



First Semester Examination
Academic Session 2019/2020

December 2019/January 2020

EAP584 – Environmental Impact Assessment

Duration : 2 hours

Please check that this examination paper consists of **FIVE (5)** pages of printed material before you begin the examination.

Instructions : This paper contains **FIVE (5)** questions. Answer **FOUR (4)** questions

All questions must be answered in English.

Each question **MUST BE** answered on a new page.

- (1). (a). Discuss **THREE (3)** steps of overviewing the Environmental Impact Assessment Procedures 2016 in Malaysia. Please use an appropriate diagram in supporting your discussions.

[10 marks]

- (b). Describe environmental components and project activities within an Environmental Impact Assessment Matrix.

[10 marks]

- (c). Using a table, depict **FIVE (5)** factors to be considered in making assessment decision.

[5 marks]

- (2). A reclamation and capital dredging for the Star Bright City mixed development at Kuala Terengganu, Terengganu, Malaysia is proposed. This mixed development includes residential, tourism, marine facilities including a cruise liner terminal, light industry, public facilities including public beaches, recreational areas and a cultural and food hub for the local community. Possible environmental impacts need to be taken care of may arise from the following activities:

- Reclamation of land
- Capital dredging
- Construction of breakwaters
- Construction of roads and bridges
- Construction of piled platforms

Environmental Sensitive Areas near the project includes:

- Coastal area along the project site
- Mangrove – located 1 km from the boundary of the project
- Marine parks – four marine parks that have been gazetted in Terengganu which are Pulau Kapas, Pulau Bidong, Pulau Redang and Pulau Perhentian Besar located about 10 km from the project area

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Sensitive receptors within 5 km radius from the project site includes:

Various cemeteries, educational facilities, medical facilities, recreational areas, palaces, fish aggregating devices (FADs), fish landing areas, and settlements.

- i) Discuss **FIVE (5)** possible environmental impacts that may arise from the project.

[10 marks]

- ii) Propose the mitigation measures to safeguard the environment at the project site.

[15 marks]

- (3). State government plans for a mixed development project in Jeli, Kelantan on 10,000 ha area consisting of residential, institutional, commercial and office buildings. The project development is planned in two phases. The area is undulating and the level changes less than 3.0 m which is covered with secondary forest. The contractor should comply with the EIA's approval condition of 100 mg/L of suspended solids and therefore requires for an erosion and sedimentation control plan for the development area.

- (a). Explain **TWO (2)** strategies for the erosion and sediment control plan for the above project.

[5 marks]

- (b). Discuss **FIVE (5)** principles most relevant to erosion and sediment control that should be considered in the planning of the above project.

[10 marks]

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- (c). Discuss **FIVE (5)** erosion and sedimentation control devices for train of treatment during earthwork phase for the erosion and sediment control for the above project.

[10 marks]

- (4). (a). Traffic impact assessment (TIA) is an essential issue in EIA and recommendations from TIA will be incorporated in the EIA report. You are given a project to assess the traffic impact surrounding a proposed development located nearby the USM Engineering Campus as shown in **Figure 1**. The proposed development is a mixed-development and consists of 50% residential area and 50% commercial area. The proposed development is expected to be completed by year 2025. Discuss in detail the TIA process in terms of the application and important factors to be considered for environmental impact studies.

[15 marks]



Figure 1: Location of proposed development

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- (b). Mixed traffic composition is one of the main causes of road accidents. Discuss **FOUR (4)** strategies or policies that can be implemented to reduce the risks of accidents due to mixed traffic composition.

[10 marks]

- (5). (a). Describe the differences between the natural component and the cultural pattern in the concept of landscape. Explain how they influence the human perception of landscape.

[5 marks]

- (b). Visual Impact Assessment (VIA) is a systematic analysis of potential impacts to scenery and views resulting from a proposed development. Using the development of a new landfill site as an example, elaborate on how you will conduct a VIA study.

[5 marks]

- (c). Discuss **FIVE (5)** benefits of GIS data visualization with respect to landscape and visual impact assessment.

[5 marks]

- (d). Environmental Impact Assessment (EIA) often requires vast amount of data, collected from various sources (physical, chemical, biological, socio economic variables) in spatial and temporal formats. To obtain spatially based data such as land-use/cover and geographical based data is an enormous task which requires vast amount of resources. It also assists decision makers and planners to understand the environmental impact of a proposed project or activity in a systematic and multi-disciplinary way. One of the methods to obtain information of spatial data is via the use of space and aerial remote sensing.

Discuss the use of remote sensing data to develop a monitoring system for EIA especially in areas which are environmentally sensitive.

[10 marks]