Department of Civil Engineering

CVL 820: Environmental Impact Assessment (1st Semester 2020-21)

Minor Examination Max Marks = 50 Time – 1 hr

Entry No._____Name:_____

Note:

i. *Video must be on throughout the examination process to facilitate proctoring.*

ii. *Mention your name, Entry number and the course code on the answer sheet.*

iii. *Please scan your handwritten answers make ONE .pdf file (the size should be less than 1 MB).*

iv. *Submit the answers through email to aknema@civil.iitd.ac.in before 10:00 AM.*

v. *Late submissions will attract penalty. The subject line of your email should read "MINOR EXAMINATION - CVL 820 (.y.o.u.r. n.a.m.e. and E.N.T.R.Y. N.O.)"*

vi. *The answers should be original. Do not copy from any source.*

Q.1 River channels and its adjoining areas have long been exploited for construction grade aggregates like sand and gravel. But it is understood that indiscriminate sand mining from rivers and its basin areas imposes many harmful effects on the environment. The impact of sand mining may vary depending upon geologic and geomorphic settings, river size, resource availability, climatic conditions, etc. As most of the rivers are severely affected by indiscriminate sand mining from in-stream and floodplain areas, a scientific evaluation/ assessment is a pre-requisite for framing sustainable development strategies for the mining-hit areas. Draw a network/cause-effect/fish bone diagram which can help in identification of the prevention and mitigation of environmental damage due to sand mining activities. Discuss the possible intervention points and barriers. Mention your assumptions (if any). [10]

Q.2 Explain in brief "scoping" as a part of EIA process. Give suitable examples to elaborate your points. (~ 75 words) [10]

Q.3 What is the purpose of the "screening" step of EIA? (~ 75 words) [10]

Q.4 Read the Case given below and answer the questions in the context. [20]

Case Details: Tamil Nadu is one of the states in India suffering from power deficit. The demand of energy is expected to increase by 5% requiring an additional capacity of 2058 MW within the next five years. Out of the existing installed capacity of 8249 MW, 64% is contributed by the government sector while the remaining 12% and 24% are contributed by private sectors and central government. Under the framework of power policy of Government of Tamil Nadu, involvement of private sector entrepreneurs is encouraged to develop power in order to reduce the power shortage in the State. This proposal is one of the responses of the policy under which the private-sector proponent has proposed to install Combined Cycle Power Plant (CCPP) to generate 52.8 MW at Vazhuthur of Ramanathapuram district. The cost for the proposed project is estimated to be 246 corers. The proposed power project is located at about 1km South of Vazhuthur village and 3km North-East of Valantharavi village of Ramanathapuram district and it covers an area of 18.11 acres (1acre= 4045m^2) of agricultural land. The proposed site is located at a distance of 13 Km from Ramanathapuram-Rameswaram Highway. The nearest railway station is Ramanathapuram and Airport is Madurai located at a distance of 110 Km Northwest of the site. The nearest seaport is 120

Km Southwest of the proposed site. The present topography of the study area is a coastal plain with sandy terrain where 30% of the buffer zone is occupied by sea. In the core area few small sand dunes were observed. Proposed project will be operationlized in 18.11 acres of land 34% of which will be utilized for project activities and 30% for developing greenbelt.

The potential for air pollution arises from fugitive emissions and impacts due to usage of natural gas. Therefore, dispersion of pollutants released into the atmosphere may have significant impacts on the surrounding environment. Natural gas will not contribute to the suspended particulates. A marginal increase in the gaseous pollutants such as SO_2 and NOx, is expected. Wastewater generation from the proposed power plant will be conducted from different sources like Waste Heat Recovery Boiler blow down, service water, potable water, evaporation cooler, filter back wash and Demineralization plant reject will be treated by effluent treatment plant while the treated water will be used for development of greenbelt. The waste oil from transformer yard, powerhouse area and engines will be collected and recovered. Diesel Generator sets are going to be the sources of noise generation. The noise-level shall be maintained within the stipulated limit and mitigation measures will be proposed. The Gulf of Mannara Marine Biosphere Reserve is a unique ecosystem, with over 9 species of live corals and harbouring a rich variety of fauna. Presently, the local people are exploiting animal species including fishes. Corals and Seaweeds are present in abundance; however, their exploitation has exceeded the limitation. The yearly harvesting of these resources reaches up to 5000-7000 kg of dry weight. Dense growth of Mangroves exists in the coastal area; however, massive felling of these trees for different purposes have already created some effects in the coastal ecosystem.

The proposed project will utilize skilled manpower for operation and maintenance of the plant. Thus, employment opportunities will be created for the educated/skilled manpower of the region. The project will give a push to the other industrial/commercial avenues in this region, which will lead to the creation higher income in the region. Noise pollution due to the movement of vehicles during construction activities is expected. The proposed power plant will not change any topographic feature significantly. The proposed greenbelt development around the site will enhance the diversity of vegetation. Noise level will be marginally increased due to increased activity. There will be a number of job opportunities available to the local people during the constructional stage and after commissioning qualified person belonging to this region will be given priority.

Q.4a Identify the key positive and negative environmental issues due to the proposed project.

Q.4b Prepare MATRIX showing environmental impacts on the Gulf of Mannara Marine Biosphere Reserve WITH vis-à-vis WITHOUT the proposed project.

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