent is required to specify only the audit requirements, for the construction and operation stage, in this Chapter.

(5) During the construction stage, for each project component, the successful contractor is required to conduct and submit, to the EMU (PHEB), fortnightly audit reports of its site based on the applicable items in the audit checklist identified in this Chapter.

(6) To facilitate the preparation of the Environmental Monitoring and Audit Report (EMAR) by the contractor a recommended format for the EMAR is given in Appendix II.

*See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)  
See Appendix II Enclosed EMAR Format*

#### **2.3.2.14 (g) Roles and Responsibilities**

(1) For effective implementation of the various facets of the EMP as described above the roles and responsibilities of the project proponent and that of its contractors have to be clearly defined in this Chapter. Also an organisation chart has to be provided. See Section 6.6 for details on their respective responsibilities.

### 2.3.2.10 (c) Environmental Planning

(1) The project proponent is required to provide in this Chapter, a systematic assessment, of all the possible environmental concerns of its proposed project and its compliance to the environmental planning requirements in Putrajaya.

(2) For "Layout Plan" EMP the project proponent is required to provide a list of the various engineering projects that it will be responsible for developing within the Layout Plan, such as roads, sewerage, water supply, drainage, buildings, machinery installation, etc. This is to ensure that a systematic assessment of the environmental management needs of each project can be identified in the EMP.

(3) The project proponent should divide each project into its component according to contract work packages to facilitate the implementation and monitoring of the required environmental management control measures during the construction stage.

(4) For each of the project component a 3-column table (Table A7.1 in Appendix 7) with the following headings should be prepared - Environmental Concerns, Compliance Reference and Planning Design Compliance. The project proponent is required to:

- (i) list down all the areas of environmental concern associated with the project component,
- (ii) highlight the section reference in the pertinent guidelines and legislation where the planning design compliance requirements is specified, and
- (iii) describe briefly the actions it has taken to comply with the planning design requirements for each of the areas of environmental concern.

8. Fifteen copies of the **Development Proposal Summary Report**, duly certified by a registered planner. The format and contents of the Report has to comply with those itemised in the checklist "Borang PBI" given in Appendix 5.

9. Confirmation letters and plans from the 9 utility agencies and companies indicated in Appendix 5.

10. A copy of the site plan and perspective drawing (birds-eye view) mounted on a mounting board in A1 size.

11. Model of the proposed buildings, either in the form of model layout or in the form of 3D computer simulation.

12. A CD containing the digital format of the plans, drawings and Development Proposal Summary Report as described in items (7), (8), (10) and (11) above.

2.4.1.3 Items (1) to (7) above are required to be submitted at the time of submission of the application for planning approval.

Items (8), (9) and (11) have to be submitted 5 days before the JKKP meeting.

Item (10) has to be submitted at the time of the JKKP meeting.

Item (12) has to be submitted before the approval letter for planning permission will be issued.

2.4.1.4 The checklist and format of the **Development Proposal Summary Report** is given in "Borang PBI" in Appendix 5. The Report is a compilation of reports prepared and certified by registered professionals in the various subject areas related to the development.

2.4.1.5 The items in the checklist are:

1. Development proposal (the requirements are described in detail in Appendix 5).
2. Building plans
3. Earthworks plan
4. Infrastructure and utilities proposal
5. Landscape proposal
6. Environmental Management Plan (EMP) or Environmental Management Report (EMR), if required.

2.4.1.6 If the environmental management requirements of the proposed building project is not covered under the EMP for its layout plan (see item 2.3.1.6) then an EMP or EMR has to be submitted as part of the Development Proposal Summary Report.

2.4.1.7 An EMP is required if the building project will have major negative environmental impacts during the construction or operation stage. Otherwise, a brief EMR, as described in Section 2.4.2, is sufficient.

See Section 2.1.2 Environmental Management Plan (EMP)  
See Section 2.4.2 Environmental Management Report (EMR)  
See Appendix 7 Recommended EMP Format  
See Appendix 8 Recommended EMR Format

**Note:** Project proponents are advised to contact the Environment Unit of the Landscape and Environment Division, Jabatan Perancangan Bandar, to seek its advice on the necessity of an EMP for their projects.

## 2.4.2 Environmental Management Report (EMR)

2.4.2.1 For projects that do not require the preparation and submission of a comprehensive EMP, due to its minor negative environmental impacts, an EMR has to be prepared. Appendix 8 gives the recommended format for the EMR.

See Appendix 8 Recommended EMR Format

2.4.2.2 To be consistent with the Environmental Management System (EMS) for managing any proposed projects through the 3 project stages of planning, construction and operation, the chapter titles of the EMR are the same as for part of the EMP. However, the scope of the contents in the chapters will be limited due to the minor negative environmental impacts of the project.

2.4.2.3 The Perbadanan does not require the EMR to be prepared and certified by an accredited environmental professional. With the given format of the EMR and the guidelines given in this Guide the Perbadanan believes that the EMR can be prepared by any competent professional, with some background in environmental management.

2.4.2.4 The EMR shall comprise of 7 Chapters. They are:

- (a) Introduction
- (b) Conditions of Layout Plan Approval
- (c) Environmental Planning
- (d) Environmental Management - Construction Stage
- (e) Environmental Management - Operations Stage
- (f) Environmental Monitoring and Audit
- (g) Appendices

**2.4.2.5 (a) Introduction**

A brief description of the proposed project and the important aspects of the existing environment that may be affected in some way by the project, from the planning, construction and operation perspectives of the project, should be provided in this Chapter.

**2.4.2.6 (b) Conditions of Layout Plan Approval**

A list of the Conditions of Layout Approval applicable to the project, if any, should be provided in this Chapter. The Conditions can be obtained from the project proponent/s responsible for getting the approval/s for the Layout Plan/s associated with the projects.

**2.4.2.7 (c) Environmental Planning**

(I) The possible environmental concerns of the project and its compliance to the environmental planning requirements in Putrajaya should be given in this Chapter.

The 3-column table (Table A7.1 in Appendix 7) with the following headings - Environmental Concerns, Compliance Reference and Planning Design Compliance, as described in detail in Section 2.3.2.10, should be used.

**2.4.2.8 (d) Environmental Management - Construction Stage**

(I) The likely environmentally-polluting activities for the project and the associated control measures to ensure compliance to the environmental management requirements in Putrajaya, during the construction stage, should be specified in this Chapter.

(2) The 3-column table (Table A7.2 in Appendix 7) with the following headings - Project Activities, Compliance Reference and Control Measures, as described in item 2.3.2.11, should be used.

(3) A list of the likely emergencies that may occur during the construction stage of the project should also be provided.

#### 2.4.2.9 (e) Environmental Management - Operations Stage

(1) The likely environmentally-polluting activities (if any) for the project and the associated control measures to be implemented to ensure compliance to the environmental management requirements in Putrajaya, during the operations stage, should be provided in this Chapter.

(2) The 3-column table (Table A7.2 in Appendix 7) with the following headings - Project Activities, Compliance Reference and Control Measures, as described in item 2.3.2.12, should be used.

(3) A list of the likely emergencies that may occur during the operation stage of the project should also be provided.

#### 2.4.2.10 (f) Environmental Monitoring and Audit

(1) The project proponent is required to provide here the environmental monitoring programs (if any) and audit requirements for the project during the construction and operation stage.

(2) It is required to identify the audit items, applicable to the project, on a copy of the Environmental Audit Checklist given in Appendix 11. Based on the Checklist it should prepare a 3-column table (Table A7.3 in Appendix 7) with the following headings - Audit items, Compliance Reference and Compliance Requirements, as described in detail in Section 2.3.2.13.

2.5 TEMPORARY BUILDING ERECTION PLANNING APPROVAL  
SUBMISSION REQUIREMENTS

2.5.1 For Temporary Structures Erection Planning Approval application all project proponents are required to submit the documents itemised in the application checklist "Borang PBS" in Appendix 6.

2.5.2 There are 8 items in the checklist. They are:

1. A covering letter from a registered planner.
2. Completed Form A (First Schedule), a copy of which is given in Appendix 4.
3. A copy of the ownership status of the land.
4. A copy of the letter of approval for planning permission for the layout plan (if applicable).
5. Five copies of the following plans as described in detail in Appendix 6.

- Layout Plan certified by a registered planner.
- Building plan certified by a registered architect.
- Infrastructure and Utility Plans certified by a registered engineer for the 6 infrastructure and utilities indicated in Appendix 6.
- Earthworks plan (if applicable) certified by a registered engineer.
- Landscape masterplan certified by a registered landscape architect.

6. Fifteen copies of the **Development Proposal Summary Report** (if applicable), duly certified by a registered planner. The items to be included in the Report are listed in Appendix 6. A guide to the possible contents of the items are given in the checklist "Borang PB1" given in Appendix 5.
7. A copy of the site plan and perspective drawing (birds-eye view) mounted on a mounting board in A1 size.



8. A CD containing the digital format of the plans, drawings and Development Proposal Summary Report as described in items (5), (6) and (7) above.

- 2.5.3 An important component of the Development Proposal Summary Report is the EMR. The EMR is required to specify the environmental management requirements for the project, during the construction and operation stage.

See Section 2.4.2 Environmental Management Report (EMR)  
See Appendix 4 Recommended EMR Format

To attain the harmonious and refreshing environment envisioned for Putrajaya it is necessary to define the environmental quality objectives for the following parameters defining the environmental quality in Putrajaya:

- Quality of Living and Urban Environment
- Lake Water Quality
- Inland Water Quality
- Air Quality
- Noise Levels

### **3.1 QUALITY OF LIVING AND URBAN ENVIRONMENT**

3.1.1 The urban built form in Putrajaya should enhance and reinforce the primary objective of Putrajaya, that is, the creation of a 'city within a park'.

3.1.2 Thus, in the planning of any projects in Putrajaya the following perspectives should be met.

- Aesthetics
- Appropriate development scale
- Appropriate block massing, building height and site coverage
- Compatible land and building usage
- Adequate and quality landscape and streetscape treatment
- Adequate provision of community, public facilities and amenities
- Appropriate siting of service industries
- Enhancement of the quality of life
- A positive relationship with the rest of Putrajaya

- 3.1.3 Detail guidelines to facilitate the incorporation of the above perspectives in a project are given in the pertinent Volumes of the Putrajaya Urban Design Guidelines or the Local Plan, where available.

See Putrajaya Urban Design Guidelines

### **3.2 LAKE WATER QUALITY**

- 3.2.1 Putrajaya Lake is an important environmental component of Putrajaya. It provides the setting for a significant enhancement to the quality of the living environment in Putrajaya.

- 3.2.2 The water quality in the Lake should be able to support water contact sports and recreation activities within it. Thus, the ambient water quality of Putrajaya Lake shall meet the requirements of the Putrajaya Lake Water Quality Standard (Appendix 14).

See Appendix 14 Putrajaya Lake Water Quality Standard

- 3.2.3 To ensure that the desired ambient water quality of Putrajaya Lake are preserved and protected the Perbadanan has prepared the following guidelines for the management of the Lake and the design of the drainage facilities flowing into it:

- Putrajaya Lake Management Guide
- Putrajaya Stormwater Management Design Guide

See Appendix 21 Putrajaya Design and Management Guides

3.2.4 To preserve the ambient water quality in Putrajaya Lake from deterioration due to uncontrolled activities in the Lake the Perbadanan is in the process of preparing the necessary legislation to control the following activities in it:

- Swimming
- Non-motorised boating, such as sail boating, windsurfing and row boating
- Motorised boating, such as speed boating, jet skiing and all other forms of motorised boating
- Fishing, such as hook & line, nets and traps
- Floating restaurants and other structures within the lake
- Other activities, such as introduction of undesirable plants and animal species

### 3.3 INLAND WATER QUALITY

3.3.1 To ensure that the water quality in Putrajaya Lake are preserved and protected at the desired high standard there is a need to ensure that the water quality in all inland waters discharging into the Lake are also maintained at a high standard.

3.3.2 Thus, the ambient water quality of all inland waters, excluding Putrajaya Lake, shall meet the requirements of Class IIA of the DOE's Interim National Water Quality Standards (Appendix 15).

*See Appendix 15 DOE's Interim National Water Quality Standards*

3.3.3 The discharge water quality standard, into all inland waters, shall meet the limits specified in the Second Schedule of the proposed Environmental Quality (Perbadanan Putrajaya) Water Pollution Control Regulations 1998 (Appendix 16).

*See Appendix 16 Environmental Quality (Perbadanan Putrajaya) Water Pollution Control Regulations 1998*

<b>CHAPTER 3.0 ENVIRONMENTAL QUALITY OBJECTIVES OF PUTRAJAYA</b>	Revision : 1.0 Date : 16 November 1999
<b>3.4 Air Quality</b>	
3.4.1 The ambient air quality in Putrajaya shall meet the requirements of the Malaysian Air Quality Guidelines (Appendix 17), recommended by the DOE and which is applicable nationally.	
<i>See Appendix 17 DOE's Malaysian Air Quality Guidelines</i>	
3.4.2 To ensure that the desired air quality in Putrajaya is preserved and maintained the following policies have been adopted in Putrajaya: <ul style="list-style-type: none"><li>• Promotion of use of public transport facilities and the restriction on the use of cars.</li><li>• Promotion of use of motor vehicles powered by natural gas.</li></ul>	
<b>3.5 NOISE LEVELS</b>	
3.5.1 The ambient noise levels in Putrajaya shall be in harmony with the high environmental quality set for the other environmental quality parameters in Putrajaya.	
3.5.2 The Perbadanan has adopted the Recommended Noise Exposure Limits set by the World Health Organisation (WHO) as given in Appendix 18.	
<i>See Appendix 18 WHO Recommended Noise Exposure Limits</i>	
Putrajaya Environmental Management Guide	Page 4 of 4

4.1 ENVIRONMENTAL RELATED LEGISLATION  
AND IMPLEMENTING AGENCIES

4.1.1 The environmental standards and acceptable limits for the protection of the environment are defined in various legislation, enforced by Perbadanan Putrajaya, other local authorities, State agencies as well as Federal agencies.

4.1.2 It is important that all project proponents and contractors be familiar with and understand the requirements of the environmental related legislation and the way in which they affect them in the implementation of their project.

4.1.3 Perbadanan Putrajaya requires that all the provisions of the environmental related legislation be met when a project is planned and implemented.

4.1.4 Some of the applicable environmental related legislation and the implementing agencies responsible for their enforcement are given in Appendix 19 for the following issues of environmental concern:

- Air Quality
- Noise Levels
- Environmental Planning
- Land Use and Land Conservation
- Natural Resource Protection and Management
- Solid Wastes Management
- Toxic or Hazardous Substances/Activities
- Water Quality

See Appendix 19 Environmental related legislation and implementing agencies in peninsular Malaysia

## 4.2 LEGISLATIVE CONTROL FOR POLLUTION ABATEMENT

4.2.1 A variety of project related activities will be implemented in the course of the developments within the Kawasan Perbadanan Putrajaya. These activities will in one way or another have negative effects on the environment and certain legislative requirements have to be met to ensure that the environment is protected.

4.2.2 To facilitate project proponents in complying with the legislative requirements a non-exhaustive list of the common types of activities associated with the areas of environmental concerns has been prepared (Appendix 20). The legislation that may apply for the control of the pollution in the areas of environmental concern, and the authorities responsible for implementing them, are also indicated.

*See Appendix 20 Existing legislative control for pollution abatement*

4.2.3 The list will be revised as and when necessary but the onus of ensuring that all the necessary environmental related laws are complied with rests with the project proponent.

4.2.4 The areas of environmental concern in the list are as follows:

- Dust and/or Black Smoke
- Odorous Gases
- Gaseous Emissions
- Noise and Vibration
- Silt and Sediment
- Suspended Solids, Oils and Grease, Organics and Inorganics
- Solid Wastes (Non- Scheduled)
- Scheduled Wastes
- Safety
- Aesthetic

#### 4.3 ENVIRONMENTAL QUALITY STANDARDS FOR COMPLIANCE

Both ambient and emission/discharge standards have been legally specified for the protection of the environment.

##### 4.3.1 Ambient quality standards

Ambient quality standards have been recommended as desirable standards for ensuring a healthy environment for the protection of human health as well as the protection of living and natural resources. The pertinent ambient quality standards for Putrajaya have been defined in Chapter 3.0 of this Guide, as the environmental quality objectives of Putrajaya.

##### 4.3.2 Emission/discharge standards

4.3.2.1 Emission/discharge standards have been specified under various legislation for the control of emissions or effluent discharges or the discharge of wastes at source. These standards have been determined generally on the basis of achievable controls using technology that is available.

4.3.2.2 In the preparation of their EMP all project proponents have to ensure that they comply with the following standards for:

- Air Emission
- Noise
- Effluent Discharge
- Scheduled Wastes



### 4.3.3 Air Emission Standards

- 4.3.3.1 The *Environmental Quality (Clean Air) Regulations 1978* specify acceptable standards or limits of emissions from various sources and activities. These standards are to be complied with generally, although there is provision for contravention of these standards under certain circumstances approved by the Director General of Environmental Quality. The applicable standards and conditions for acceptable air emissions is summarised in Appendix 21.

See Appendix 21 Environmental Quality (Clean Air) Regulations 1978

- 4.3.3.2 Air emissions from mobile sources are controlled by two regulations made under the *Environmental Quality Act, 1974*. These are for the control of emissions from diesel engines under the *Environmental Quality (Control of Emissions From Diesel Engines) Regulations 1996*, and for the control of emissions from petrol engines under the *Environmental Quality (Control of Emissions From Petrol Engines) Regulations 1996*. Motor vehicles are required to be serviced regularly to ensure that their emissions meet with these standards. The problem of black smoke emissions from diesel vehicles is of particular concern.

### 4.3.4 Noise Standards or Criteria

- 4.3.4.1 There are presently noise limits or standards specified for motor vehicles under the *Environmental Quality (Motor Vehicle Noise) Regulations 1987*.
- 4.3.4.2 Regulations for the control of noise from other activities are being made under the *Environmental Quality Act 1974*. Acceptable noise is currently based on the levels recommended by the WHO (Appendix 17) and these relate to levels at the receptor. These standards are to apply for developments within the Kawasan Perbandaran Putrajaya.

See Appendix 17 WHO International Noise Exposure Levels

### 4.3.5 Effluent Discharge Standards

Waste discharges into inland waters have been promulgated for various sources and are controlled by specific regulations made under the *Environmental Quality Act 1974*. In particular for Putrajaya all treated sewage and industrial effluents that are generated within the Kawasan Perbadanan Putrajaya are to meet the limits specified in the Standard for discharges, prescribed in the *Environmental Quality (Perbadanan Putrajaya) Regulations 1998* (Appendix 16). Also, all sewage and industrial effluents are to meet the limits specified in the Standard for discharge into sewers prescribed in the same Regulations.

See Appendix 16 Environmental Quality (Perbadanan Putrajaya)  
Waste Pollution Control Regulations 1998

### 4.3.6 Scheduled Wastes

4.3.6.1 Scheduled wastes are regulated by the DOE under three sets of legislation. They are:

- Environmental Quality (Scheduled Wastes) Regulations, 1989;
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order, 1989; and
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations, 1989.

4.3.6.2 Scheduled wastes are generated by service industries, such as those involved in the servicing of motor vehicles, as well as other activities, such as chemicals from horticultural or pest control activities. Other waste categories that are governed by the law are detailed in the *First Schedule of the Environmental Quality (Scheduled Wastes) Regulations 1989*.

<b>CHAPTER 4.0</b> <b>ENVIRONMENTAL LEGISLATION</b>	Revision: 1.0
	Date: 16 November 1998
<p>4.3.6.3 There are no "standards" relating to the discharge of scheduled wastes. Under the law waste generators are required to notify the DOE if there is generation of any scheduled wastes. The responsibilities of the waste generator include the proper storage, treatment and disposal of such wastes.</p> <p>4.3.6.4 An inventory of the waste generated, treated and disposed has to be maintained and submitted to the DOE. Waste contractors who undertake the removal or delivery of such wastes to sites outside of the area where the waste are generated are also required to maintain records of such wastes. In the event of any spill or accidental discharge the DOE has to be informed and actions taken to clean-up the wastes.</p>	
<p><b>4.4 OTHER ENVIRONMENTAL RELATED GUIDELINES</b></p>	
<p>4.4.1 Various environment related guidelines have been prescribed or applied for the protection of the environment. These guidelines, although not law, are required to be followed since they are intended to ensure that environmental problems are minimised or controlled during project development or operation.</p>	
<p>4.4.2 Some of the guidelines that have been prescribed or applied are:</p> <ul style="list-style-type: none"> <li>• Handbook of Environmental Impact Assessment Guidelines</li> <li>• Guidelines for Prevention and Control of Soil Erosion and Siltation</li> <li>• Development Guidelines for Buildings on Hill Lands</li> <li>• Guidelines for Sewerage System</li> <li>• Code of Practice Manual for Service Stations</li> <li>• Guidelines for The Siting and Zoning of Industries</li> </ul>	
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- 4.4.3 The *Handbook of Environmental Impact Assessment (EIA) Guidelines* is issued by the DOE. The handbook and other specific EIA guidelines have been prepared for various prescribed activities and are meant as guides for project proponents in the preparation of EIA reports to be submitted to the DOE for approval.
- 4.4.4 The *Guidelines for Prevention and Control of Soil Erosion and Siltation* is issued by the DOE. Various measures for the control of soil erosion and river sedimentation are recommended to be adopted when undertaking site clearing and earthworks.
- 4.4.5 The *Development Guidelines for Buildings on Hill Lands* is issued by the Town and Country Planning Department. It provides guidelines on the types of developments that can be developed on different types of hill lands.
- 4.4.6 The *Guidelines for Sewerage System* is issued by the Department of Sewerage Services. It offers guidelines on the planning and construction of sewerage systems.
- 4.4.7 The *Code of Practice Manual for Service Stations* is issued by the DOE in association with the oil industry group. This code is adopted by all service stations through the adoption of good housekeeping practices as a means to reduce environmental pollution from such facilities.
- 4.4.8 The *Guidelines for The Siting and Zoning of Industries* is issued by the DOE. The guidelines specify the various buffer distances between industrial facilities and residential houses and they are to be followed for all industrial projects.

5.0.1 All project proponents, consultants, contractors and project operators are required to comply with a number of environmental requirements in Putrajaya in the course of the development and operations of their projects. To facilitate compliance a non-exhaustive list of environmental requirements in Putrajaya have been compiled and organised in this Chapter for the following 3 stages of a project:

- Planning
- Construction
- Operations

5.0.2 The requirements were compiled from the Department of Environment (DOE) EIA Approval Conditions, the Putrajaya Environmental Urban Design Guidelines and other environmental requirements specified by the Perbadanan.

*See Appendix 2 EIA Approval Conditions for Putrajaya  
See Putrajaya Urban Design Guidelines*

5.0.3 In addition to the above, one important requirement is the need for the development and implementation of an approach or system for ensuring that the above requirements are implemented effectively. Thus, discussions on Environmental Management System (EMS) and the approach to environmental management adopted by the Perbadanan in Putrajaya are also provided.

## **5.1 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)**

5.1.1 To attain the environmental quality objectives of Putrajaya, as defined in Chapter 3, there is a need to develop and implement an environmental management system governing the activities of all project stakeholders in Putrajaya. A model for developing such a system can be found in the ISO 14001 Standard for Environmental Management System (EMS).

5.1.2 The ISO 14001 EMS Standard is a widely accepted official international standard for environmental management systems. Using the 17 elements in the Standard as a guide it is possible for any organisation to develop a specific EMS for improving its environmental performance. Appendix 22 gives a brief overview of the 17 elements included in the ISO 14001 EMS Standard.

See Appendix 22 The 17 elements in the ISO14001 EMS

5.1.3 All project proponents, operators and contractors in Putrajaya are encouraged to develop an EMS based on the ISO14001 model, to support the environmental performance of their organisation.

5.1.4 An interim approach towards that objective is to implement pertinent elements of the Standard, wherever possible. This is the approach that the Perbadanan has adopted in the development of the EMS in Putrajaya as described in Chapter 6.

See Chapter 6 Environmental Management System in Putrajaya

5.1.5 One of the requirements of the EMS in Putrajaya is that all contractors are required to develop and implement the basic elements of an EMS to support their environmental performance during their construction activities.

5.1.6 To facilitate compliance to this requirement the Perbadanan requires an Environmental Management Compliance Plan (EMCP) to be prepared, by the contractor and approved by the EMU (PHSB), prior to the start of any construction work. The EMCP shall describe the basic "EMS" that the contractor has developed for its particular project.

See Section 5.4.2 Environmental Management Compliance Plan (EMCP)

## 5.2 PARTNERSHIP APPROACH TO ENVIRONMENTAL MANAGEMENT

- 5.2.1 The Perbadanan adopts the partnership approach to environmental management rather than the traditional confrontational approach. All project stakeholders (project proponent, consultant, contractor, project operator and the regulatory authorities) are required to be familiar and subscribe to the 6 principles given in Section 5.2.4 below, which provide a common basis for the partnership.
- 5.2.2 The Perbadanan, as one of the regulatory authorities, shall set realistic and achievable environmental requirements to be attained by the project stakeholders.
- 5.2.3 The project stakeholders are expected to be familiar with and implement the environmental requirements set by the regulatory authorities. They are expected to adopt a pro-active and self-regulatory approach and provide sufficient resources for the environmental management of their project.
- 5.2.4 The 6 principles underlying the partnership approach to environmental management are:
- (a) Understanding of project constraints
  - (b) Appreciation of environmental requirements
  - (c) Pro-active implementation of pollution control measures
  - (d) Consistent utilisation of pollution control measures
  - (e) Monitoring and performance evaluation
  - (f) Rapid response to inadequacies

5.2.5 (a) Understanding of project constraints

5.2.5.1 The constraints on a project have a direct influence on the ability of project stakeholders to comply with the environmental requirements in Putrajaya. The Perbadatan recognises this fact and will take them into consideration in the evaluation of the mandatory reports that have to be submitted to it for approval, at the various stages of a project. Project stakeholders are required to highlight and discuss the constraints in their reports.

See Section 2.3.2 Environmental Management Plan (EMP)  
See Section 2.4.2 Environmental Management Report (EMR)  
See Section 5.4.2 Environmental Management Compliance Plan (EMCP)  
See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)

5.2.5.2 The constraints may cover physical, ecological as well as contractual issues, such as:

- Size of construction site and available right-of-way set aside for construction activities.
- Catchment area and climatic characteristics
- Project budget, milestones and completion date
- Maintenance and/or relocation of existing services and infrastructure
- Existing condition of the environment and the ability of the site to recover following the completion of the project
- Construction methods



**5.2.6 (b) Appreciation of environmental requirements**

5.2.6.1 It is important that all project stakeholders have a close appreciation of the following:

- Environmental requirements in Putrajaya
- Basis for the requirements
- Achievability of the requirements for a specific project
- Means to demonstrate compliance with them
- Regulatory requirements

5.2.6.2 Key management staff should be familiar with the relevant environmental legislation and requirements.

*See Chapter 4 Environmental Legislation*

5.2.6.3 The legislative requirements should be incorporated into the EMP for each project activity that has an impact on the environment.

*See Section 2.1.2 Environmental Management Plan (EMP)*

**5.2.7 (c) Pro-active implementation of pollution control measures**

5.2.7.1 The Perbadanan requires an EMP or an EMR to be prepared at the planning stage of a project and an EMCP at the construction stage. They are mandatory requirements to ensure that the project stakeholders, at the planning and construction stages of a project, have or will implement the necessary measures to mitigate the impact or control the pollution to the environment due to their project activities.

CHAPTER 5.0 ENVIRONMENTAL REQUIREMENTS IN PUTRAJAYA	Revision: 1.0 Date: 16 November 1998
5.2.7.2	In the preparation of the EMP or EMR and the EMCP, a systematic assessment of the environmental risk associated with each of the project activities are to be carried out and the necessary pollution control measures identified. The risk assessment should identify both the likely scenarios associated with each given activity and the appropriate course of action and contingency plan for each of the scenarios.
5.2.7.3	For effective implementation of the pollution control measures there is a need to ensure that the pertinent environmental management responsibilities are properly communicated to the assigned personnel and that the staff are adequately trained to handle the responsibilities.
5.2.7.4	For high-risk activities it may be appropriate to have specific briefing to the staff involved on the likely scenarios and the appropriate measures, prior to the commencement of the activity. Routine activities on the other hand may only require reminders of good environmental management practices at regular intervals.
5.2.8	<b>(d) Consistent utilisation of pollution control measures</b>
5.2.8.1	There is a need for a consistent utilisation of pollution control measures throughout the course of a project. Frequently, within a large project, the lack of widespread communication or appreciation of the need to apply such measures amongst the many personnel involved results in inconsistencies in the environmental management methods.

5.2.8.2 There is a need to promote a cultural shift amongst all project personnel towards better management of the impact of their activities on the environment and to heighten their awareness of the role of pollution control measures. Thus, regular communication and reaffirmation of the project stakeholder's commitment to good environmental management is a key strategy towards promoting consistency in the utilisation of the appropriate pollution control measures throughout the course of the project.

**5.2.9 (e) Monitoring and performance evaluation**

5.2.9.1 To ensure that project stakeholder's implement effectively and continuously the pollution control measures described in their EMP or EMR and the EMCP the Perbadanan requires that adequate and regular environmental monitoring and compliance audit be carried out for their projects.

5.2.9.2 To ensure compliance to this requirement the Perbadanan requires the contractor to conduct and submit fortnightly Environmental Monitoring and Audit Reports (EMAR) to the EMU (PHSB) during the construction stage of a project.

*See Section 5.4.7 Environmental Monitoring and Audit Report (EMAR)*

5.2.9.3 For the successful implementation of the monitoring and audit program it is necessary that all personnel be made aware of the environmental requirements, role and significance of the pollution control measures assigned to them. This is necessary to promote a sense of responsibility for the measures among the personnel and to ensure a sustainable, high level commitment towards the program throughout the duration of the project.

5.2.10 (f) Rapid response to inadequacies

5.2.10.1 There is a need to ensure that the feedback mechanisms (monitoring and audit program) are able to respond rapidly to institute corrective measures for any inadequacies in the pollution control measures.

5.2.10.2 The rate of response to any inadequacies depends on the relative significance of the impacts on the environment due to the inadequacies and can be derived from the ranking of the priorities arising from the risk assessment of the project activities.

5.3 PLANNING AND DESIGN STAGE

5.3.1 Administrative Requirements

5.3.1.1 All project proponents are required to prepare and submit an EMP or EMR for approval by the Perbadanan as part of their applications for planning approval for their projects.

See Section 2.3.2 Environmental Management Plan (EMP)  
See Section 2.3.3 Environmental Management Report (EMR)

5.3.1.2 A project proponent is required to ensure that the specified construction-stage Environmental Pollution Control Table (see item 2.3.2.4) and Environmental Audit Table (see item 2.3.2.6) in its approved project EMP, are included in the works contract for a pertinent project component.

See Appendix 7: Table A7.2 - Environmental Pollution Control Table  
See Appendix 7: Table A7.3 - Environmental Audit Table

5.3.1.5 A project proponent has to ensure that the Conditions of Contract for its project are properly amended to ensure that its contractor will comply with all the environmental management requirements specified in its contract. In particular, the project proponent is required to insert in its contract the particular clause given in item 2.1.4.5 of this Guide.

### 5.3.2 Planning Design Requirements

5.3.2.1 Project proponents are required to indicate their compliance to the pertinent planning design requirements, described in this Section, in the Environmental Planning Compliance Table (See Table A7.1 in Appendix 7) of the EMP. The requirements are organised under the following subjects:

- (a) Planning, Design and Management Guides
- (b) Land-Use
- (c) Energy Conservation
- (d) Geological impacts
- (e) Topographical impacts
- (f) Air quality impacts
- (g) Noise impacts
- (h) Water quality impacts
- (i) Visual impacts
- (j) Flora impacts
- (k) Fauna impacts

### 5.3.2.2 (a) Planning, Design and Management Guides

(1) A series of planning, design and management Guides for Putrajaya have been prepared to ensure consistency in the planning, design and management of projects in Putrajaya. In addition to this Guide, the following Guides have been prepared:

- Putrajaya Urban Design Guidelines
- Putrajaya Stormwater Management Design Guide
- Utility Masterplan Review Study for Putrajaya
- Putrajaya Transport Design Guide
- Putrajaya Lake Management Guide

(2) Project proponent's consultants are expected to be familiar with the requirements in the Guides and to comply with them where pertinent. They are required to indicate the pertinent environmental-related requirements in the Guides, that has been or will be complied by them, by listing them under the appropriate subject and topical titles in the Environmental Planning Compliance Table.

(3) Appendix 23 provides an overview of the contents in the Guides listed above. A brief description of each of the them are given below.

(i) **Putrajaya Urban Design Guidelines** - A set of Urban Design Guidelines (UDG) have been prepared as a follow-up to the Putrajaya Masterplan. The UDG provides the planning and development guidelines for the development of the different precincts in Putrajaya. It is used to guide the development of the local plans for the different precincts. In the planning of their projects all project proponents are advised to check with the Perbadanan on the latest version of the UDG or local plans for the precinct where their projects are located.

(ii) **Putrajaya Stormwater Management Design Guide** - To ensure that the drainage concepts and systems defined in the UDG are properly implemented during the engineering design phase a Stormwater Management Design Guide has been prepared.

(iii) **Utility Masterplan Review Study for Putrajaya** - Due to the changes to the land-use as the Putrajaya masterplan is translated into the UDG, and subsequently into the Detail Layout Plan, the utility masterplan has also changed. Thus, a review of the Utility Masterplan was carried out for the land-use status up till 23 October, 1996.

The information contained in the Utility Masterplan Review Study Report is essential for the proper planning, design and implementation of the detail engineering of the utility systems for the individual projects in Putrajaya.

(iv) **Putrajaya Transport Design Guide** - To ensure that the transportation concepts and systems defined in the UDG are properly implemented during the engineering design phase a Transport Design Guide has been prepared.

(v) **Putrajaya Lake Management Guide** - To ensure that Putrajaya Lake and its associated wetlands are properly managed a Management Guide for the Lake has been developed.

### 5.3.2.3 (b) Land-Use

(1) All land-use activities in Putrajaya are governed by a "Use-Class Order" list, as given in Appendix 24. All Service Industries (Class V) should be located in the service industry zone, as allocated in the master plan, except for Class V(g). For example, for the "Motor Repair & Services" Zone the following services should be located within it:

- Motor vehicle equipment, accessories and spare parts.
- Battery charging and repair
- Boats sales, storage and repair
- Car wash and polishing services
- Tyre service centres
- Workshops for cars, motorcycle and machinery repair.
- Motor vehicle air conditioner sales and services

See Appendix 24 Land Use Class Order List in Putrajaya

(2) The alignment of roads and rail networks must take into consideration the impacts on the following during the operational phase:

- safety of pedestrians and cyclists
- noise levels due to traffic
- air quality due to traffic emissions

(3) The transportation system within a development should promote the use of public rather than private transport. To achieve this objective a plan to integrate rail, bus and public transport modes within a development should be made.

(4) Public facilities such as mosques, cemeteries, recreational and commercial areas should have facilities such as walkways and bicycle paths.



**5.3.2.4 (c) Energy Conservation**

(1) In the designs and layouts of buildings attention should be given to the possibilities of increased usage of natural elements for energy efficiency. For example, consideration of natural ventilation and daylight.

(2) Consultants should consider the energy efficiency and the maximisation of energy utilisation in their design, in particular regarding electrical usage and air conditioning systems.

(3) Careful consideration should be given to the selection of the types of materials used, which should have lower energy demands. Examples are energy saving lights.

(4) Detailed energy utilisation and management plans should be drawn up to ensure reduction of energy usage, in particular, in relation to public amenities, like street lighting, public facilities, parks and walkways.

(5) The day to day management of buildings and public amenities should incorporate energy conservation issues to ensure the maximisation of energy efficiency.

(6) Chains of responsibility have to be defined in the energy reduction plans to ensure cost effectiveness and proper maintenance of facilities.

**5.3.2.5 (d) Geological Impacts**

(1) The developments around the lake edges shall be of low density. This is because it has been identified in the EIA report that the geology around the lake sides is unsuitable for high-rise buildings.

(2) Developments on high risk slopes (>20 degrees) should be in accordance with the Development Guidelines for Buildings on Hill Lands, 1995, prepared by the Jabatan Perancang Bandar dan Desa, Selangor.

(3) A geotechnical investigation is required for all projects on hillslopes, irrespective of the gradient.

**5.3.2.6 (e) Topographical Impacts**

(1) Road alignment shall be designed, as far as possible, to minimise earth cutting and filling and thus reduce the potential for slope failure and soil erosion.

(2) The planning and design of project and its utilities shall take into consideration existing topography, as far as possible, so as to minimise earth cutting and filling.

(3) All earthworks activities are to comply with the requirements of the Earthworks (Perbadanan Putrajaya) By-Laws 1996. To facilitate compliance an earthworks checklist has been prepared by the City Development Department, Perbadanan Putrajaya.

**5.3.2.7 (f) Air Quality Impacts**

(1) The siting and alignment of buildings should take into account air flows and currents. This is to ensure that the air quality, together with the macro and micro climate, do not deteriorate due to inappropriate massing and alignment of buildings.

(2) The planning of roads shall take into account the air quality impacts arising from the road traffic on the community during the operation phase of the development. This is to ensure that air quality does not deteriorate due to inappropriate location and alignment of roads.

(3) The planning design shall promote the use of public transport systems. This is to ensure that air quality does not deteriorate due to excessive emissions from vehicular traffic on the roads.

(4) The installation of combustion engines, such as generators, requires the prior approval of the Director-General of the DOE. All projects proponents are required to submit the necessary approval documents together with their EMP.

#### **5.3.2.8 (g) Noise Impacts**

(1) The siting and orientation of residential housing should take into account their proximity to road systems and commercial centres. This is to minimise the noise impacts arising from the road traffic and commercial activities.

(2) The planning of roads shall take into account the noise impacts arising from the road traffic on the community during the operation phase of the development.

(3) Setbacks and/or buffer zones should be used to mitigate noise levels by ensuring a distance is put between sensitive receptors and noise sources.

(4) A list of the likely sources of noise arising from the project construction and operational activities and the likely parties that may be affected by it should be prepared. The proposed mitigation measures should also be specified.

#### **5.3.2.9 (h) Water Quality Impacts**

(1) All domestic wastewater are to be connected to the central wastewater sewerage system. No discharges into the stormwater drainage system are allowed. This is to ensure that the ambient water quality of all inland waters and Putrajaya Lake are preserved at their high standards.

(2) All sewers are to be fully enclosed and connected to the central sewerage system. No individual sewerage-system are allowed.

#### **5.3.2.10 (i) Visual Impacts**

(1) The visual inter-relationships between land-use boundaries must be compatible with the developments in terms of visual effects. This is to minimise the negative visual impacts arising from incompatible developments.

(2) The visual impacts of any development should create a balance between the built-environment and the natural environment, when viewed from visual sensitive receptors and from within each development. This is to ensure that the visual effects emphasises the harmony and balance between "man and nature".

(3) In the alignment of roads consideration should be given to their visual impacts on the overall development, from multiple perspectives. This is to ensure that the negative visual impacts of the road alignment on the development are minimised, as far as possible.

(4) The visual amenity within and surrounding a development project area shall be preserved, as far as possible, through sensitive planning designs. Example, an existing stream can be enhanced and integrated into a development rather than being filled-up or converted into a concrete open channel.

(5) Building frontage adjacent to lakeside are to be constructed facing the lakeside.

#### **5.3.2.11 (j) Flora Impacts**

(1) The trees and vegetation in designated green zones are to be preserved during the development. This is to minimise soil erosion.

**5.3.2.12 (k) Fauna Impacts**

An inventory of the fauna in a proposed development area has to be carried out and selected fauna relocated. This is to minimise the impacts on any existing fauna.

**5.4 CONSTRUCTION STAGE**

**5.4.1 Administrative Requirements**

5.4.1.1 All contractors are required to prepare an EMCP for approval by the EMU (PHSB) before they are allowed to commence work on site. Details are described in Section 5.4.2.

5.4.1.2 All contractors are required to prepare a PAP for review by the EMU (PHSB) and approved by the Perbadanan before long-term work stoppage or complete abandonment of work on site. Details are described in item 5.4.2.9.

5.4.1.3 All contractors are required to prepare a TCF for review by the EMU (PHSB) and approved by the Perbadanan before the closure of a project on site. Details are described in item 5.4.2.9.

5.4.1.4 All contractors are required to prepare an Emergency Response Plan (ERP) for their sites. The ERP should include the list of likely emergencies identified in the EMP for the project.

5.4.1.5 All contractors are required to conduct fortnightly monitoring and audit of their sites, and submit fortnightly EMAR to the EMU (PHSB). Details are described in Section 5.4.3.

5.4.1.6 Putrajaya Holdings Sdn. Bhd. is required to conduct water quality, air quality and noise level monitoring for the whole development. It is also responsible for co-ordinating the locations of all environmental monitoring stations within Putrajaya, through the EMU (PHSB).

5.4.1.7 All contractors have to conduct the specified monitoring for their projects, in accordance with the specifications in the EMP or EMR, and submit their monitoring results, fortnightly, to the EMU (PHSB) as part of the EMAR.

5.4.1.8 Appendix 25 provides the monitoring guidelines for the contractor.

*See Appendix 25 Environmental Monitoring Guide for Contractor*

5.4.1.9 No workers camps are allowed on site. All workers in Putrajaya are to be housed in the Putrajaya Central Workers Camp.

#### **5.4.2 Environmental Management Compliance Plan (EMCP)**

5.4.2.1 An Environmental Management Compliance Plan (EMCP) has to be prepared by the contractor and approved by the EMU (PHSB), prior to the start of any construction work, for any approved project or its component in Putrajaya. Appendix 9 gives the recommended format for the EMCP.

*See Appendix 9 Recommended EMCP Format*

5.4.2.2 Figure 5.1 gives the flowchart for the submission of the EMCP during the pre-construction stage. It highlights the actions to be taken by the contractor, the EMU (PHSB) and the EU (Pejabat Tanah).

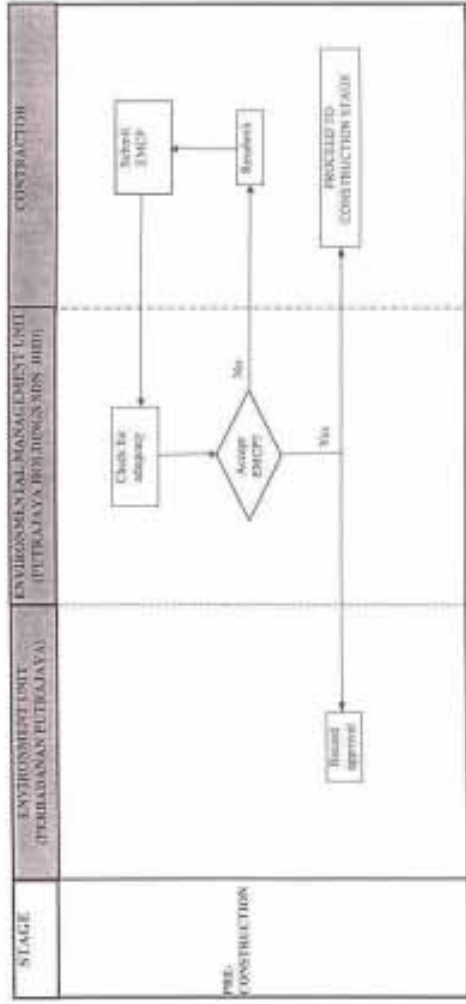


Figure 5.1 Flowchart for Submission of EMCP during Pre-construction stage

5.4.2.3 The EMCP shall comprise of 9 Chapters. They are:

- (a) Introduction
- (b) Compliance Requirements
- (c) Pollution Control
- (d) Emergency Preparedness and Response
- (e) Monitoring and Audit
- (f) Reporting
- (g) Records
- (h) Roles and Responsibilities
- (i) Appendices

**5.4.2.4 (a) Introduction**

The contractor is required to provide here the following information:

- (i) A summary of the qualifications and experience of the staff or consultant appointed to be the environmental project manager or officer for the project. He/she shall be responsible for the overall environmental project management during the duration of the project.
- (ii) A brief description of the project and the construction programme. The site and location plan and other pertinent details can be provided as appendices to the report.

**5.4.2.5 (b) Compliance Requirements**

The contractor is required to list in this Chapter all the environmental compliance requirements for the project. This should include the "3-column table" (Table A7.2 in Appendix 7) identifying the environmentally-polluting activities associated with the project and the required control measures, as defined in item 2.3.2.4 of the EMP or item 2.4.2.4 of the EMR.



**5.4.2.6 (c) Pollution Control**

The contractor is required to describe in this Chapter the details related to the specific implementation procedures for each of the pollution control measures identified in the "Compliance Requirements" Chapter.

**5.4.2.7 (d) Emergency Preparedness and Response**

The contractor is required to review the list of likely emergencies for the project that has been identified in the EMP or EMR and add to it, if necessary. Then, for each emergency it shall develop the necessary procedures to prevent and respond to them. The procedures shall include all contact details of the pertinent government agencies and shall assign specific management and reporting responsibilities to the site staff.

**5.4.2.8 (e) Monitoring and Audit**

(1) The contractor is required to list and describe here in detail the environmental quality monitoring programs, such as for water, air and noise, that it is responsible for, as specified by the project proponent in its contract. A monitoring location plan shall also be provided.

(2) The contractor is also required to list in this Chapter all the environmental audit requirements for the project, as specified in the pertinent Environmental Audit Checklist and "3-column table" (Table A7.3 in Appendix 7), as defined in the EMP or EMR.

(3) For each of the audit requirements it should describe the environmental standards to be complied, the frequency of audit, the audit procedures and the actions to be taken in the event of non-compliance to the required standards.

#### 5.4.2.9 (f) Reporting.

(1) The contractor is required to describe here the reporting system it has established for issues related to the environmental management of the project. The system should list all the environmental management related reports that have to be prepared, the schedule for their submission, the person or Agency they are to be submitted to, and the staff responsible for the reporting.

(2) The reports should be grouped into internal and external reports. The external reports shall include the following reports to the EMU (PHSB):

- Fortnightly EMAR
- Project Abandonment Plan
- Project Closure Plan

(3) The format for the fortnightly EMAR shall follow that given in Appendix 11 and is described in detail in Section 5.4.3.

*See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)  
See Appendix 11 Recommended EMAR Format*

(4) The Project Abandonment Plan (PAP) has to be prepared by the contractor and submitted to the EMU (PHSB) for review and endorsement before it is sent to the EU (Perbadanan) for its approval. The PAP has to be submitted to the EMU (PHSB) for review, one month before any long-term total work stoppage on site or abandonment of a project. The flowchart for the submission and approval process for the PAP is given in Figure 5.2.

*See Fig. 5.2 Flowchart for submission of PAP and PCP reports*

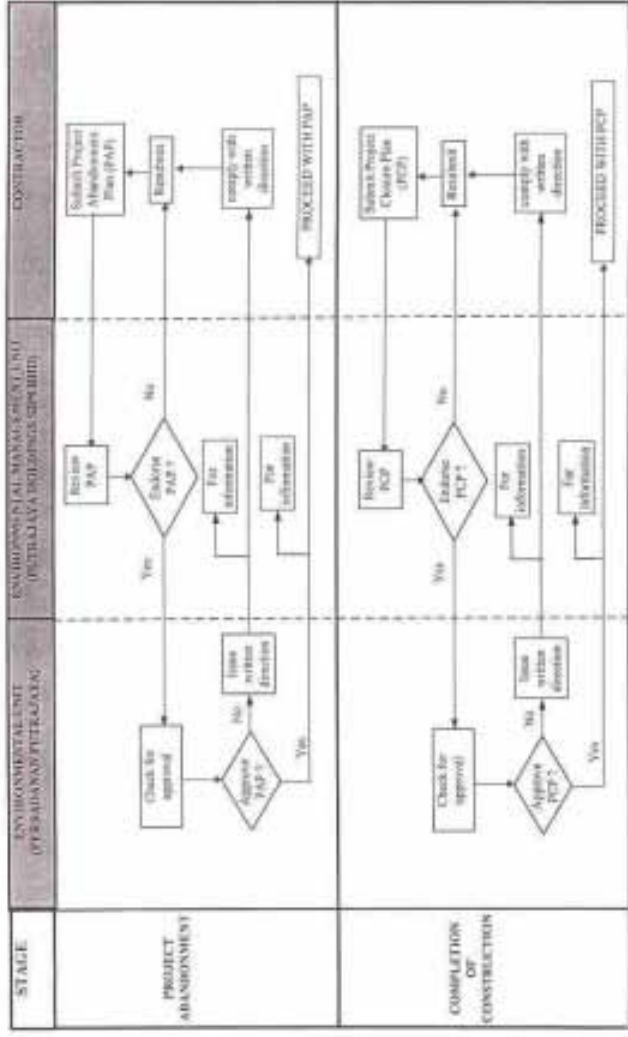


Figure 5.3 Flowchart for Submission of PAF and PCP

(5) The Project Closure Plan (PCP) has to be prepared by the contractor and submitted to the EMU (PHSB) for review and endorsement before it is sent to the EU (Perbadanan) for its approval. The PCP has to be submitted to the EMU (PHSB) for review, one month before the completion of construction work for a project. The flowchart for the submission and approval process for the PCP is given in Figure 5.2.

See Fig. 5.2 Flowchart for submission of PAP and PCP reports

(6) To facilitate the preparation of the PAP and PCP a checklist of the items to be considered in the preparation of the plans is given in Appendix 13.

See Appendix 13 PAP/PCP Checklist

(7) The internal reports shall cover all the environmental audit requirements for the project. The contractor is advised to prepare the internal reports in the form of a checklist together with columns for comment.

#### 5.2.10 (g) Records

(1) The contractor is required to set-up a system to manage the records of its environmental performance. The records that are required to be kept are all the environmental-related reports described in item 5.4.2.9 together with all related documents, test results, waste collection and disposal receipts, etc.

(2) The records should be kept up-to-date and be available for inspection at any time by the EMU (PHSB) or the EU (Perbadanan) during their compliance audit site visits.

#### 5.4.2.11 (h) Roles and Responsibilities

(1) The above requirements constitute the essential elements of an Environmental Management System (EMS) for the construction phase of a project. The Perbadanan expects all contractors working in Putrajaya to develop and implement an EMS for their project, consisting of the above essential elements. They are an environmental requirement in Putrajaya and form an integral part of the overall EMS of Putrajaya.

See Section 5.1 Environmental Management System  
See Chapter 6 Environmental Management System of Putrajaya

(2) For effective implementation of its project's EMS the contractor is required to define the roles and responsibilities of its key staff for the various facets of the EMS. They should include the responsibilities of the project manager, the environmental project manager/officer or consultant of the contractor, and other key supervisory staff. An organisation chart should also be provided.

#### 5.4.2.12 (i) Appendices

The appendices should contain all pertinent details related to the EMCP. All items in it are to be properly referenced within the EMCP.

### 5.4.3 Environmental Monitoring and Audit Report (EMAR)

5.4.3.1 Throughout the period of construction of a project the contractor is required to conduct fortnightly self-audit and monitoring of its project site. Based on the audit and monitoring the contractor is required to submit to the EMU (PHSB) fortnightly **Environmental Monitoring and Audit Reports (EMAR)** of its site.

*See Appendix 11 Recommended EMAR Format*

5.4.3.2 (1) Figure 5.3 gives the flowchart for the submission of the EMAR during the construction stage. It highlights the actions to be taken by the contractor, the EMU (PHSB) and the EU (Perbaduan).

(2) The contractor is required to rectify, as soon as possible, any non-compliance items on the audit checklist identified by its environmental manager during the fortnightly site audit. The identified non-compliance items should be reported in the fortnightly EMAR submitted to the EMU (PHSB).

(3) The EMU (PHSB) shall note the non-compliance items in the contractor's EMAR and verify that they are complied during its monthly audit of the contractor's site.

(4) If any non-compliance items were identified by the EMU (PHSB) during its monthly audit the EMU (PHSB) shall issue Non-Compliance Reports (NCR) or Stop-Work-Order to the contractor, depending on the severity or regularity of occurrence of the non-compliance items. The contractor shall rectify, as soon as possible, the areas of non-compliance identified in the NCR.

*See Appendix 12 Recommended NCR Format*

(5) The EU (Perbadanan) shall be notified of any serious or persistent non-compliance by any contractor. It shall conduct its own audit and monitoring, based on the NCR reports submitted by the EMU (PHSB), and shall take further actions, if necessary.

5.4.3.3 The EMAR consists of 3 parts. They are:

- (a) Compliance audit checklist
- (b) Monitoring results and copies of documents/records
- (c) Non-compliance reports (NCR)

5.4.3.4 (a) Compliance audit checklist

The contractor's environmental manager is required to indicate, on the compliance audit checklist, those items that the contractor's site staff has not complied during the site audit.

5.4.3.5 (b) Monitoring results and copies of documents/records

The contractor's environmental manager is required to submit the following items to indicate the contractor's compliance with the requirements in the EMCP:

- Monitoring results for the project.
- Copies of changes in the contractor's EMS documents (if any).
- Copies of receipts (such as waste disposal receipts, etc.) and self-audit checklists pertinent to the items in the compliance audit checklist.
- Six selected photos to indicate the visual conditions of the site during the fortnightly period of audit.

#### 5.4.3.6. Non-Compliance Reports (NCR)

- (1) The contractor's environmental manager is required to prepare a list of the current non-compliance items as indicated in the audit checklist. The list should give the non-compliance audit items, an NCR reference number and the date of issue of the NCR.
- (2) The NCR reference number is made up of the audit report number and a running serial number.
- (3) A chronological list indicating all previous NCR issued should also be given.
- (4) For every non-compliance identified during the pertinent audit event, an NCR has to be prepared in accordance with the format given in Appendix 12. The NCR should describe the areas of non-compliance for the audited items and the actions to be taken. It should also indicate the date for actions to be taken and the date of actual compliance, where pertinent.

See Appendix 12 Recommended NCR Format



#### 5.4.4 Environmental Control Requirements

5.4.4.1 Project proponents are required to indicate the environmental control requirements, during the construction stage, in the Environmental Pollution Control Table (See Table A7.2 in Appendix 7) of the EMP. The requirements are organised under the following subjects:

- (a) Earthworks
- (b) Erosion, Sedimentation and Flood
- (c) Water Pollution
- (d) Air Pollution
- (e) Noise Pollution
- (f) Solid Wastes
- (g) Scheduled Wastes
- (h) Agrochemicals
- (i) Health

##### 5.4.4.2 (a) Earthworks

(1) Large scale land-clearing for earthworks is prohibited. Project proponents are required to phase their land-clearing and earthworks activities in parcels, in accordance with the development schedules for the land parcel.

(2) The overlapping of construction phasing should be avoided as this will lead to cumulative significant environmental impacts. Phasing overlaps within catchment should also be avoided.

(3) No excess earth from earthworks activities are to be disposed outside the Putrajaya site.

(4) No open burning of vegetation is allowed during site clearing. All cut vegetation are to be collected for composting at the Putrajaya Bio-Mass Centre.

(5) All exposed slopes and open areas, should be stabilised by the turfing and hydroseeding methods, as soon as the cut and fill for the slope formation and platform level is complete.

(6) Vegetated buffer zones should be provided, as far as possible, during the earthworks to screen the earthworks activities from sensitive environmental zones such as rivers, houses, park lands and wet lands.

#### **5.4.4.3 (b) Erosion, Sedimentation and Flood**

(1) Earthworks and construction activities, should as far as possible, be carried out during the dry season to reduce erosion and sedimentation.

(2) An Erosion and Sediment Control Plan (ESCP), pertinent to the needs of a project has to be prepared. Guidelines for the preparation of the ESCP are given in the DOE's 'Guidelines for Prevention and Control of Soil Erosion and Siltation'.

(3) Where pertinent, a Flood Control Plan (FCP) for a project has to be prepared.

(4) Discharges from silt traps must not exceed 50 mg/l.

#### **5.4.4.4 (c) Water Pollution**

(1) The temporary toilet system in the Central Workers Camp and at the project site offices shall be built to the specifications of the Jabatan Perkhidmatan Pembetulan (JPP).

(2) No discharge of any sewage or wastewater into the drainage system is allowed. All wastewater are to be connected to the site temporary toilet system.

**5.4.4.5 (d) Air Pollution**

- (1) All roads within the project site, including the access roads to public roads have to be paved before the start of work. The roads have to be continually maintained to be clean and free from dust.
- (2) The wetting of the grounds within a project site, especially the areas of movement of construction vehicle, should be carried out to minimise dust. Enough water should be provided for this purpose.
- (3) The wheels of earthworks machine and vehicles should be cleaned before being allowed to go onto public roads.
- (4) Lorries transporting goods should be covered.
- (5) The installation of combustion engines, such as generators, requires the prior approval of the Director-General of the DOE.

**5.4.4.6 (e) Noise Pollution**

- (1) A detailed plan for noise control has to be prepared as part of the EMCP, where pertinent, based on the list of likely noise sources arising from the project construction activities and the proposed mitigation measures highlighted in the EMP.
- (2) During construction, noise levels at the site boundary should not exceed 65 dB(A) in the daytime and 55 dB(A) during the night.
- (3) All contractors have to ensure that their their vehicles and construction plants are well-maintained to prevent excessive noise.
- (4) Heavy vehicle movements should be planned so as to reduce nuisance to surrounding communities and on main public roads. Traffic movements in residential areas should be reduced whenever possible.

(5) Piling works should use methods that do not create excessive noise and air pollution. Diesel piling is prohibited from use within the project site.

**5.4.4.7 (f) Solid Wastes**

(1) No open burning of construction materials or any other solid waste are allowed in Putrajaya. All construction solid waste are to be sorted on site into two types - those that can be recycled and those that are to be disposed.

(2) The disposal of non-scheduled wastes should be at Local Authority Approved disposal sites. Records of the disposal and supporting documentary evidence are to be kept for audit purposes.

(3) A detailed solid waste management plan is to be drawn-up as part of the EMCP. The solid waste management plan should:

- (a) identify the types of solid waste that will be generated by all the project activities,
- (b) classify them into recyclable and non-recyclable categories,
- (c) define in a flow-chart, for each of the identified solid waste, the handling process from the time it is generated at its source to the time of its disposal,
- (d) include details on the recycling and disposal contractors,
- (e) include details on the project staff responsible for ensuring that the plan is carried out and their specific responsibilities,
- (f) include details on the administrative procedures, related documents and forms to be completed, which are necessary for compliance audit checking purposes.

**5.4.4.8 (g) Scheduled Wastes**

(1) All project proponents are required to identify the likely scheduled waste that will be generated during the construction phase of the project in the EMP.

(2) All contractors are required to notify the DOE if there is generation of any scheduled wastes. This is in accordance with the Environmental Quality (Scheduled Wastes) Regulations, 1989.

(3) The contractor is required to develop procedures to handle the scheduled wastes on site until its collection for treatment and disposal by an approved company.

**5.4.4.9 (h) Agrochemicals**

(1) The use of pesticides shall be in accordance with Department of Agriculture guidelines and manufacturers recommendations.

(2) Only organic, slow release and readily degradable fertilisers are to be used in Putrajaya.

**5.4.4.10 (i) Public Health**

(1) Contractors are required to identify the possible waterborne diseases and their vectors, that may arise from their project construction activities, and the measures for their control in their EMCP.

(2) The EMCP shall describe the methods and detail procedures on how to control the identified possible waterborne diseases and their vectors during construction. The methods shall be implemented in accordance with the Malaysian Ministry of Health (MCH) requirements.

## **5.5 OPERATION STAGE**

### **5.5.1 Administrative Requirements**

5.5.1.1 All project operators are required to conduct the specified monitoring for their projects, highlighted in the project EMP, as instructed by the Perbadanan and other regulatory authorities.

5.5.1.2 All project operators are required to submit environmental monitoring and audit reports to the Perbadanan, when requested by it.

5.5.1.3 All project operators are required to develop an Emergency Response Plan (ERP), if their project operations will be hazardous to the public in the event of an emergency. A list of likely emergencies at the operational stage for each project component shall be included in the EMP to facilitate the project operators in the preparation of the ERP.

5.5.1.4 All project operators are required to conduct the specified monitoring for their projects, in accordance with the specifications in the EMP or EMR, and submit their monitoring results to the Perbadanan, when requested.

5.5.1.5 The Guidelines for the monitoring are given in Appendix 2L.

*(See Appendix 2L Guidelines for Environmental Monitoring)*

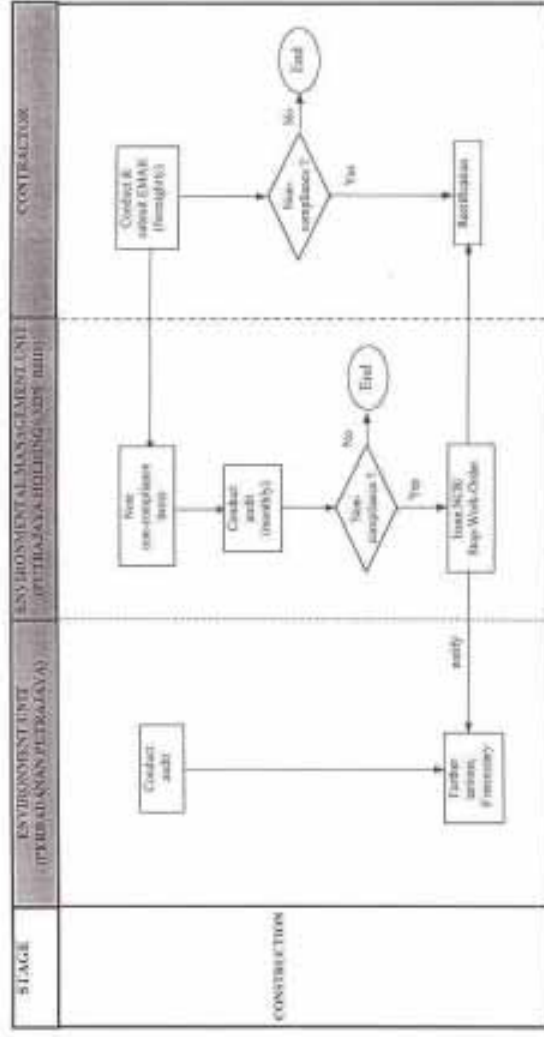


Figure 3.3 Flowchart for Submission of EMAR during Construction Stage

## 5.5.2 Environmental Control Requirements

5.5.2.1 Project proponents are required to indicate the environmental control requirements, during the operation stage, in the Environmental Pollution Control Table (See Table A7.2 in Appendix 7) of the EMP. The requirements are organised under the following subjects:

- (a) Water Pollution
- (b) Air Pollution
- (c) Noise Pollution
- (d) Solid Wastes
- (e) Scheduled Wastes
- (f) Agrochemicals
- (g) Public Health

### 5.5.2.2 (a) Water Pollution

(1) No discharge of any wastewater into the drainage system is allowed. All wastewater are to be connected to the central sewerage system. The drainage system are only to be used for the removal of surface runoff from rainfall.

(2) All toilets, domestic and commercial wastewater are to be connected to the central sewerage system. No individual sewerage system is allowed in Putrajaya.

### 5.5.2.3 (b) Air Pollution

The installation of combustion engines, such as generators, requires the prior approval of the Director-General of the DOE. All projects proponents are required to get the necessary approval documents from the DOE for submission together with their EMP.



**5.5.2.4 (c) Noise Pollution**

(1) The Perbadanan may require project operators to prepare a noise control plan for its approval, prior to the granting of approval to operate the project, if their project operations will result in excessive noise.

(2) The plan shall indicate the likely sources of noise arising from the project operational activities. It shall also indicate the likely parties that may be affected by the noise and the mitigation measures to be implemented.

**5.5.2.5 (d) Solid Wastes**

(1) No open burning of solid waste are allowed in Putrajaya.

(2) All solid waste are recommended to be sorted on site into two types - those that can be recycled and those that can be disposed.

**5.5.2.6 (e) Scheduled Wastes**

(1) All project proponents are required to identify the likely scheduled waste that will be generated during the operation phase of the project in the EMP.

(2) All project operators are required to notify the DOE if there is generation of any scheduled wastes in their operation. This is in accordance with the Environmental Quality (Scheduled Wastes) Regulations, 1989.

(3) Project operators are required to develop procedures to handle the scheduled wastes until its collection for treatment and disposal by an approved company.

**5.5.2.7 (f) Agrochemicals**

(1) The use of pesticides shall be in accordance with Department of Agriculture guidelines and manufactures recommendations.

(2) Only organic, slow release and readily degradable fertilisers are to be used in Putrajaya.

**5.5.2.8 (g) Public Health**

(1) Project operators are required to identify the possible waterborne diseases and their vectors, that may arise from their project operations, and the measures for their control.

(2) The methods shall be implemented in accordance with the Malaysian Ministry of Health (MOH) requirements.

<b>CHAPTER 6.0</b> <b>ENVIRONMENTAL MANAGEMENT SYSTEM IN</b> <b>PUTRAJAYA</b>	Revision : 1.0  Date : 16 November 1998
<p>6.0.1 To attain the environmental quality objectives of Putrajaya, as defined in Chapter 3, there is a need to develop and implement an Environmental Management System (EMS) governing the activities of all project stakeholders in Putrajaya. A model for developing such a system is the ISO14001 EMS Standard, which is a widely accepted official international standard for EMS.</p> <p>6.0.2 The Perbadanan intends to develop an EMS for the environmental management in Putrajaya. It has adopted the ISO14001 EMS model for the system. The Perbadanan recognises that the path to full compliance to the ISO14001 EMS Standard is a long one. Thus, it has adopted a pragmatic and interim approach towards that objective by implementing, wherever possible, pertinent elements of the Standard. The preparation of this Guide and its implementation in Putrajaya are the results of such an approach.</p> <p>6.0.3 The aim of this Chapter is to present the current EMS in Putrajaya, which is described in the earlier 5 Chapters of this Guide, within the framework of the 17 elements of the ISO14001 EMS Standard as given in Appendix 22.</p>	<p style="text-align: right;"><i>See Appendix 22 The 17 Elements in the ISO14001 EMS</i></p>
<p style="text-align: center;"><i>See Appendix 22 The 17 Elements in the ISO14001 EMS</i></p>	
<p><b>6.1 ENVIRONMENTAL POLICY</b></p>	
<p>6.1.1 The Perbadanan's environmental policy is described in Section 1.3 of this Guide.</p>	<p style="text-align: right;"><i>See Section 1.3 Environmental Policy of Putrajaya</i></p>
<p>6.1.2 Arising from the policy the Perbadanan has formulated and adopted a number of strategies to comply with the policy. The strategies are described in Section 1.4.</p>	<p style="text-align: right;"><i>See Section 1.4 Environmental Strategy of Putrajaya</i></p>
<p style="text-align: right;"><i>See Section 1.4 Environmental Strategy of Putrajaya</i></p>	
<p>Putrajaya Environmental Management Guide</p>	<p>Page 1 of 11</p>

<b>CHAPTER 6.0</b> <b>ENVIRONMENTAL MANAGEMENT SYSTEM IN</b> <b>PUTRAJAYA</b>	Revision : 1.0
	Date : 18 November 1998

**6.2 ENVIRONMENTAL ASPECTS**

- 6.2.1 The Perbadanan, as the corporate body responsible for the local government in Putrajaya, has the responsibility to minimise the environmental impacts of all development and operational activities in Putrajaya.
- 6.2.2 It recognises that as an emerging new city the activities that will create the most significant impacts on the environment are those related to the development projects that are being proposed and constructed within Putrajaya.
- 6.2.3 Thus, the primary objective of the interim EMS that has been developed and presented in this Guide is focus on managing and mitigating the negative environmental impacts arising from the development project activities.

**6.3 LEGAL AND OTHER REQUIREMENTS**

- 6.3.1 As a local government authority the Perbadanan can exercise all the legislative powers of a local government to ensure that its environmental objectives are met. Details on the Perbadanan, its City Planning Department and the Landscape and Environment Division are given in Section 2.1.1 to 2.1.3.

See Section 2.1.1 Perbadanan Putrajaya  
 See Section 2.1.2 City Planning Department  
 See Section 2.1.3 Landscape and Environment Division

- 6.3.2 In addition to its own legislative powers the Perbadanan can also engaged the support of other government agencies, responsible for controlling other activities, to help it meet its environmental objectives. The agencies are listed in Appendix 20.

See Appendix 20 Existing Legislative Controls for Pollution Abatement

- 6.3.3 To facilitate compliance by all project proponents and contractors to the environmental-related legislative requirements and guidelines the Perbadanan has compiled some applicable environmental related legislation and guidelines in Chapter 4 of this Guide.

*See Chapter 4 Environmental Legislation*

- 6.3.4 All project proponents and contractors in Putrajaya are required to be familiar with the details of the legislative requirements given in Chapter 4 of this Guide.

## **6.4 OBJECTIVES AND TARGETS**

In line with its environmental policy the Perbadanan has define a number of environmental quality objectives to be attained in Putrajaya. They are given in Chapter 3 of this Guide.

*See Chapter 3 Environmental Quality Objectives of Putrajaya*

## **6.5 ENVIRONMENTAL MANAGEMENT PROGRAM**

- 6.5.1 To achieve its environmental objectives the Perbadanan has prepared a number of guidelines as given in Appendix 23, including this Guide, to guide its staff, project proponents, their consultants and contractors on the requirements for various aspects of the development in Putrajaya.

*See Appendix 23 Putrajaya Design and Management Guide*

- 6.5.2 The Perbadanan has also developed an environmental administrative system that is fully integrated with the project planning approval system in Putrajaya. Details are described in Chapter 2 of this Guide.

*See Chapter 2 Planning and Environmental Administration in Putrajaya*

<b>CHAPTER 6.0</b> <b>ENVIRONMENTAL MANAGEMENT SYSTEM IN</b> <b>PUTRAJAYA</b>	Revision : 1.0
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6.5.3 The System requires an EMP or EMR to be prepared at the planning stage, an EMCP to be prepared at the pre-construction stage, and a PAP or PCP to be prepared before any project abandonment or project closure. It also specifies a 3-level chains of responsibility for environmental monitoring and audit during the construction stage of a project together with their associated reporting requirements, in the form of EMAR and NCR.

See Section 2.3.2 Environmental Management Plan (EMP)  
 See Section 2.4.2 Environmental Management Report (EMR)  
 See Section 5.4.1 Administrative Requirements (Construction Stage)  
 See Section 5.4.2 Environmental Management Compliance Plan (EMCP)  
 See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)  
 See Appendix 12 Recommended NCR Format

6.5.3 To facilitate compliance by project proponents, contractors and project operators the environmental requirements for the planning and design, construction and operation stages of a project are also compiled in Chapter 5 of this Guide.

See Chapter 5 Environmental Requirements in Putrajaya

## 6.6 STRUCTURE AND RESPONSIBILITY

6.6.1 The organisational structure of the Perbadanan is given in Figure 2.1. The functions of the four Departments in the Perbadanan and the parties responsible for environmental administration in Putrajaya are described in Section 2.1.

Figure 2.1 Organisational Structure of Perbadanan  
 See Section 2.1 Environmental Administration in Putrajaya

6.6.2 Since Putrajaya is an emerging new city the City Planning Department has the primary responsibility to ensure that the development projects are planned and carried out in line with the environmental policy in Putrajaya. Details on the Department are described in Section 2.1.2.

Figure 2.2 Organisational Structure of City Planning Department  
 See Section 2.1.2 City Planning Department

<b>CHAPTER 6.0</b> <b>ENVIRONMENTAL MANAGEMENT SYSTEM IN</b> <b>PUTRAJAYA</b>	Revision : 1.0
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6.6.3 The Landscape and Environment Division in the City Planning Department has been given the responsibility of ensuring that the physical landscape and environmental quality of Putrajaya are protected and maintained. Thus, it is responsible for evaluating all landscape and environmental management plans during the planning stage of any proposed project, and for ensuring that during the construction and operation stage the physical landscape and environment are protected and maintained. Details on the Division are described in Section 2.1.3.

*See Section 2.1.3 Landscape and Environment Division*

6.6.4 The Environment Unit in the Division has the responsibility to ensure that all the environmental planning, construction and operational requirements in Putrajaya, as described in Chapter 5, are complied by all project proponents, contractors and project operators.

6.6.5 Putrajaya Holdings Sdn. Bhd. (PHSB) is the main project proponent in Putrajaya and is responsible to the DOE for complying with all the EIA Approval Conditions for Putrajaya during the planning and construction stage. Thus, it has set-up an Environmental Management Unit (EMU) to discharge this responsibility. Details on the company are given in Section 2.1.4.

*See Section 2.1.4 Putrajaya Holdings Sdn. Bhd.*

6.6.6 The schematic outlines of the EMU (PHSB)'s responsibilities for environmental management in Putrajaya are indicated in Figures 2.4, 5.1 and 5.2. A list of its main responsibilities are given in Appendix 25.

- Figure 2.4 Flowchart for submission of EMP and EMS during the Planning Stage
- Figure 5.1 Flowchart for Submission of EMCP during Pre-Construction Stage
- Figure 5.2 Flowchart for Submission of EMAR during Construction Stage
- See Appendix 25 EMU (PHSB)'s Main Responsibilities

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PUTRAJAYA**

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6.6.7 All project proponents are required to do the following:

(a) Ensure that the environmental management requirements in the approved EMP or EMR are included in the contract documents for all work packages of their projects.

(b) Ensure that adequate budgets are allocated for the implementation of the environmental management requirements by the contractor, through the specific inclusion of the environmental management related items in the bill of quantities for the pertinent work packages.

6.6.8 All contractors are required to do the following:

(a) Ensure that an EMS is set-up to support the environmental management needs for their projects. The EMS does not need to be complicated, as long as it can meet the requirements of the Pertubadanan as defined in this Guide.

(b) Ensure that they appoint an environmental manager/officer to be responsible for the overall environmental management of their site, and for the implementation and maintenance of their site EMS. Alternatively, they may assign a competent staff or consultant to be responsible for discharging the duties of the environmental manager/officer.

6.6.9 All project operators are required to ensure that they implement and comply with all the environmental pollution control measures and monitoring requirements of their projects during the operation stage, as identified in the approved EMP or EMR of their projects.



**6.7 TRAINING, AWARENESS AND COMPETENCE**

- 6.7.1 All the staff in the Perbadanan and the EMU (PHSB) are trained and capable of carrying out their environmental responsibilities.
- 6.7.2 All EMP are required to be prepared and certified by locally accredited environmental professionals.
- 6.7.3 All EMR and EMCP are required to be prepared by competent professionals with adequate knowledge and experience in environmental management.
- 6.7.4 All contractors are required to have or assign a management staff/consultant, with adequate knowledge and experience in environmental management, to be the environmental manager/officer for their project.
- 6.7.5 All project operators are required to ensure that competent and well-trained staff are assigned to operate their projects.
- 6.7.6 All contractors are encouraged to conduct regular environmental awareness programs to promote good environmental practices in their sites.
- 6.7.7 All project operators are encouraged to conduct regular environmental awareness programs to promote good environmental practices amongst its operations staff.

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6.7.8	The Perbadanan will also organise regular environmental awareness programs to promote good environmental practices among all stakeholders in Putrajaya. It shall produce and disseminate information leaflets to educate all residents in Putrajaya on their responsibilities to protect and preserve the high quality environment in Putrajaya. It shall also conduct forums to educate all project proponents, consultants, contractors and project operators on their important roles in environmental protection and management in Putrajaya.	
6.8	<b>COMMUNICATION</b>	
6.8.1	To ensure compliance by all project proponents, contractors and project operators to the environmental requirements in Putrajaya the Perbadanan has prepared this Guide to facilitate communication of its environmental policy and requirements to external parties.	
6.8.2	The Perbadanan has also set-up an internal system for the communications among its staff on environmental management issues.	
6.9	<b>EMS DOCUMENTATION</b>	
	The Perbadanan intends to maintain the information on its EMS as contained in this Guide and the related guidelines by reviewing and updating them, on a regular basis.	
6.10	<b>DOCUMENT CONTROL</b>	
	The Perbadanan intends to maintain an effective system for the management of all its EMS documents.	
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**6.11 OPERATIONAL CONTROL**

The Perbadanan will identify, plan and manage all its operations and activities in line with its environmental policy and objectives.

**6.12 EMERGENCY PREPAREDNESS AND RESPONSE**

6.12.1 The Perbadanan has made it a requirement in the EMP/EMR and EMCP for all project proponents and contractors to identify and prepare plans, respectively, to respond to any emergencies during the course of the planning and construction of a project.

6.12.2 Project operators are also required to prepare emergency response plans for the emergencies identified in the EMP or EMR of their projects.

**6.13 MONITORING AND MEASUREMENT**

6.13.1 The Perbadanan has made it a requirement in the EMP and EMR to identify all monitoring requirements for any proposed project in Putrajaya. The identified monitoring requirements will be implemented by the project contractors and fortnightly monitoring results has to submitted to the EMU (PHSB) as part of the EMAR. The monitoring guidelines has to comply with those given in Appendix 24.

*See Section 54.7 Environmental Monitoring and Audit Report (EMAR)  
See Appendix 24 Guidelines for Environmental Monitoring*

6.13.2 The EMU (PHSB) is also required to conduct its own monitoring for the whole Putrajaya development. It shall compile all the monitoring results, including those submitted by the contractors, as part of its quarterly report to the Perbadanan and the DOE on the overall status of the environmental management in Putrajaya during the quarter. A format for the content of the report is given in Appendix 26. The report should cover all the topics listed there.

*See Appendix 26 Format of EMU (PHSB)'s Quarterly Report to the Perbadanan and DOE*

**6.14 NON-COMPLIANCE, CORRECTIVE AND PREVENTIVE ACTION**

6.14.1 The contractor's environmental manager/officer has to conduct fortnightly environmental audit of its site. If there is any non-compliance it has to prepare a non-compliance report and ensure that corrective and preventive actions are taken.

Figure 5.2 Flowchart for Submission of EMAR during Construction Stage  
See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)

6.14.2 The EMU (PHSB) is also required to conduct a monthly environmental compliance audit of a contractor's site. If there is any non-compliance it will issue a non-compliance report and ensure that corrective and preventive actions are carried out by the contractor.

6.14.3 The EU (Perbadanan) will also conduct surprise environmental compliance audit of a contractor's site. If there is any non-compliance it will issue a non-compliance report and the EMU (PHSB) will have to ensure that corrective and preventive actions are carried out by the contractor.

6.14.4 The EU (Perbadanan) will also conduct surprise environmental compliance audit of a project operator's site. If there is any non-compliance it will issue a non-compliance report and require the project operator to ensure that corrective and preventive actions are carried out.

**6.15 RECORDS**

The project operator, contractor, EMU (PHSB) and the EU (Perbadanan) shall ensure that an adequate system is established for the keeping and retrieval of all records, pertinent to the discharge of their environmental responsibilities, within the framework of the EMS in Putrajaya.

**6.16 EMS AUDIT**

6.16.1 The contractor environmental manager/officer has to conduct fortnightly environmental audit of its site.

*Figure 5.2 Flowchart for Submission of EMSR during Construction Stage  
See Section 5.4.3 Environmental Monitoring and Audit Report (EMAR)*

6.16.2 The EMU (PHSB) is required to conduct monthly environmental audit of a contractor's site.

6.16.3 The EU (Perbadanan) will conduct surprise environmental audit of a contractor's and project operator's site.

**6.17 MANAGEMENT REVIEW**

The Perbadanan will continually review its EMS with a view towards its continual improvement.

## LIST OF REFERENCES

1. Konsortium Perang Besar (1995), "Perancangan Pembangunan Pusat Pentadbiran Persekutuan Putrajaya", February.
2. Universiti Putra Malaysia (1995), "Laporan Penilaian Keset Alam Sokitar Projek Pembangunan Pusat Pentadbiran Persekutuan Putrajaya di Daerah Sepang, Selangor Darul Ehsan", July.
3. Teo A. Kheng Design Consultants Sdn. Bhd., "Putrajaya Masterplan Review"
4. Perbadanan Putrajaya (1997), "Putrajaya - The Federal Government Administrative Centre, July.

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1. Additional Background Information on Putrajaya
2. EIA Approval Conditions for Putrajaya
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4. Borang SA - Application checklist for layout planning approval
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7. Recommended EMP Format
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10. Environmental Audit Checklist
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14. Putrajaya Lake Water Quality Standards
15. DOE's Interim National Water Quality Standards
16. Environmental Quality (Perbadanan Putrajaya) Water Pollution Control Regulations 1998
17. Malaysian Air Quality Guidelines
18. WHO Recommended Noise Exposure Limits
19. Environmental Related Legislation and Implementing Agencies in Peninsular Malaysia
20. Existing Legislative Controls for Pollution Abatement
21. Environmental Quality (Clean Air) Regulations, 1978
22. The 17 Elements in the ISO14001 EMS
23. Putrajaya Design and Management Guides
24. Land Use-Class Order List in Putrajaya
25. Environmental Monitoring Guide for Contractors
26. EMU (PHSB)'s Main Responsibilities
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**APPENDIX 1**

Revision : 1.0

**ADDITIONAL BACKGROUND INFORMATION  
ON PUTRAJAYA**

Date : 16 November 1998

**1.0 Introduction**

The additional background information on Putrajaya are organised under the following topics:

- Original Masterplan
- EIA Report
- Masterplan Review
- Conceptual Overview of Project
- Implementation Schedule

**2.0 Original Masterplan**

The original masterplan for Putrajaya was drawn-up in a collaborative effort between a consortium of master planners and government authorities. It was approved by the Government on 22 February 1995.

See "Perancangan Perancangan Pusat Prestiditiran Persekitaran Putrajaya"

**3.0 EIA Report**

In accordance with the requirements of the subsidiary legislation of the Environmental Quality Act, 1974, (Prescribed Activities) Environmental Impact Assessment Order, 1987, an EIA report on the project was prepared in July 1995.

See "Laporan Pelelitian Alam Sekitar Projek Perancangan Pusat Prestiditiran Persekitaran Putrajaya & Daerah Sejang, Selangor, Darul Ehsan"

**4.0 Masterplan Review**

Subsequently, in order to minimise destabilisation to the environment and to reduce cut and fill, a formal review of the original masterplan was carried out.

See "Putrajaya - Review of the Masterplan"



### 5.0 Conceptual Overview of Project

A booklet giving a conceptual overview of the project has been produced by Perbadanan Putrajaya in July 1997. The booklet describes the vision for the City and gives a summary of the main points related to the development.

See "Putrajaya - The Federal Government Administrative Centre"

### 6.0 Implementation Schedule

The development for Putrajaya is planned to be carried out in three phases (Phase 1A - 1998, Phase 1B - 2000, Phase 2 - 2005). Phase 1A covering approximately 1300 hectares is planned to be completed by end of 1998. It involves the development of the Government Precinct, some residential and commercial areas, the Putrajaya Wetlands, construction of a temporary dam to create the Northern part of Putrajaya Lake, adjacent to the Government Precinct, and all supporting infrastructures.

TABLE A2.1 EIA APPROVAL CONDITIONS FOR PUTRAJAYA

CONDITIONS	ANALYSIS	COMPLIANCE BY
<p><b>1. PLANNING AND DESIGN STAGE</b></p>		
<p><b>A. Planning Issues</b></p>		
<p>1. Adequate set backs between road reserves and building lots should be in accordance with the Planning Guidelines as specified by the Jabatan Perancang Bandar dan Desa. No buildings are allowed to be constructed within the set back areas.</p>	<p>Superseded by Putrajaya's Transport Design Guidelines.</p>	PP
<p>2. Set backs of at least 50m between expressways and the nearest building lot. The set back areas are to be landscaped and no buildings are allowed to be constructed within them.</p>	<p>Superseded by Putrajaya's Transport Design Guidelines. (Refer to Table P3/2.5.1 and Table 2.6)</p> <p>The following are the set backs required for the road system within Putrajaya :-</p> <ul style="list-style-type: none"> <li>- Primary distributor - 10m</li> <li>- Secondary distributor - 10m</li> <li>- Local distributor - 10m</li> <li>- Spine road - 4m</li> <li>- Local road - 2.5m</li> </ul> <p>Access road - Not required            Cul-de-sac - Not required</p>	PP

TABLE A2.1 EIA APPROVAL CONDITIONS FOR PUTRAJAYA (cont'd)

CONDITIONS	ANALYSIS	COMPLIANCE BY
<p>3. A buffer zone of at least 21m between any existing building and the central waste treatment facility is to be allowed for. The zone is to be landscaped and no permanent buildings are allowed to be constructed within it.</p>	<p>Superseded by UDG (Refer to Volume 3 - Part 4 : Service Industry, Transport &amp; Public Utilities, Section 3.4.2)</p> <p>The following are the buffer zone required in Putrajaya :-</p> <ul style="list-style-type: none"> <li>- 30 m surround for residential and commercial development.</li> <li>- 20 m surround for industrial development</li> <li>- 10 m surround for fully enclosed plants</li> </ul> <p>Applicable</p>	<p>PHH</p>
<p>4. Public facilities such as mosques, cemeteries, recreational and commercial areas should have facilities such as walkways and bicycle paths.</p>	<p>Applicable</p>	<p>PP</p>
<p>5. Building frontage adjacent to lakeside should be constructed facing the lakeside.</p>	<p>Applicable</p>	<p>PP</p>

TABLE A2.1 EIA APPROVAL CONDITIONS FOR PUTRAJAYA (cont'd)

CONDITIONS	ANALYSIS	COMPLIANCE BY
6. The alignment of buildings and roads should take into consideration existing topography and selected trees identified for preservation, as far as possible.	Partly applicable. Only selected zones of trees are preserved as buffer.	PP
7. Development on high risk slopes (>20 degrees) should be in accordance with the Development Guidelines for Buildings on Hill Lands, 1995, prepared by the Jabatan Perancangan Bandar dan Desa, Selangor.	Applicable. All projects are required to submit geotechnical report to Perbadanan, irrespective of the gradient of the site.	PP
8. Separate surface runoff and effluent drainage system are to be provided.	Applicable	PP
9. A central wastewater treatment system should be implemented for the project.	Applicable	PHH
10. Entry of vehicles with internal combustion engines (ICE) to the development should be limited to 17,000 units/day.	Applicable. The transportation policy of Putrajaya encourages the use of public transport.	Perbadanan/PHH

TABLE A2.1 EIA APPROVAL CONDITIONS FOR PUTRAJAYA (cont'd)

CONDITIONS	ANALYSIS	COMPLIANCE BY
<p><b>B. Design Issues</b></p> <p>1. Effective designs for transportation, drainage and sewerage systems have to be prepared before commencement of construction work.</p> <p>2. The stability of slopes should be ensured in the earthworks design and during construction.</p> <p>3. Silt traps, surface drains, detention and sedimentation ponds should be prepared prior to earthworks. Discharges from silt traps etc. must not exceed 50 mg/l. The silt traps are to be properly maintained.</p> <p>The design and plan of the silt trap has to be submitted to the Drainage and Irrigation Department (DID) for its approval, with a copy sent to the DOE, Selangor.</p>	<p>Applicable</p> <p>Applicable</p> <p>Applicable</p> <p>According to the Perbadanan's Earthworks By-law the design plans of silt trap have to be submitted to Perbadanan for its approval.</p>	<p>PP</p> <p>PP</p> <p>PP</p> <p>PP</p>

TABLE A.2.1 EIA APPROVAL CONDITIONS FOR PUTRAJAYA (cont'd)

CONDITIONS	ANALYSIS	COMPLIANCE BY
4. Surface run-off from the site to the flood detention ponds and tributaries of Sungai Lariang should be controlled to prevent the occurrence of flooding downstream of the project site.	Applicable	PIH
5. Detention ponds have to be prepared in parallel with all earthworks activities for every phase. The location of the ponds have to take into account the flood records of the area.	Applicable	PP
6. The design of the detention ponds have to be approved by the Department of Irrigation and Drainage (DID). An area of 5% of the total project area has to be set aside for the above purpose.	Superseded by Perbadaman's requirement. Design plans have to be submitted to Perbadaman for approval.	PP
6. A central wastewater treatment system should be implemented for the project. All effluent discharge, including sullage, must be treated in meet Standard A of the Third Schedule, EQA (Domestic and Industrial Effluents) 1979.	Applicable	PIH
7. The design and maintenance of the artificial wetlands have to fulfill their objective of treating the point and non-point sources of pollutants.	Applicable	PIH