

17

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANIZATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Semester: Semester Final Examination

Summer Semester: 2021-2022

Course No.: CEE 4831

Full Marks: 100

Course Title: Environmental and Social Impact Assessment

Time: 3 hours

There are 6 (Six) questions. Answer ALL questions. Programmable calculators are not allowed. Do not write on this question paper. The figures in the right margin indicate full marks and corresponding CO and PO. Symbols convey their usual meanings. Assume reasonable data for any missing info.

1. A high-speed railway system is proposed between two major cities in a developing country to provide faster and safer travel options for passengers and promote regional economic growth. However, the project also poses several environmental and social impacts such as wildlife habitat loss, noise and air pollution, and impacts on local communities and cultural heritage sites. As a consultant, an Environmental Impact Assessment (EIA) study will be conducted to identify and assess potential impacts and recommend mitigation measures to minimize or eliminate adverse effects. The EIA will also consider alternatives to the proposed project, including the no-action alternative, and provide stakeholders with information to make informed decisions on the project's feasibility and sustainability.
- (a) Explain the concept of environmental impact with a graph of the above proposed project. 3 CO1 PO1
- (b) Describe the various methods used to identify the impacts of a project, and select three methods to apply in the context of a proposed project. 7 CO2 PO2
- (c) Calculate the EIV from the following data and comment on your result. 7 CO3 PO6
 Scale: + 5 severely positive impact, 0: no change, + 5 severely negative impact

ENVIRONMENTAL PARAMETERS	Relative Importance Value	Degree of Impact	ENVIRONMENTAL PARAMETERS	Relative Importance Value	Degree of Impact
I. PHYSIO-CHEMICAL			III. ECOLOGICAL		
Erosion and Siltation	4	-2	Forest	5	-5
Regional Hydrology/Flooding	7	-1	Tree Plantation	5	4
Drainage Congestion/Water Logging	6	-4	Wetland/Wetland Habitat	7	1
Obstruction to Waste Water Flow	5	-3	Endanger Species	3	-2
Dust Pollution/ Noise Pollution	6	-3	Species Diversity	3	-2
Water Pollution	5	-2			
II. HUMAN INTEREST					
Loss of Agricultural Lands	10	4			
Employment Opportunities	12	6			
Commercial and Service Facilities	14	3			
Industrial Activities	4	2			
Irrigation Facilities	4	3			
Landscape	5	-3			

2. You are a part of a team of renowned consultancy firm working for the Bangladesh Economic Zones Authority (BEZA) on "Development of Mirsarai Economic Zone (30,000 acres) at Mirsarai Upazila, Chittagong on the bank of Sandwip channel in Bangladesh" project. You must undertake a detailed Environmental Impact Assessment (EIA) report for the proposed economic zone at Mirsarai.
- (a) Prepare a 'Table of Contents' for an EIA report on the proposed project. 12 CO1 PO1
- (b) A comprehensive review of the adequacy and quality of an EIA report would address many important issues. Analyze the issues briefly. 5 CO2 PO2
3. A national development project, MRT (Phase I), is proposed from Diabari, Uttara to Mirpur. As a consultant you have identified several significant environmental impacts from the proposed project. Now you are in the final stage of the report and preparing an EMMP to protect environment from deterioration.
- (a) Describe briefly the 7 components of EMMP to obtain sustainability. 3 CO4 PO7
- (b) Discuss about environmental monitoring in the perspective of sustainability. 4 CO4 PO7
- (c) Stakeholder analysis consists of four steps and seeks to answer a few fundamental questions to make it a sustainable development project. Explain briefly. 7 CO4 PO7
4. (a) Differentiate between EIA and SEA. 4 CO1 PO1
- (b) The main types of social impacts that occur as a result of the project related changes can be grouped into five overlapping categories. Describe briefly. 4 CO3 PO6
- (c) State the requirement for air quality standards according to National Ambient Air Quality Standards [NAAQS, 2005] in Bangladesh and WHO guidelines (with Interim Target values). 8 CO5 PO8
5. A power plant construction project is proposed to establish adjacent to the IUT campus. What would be your prescribed EMMP to make it a sustainable development project in monitoring stage for the potential environmental impacts from the project? Mention the possible project activities and potential environmental impacts. What, where, how and when is the parameter to be monitored? Represent in a tabulated form by considering construction and operation phases only. 16 CO4 PO7
6. You are a part of a team of renowned consultancy firm who will work on a project, namely "Strategic and impact assessment and evaluation of existing climatic, environmental and ecosystem intervention and development projects in Patuakhali, Bangladesh". To analyze the impacts, prepare technical and financial proposals for this project including table of contents, detailed methods and tools, sample size, number of events and corresponding respondents. Consider 4 Upazilas in Patuakhali comprise of 5,00,000 households. Assume reasonable data/value for this task. 20 CO3 PO6

Formulae

$$n = def f * \frac{N * \hat{p} * \hat{q}}{\frac{d^2}{Z_{1-\alpha}^2 * (N-1) + \hat{p} * \hat{q}}}$$

$$n_{corrected} = \frac{n}{response\ rate}$$