

## **ACTIVITY 7(f)- HIGHWAY**

### **STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR HIGHWAYS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT**

#### **I. Project Details**

- i. Examine and submit a brief description of the project, project name, nature, size, its importance to the region/state and the country.
- ii. Submit detailed alignment plan, with details such as nature of terrain (plain, rolling, hilly), land use pattern, habitation, cropping pattern, forest area, environmentally sensitive places, mangroves, notified industrial areas, sand dunes, sea, river, lake, details of villages, teshils, districts and states, latitude and longitude for important locations falling on the alignment by employing remote sensing techniques followed by ground truthing and also through secondary data sources.
- iii. Describe various alternatives considered, procedures and criteria adopted for selection of the final alternative with reasons.
- iv. If the proposed route is passing through a city or town, with houses and human habitation on the either side of the road, the necessity for provision of bypasses/diversions/under passes shall be examined and submitted. The proposal should also indicate the location of wayside amenities, which should include petrol station/service centre, rest areas including public conveyance, etc. Noise reduction measures should also be indicated.
- v. Submit details about measures taken for the pedestrian safety and construction of underpasses and foot-over bridges along with flyovers and interchanges. If any.
- vi. Assess whether there is a possibility that the proposed project will adversely affect road traffic in the surrounding areas (e.g. by causing increases in traffic congestion and traffic accidents). Specific care be also taken to ensure that by passes have a sufficient buffer to prevent unwanted obstructions defying the purpose of the by pass
- vii. If the proposed route involves cutting of earth, the details of area to be cut, depth of cut, locations, soil type, volume and quantity of earth and other materials to be removed with location of disposal/ dump site along with necessary permission.
- viii. If the proposed route is passing through low lying areas, details of fill materials and initial and final levels after filling above MSL, should be examined and submit.
- ix. Examine and submit the water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality likely impacts on them due to the project.
- x. Examine and submit the details of use of fly ash in the road construction, if the project road is located within the 100 km from the Thermal Power Plant.
- xi. Explore the possibilities of utilizing the debris/ waste materials available in and around the project area.

#### **II. Forest**

- xii. In case the project involves diversion of forests land, guidelines under OM dated 20.03.2013 may be followed and necessary action taken accordingly.

- xiii. The information should be provided about the details of the trees to be cut including their species and whether it also involves any protected or endangered species. Measures taken to reduce the number of the trees to be removed should be explained in detail. Submit the details of compensatory plantation.
- xiv. Necessary green belt shall be provided on both sides of the highway with proper central verge and cost provision should be made for regular maintenance
- xv. If there is a possibility that the construction/widening of road will cause impact such as destruction of forest, poaching, reductions in wetland areas, if so, examine the impact and submit details.

### **III. Court Matters**

- xvi. Details of any litigation(s) pending against the project and/or any directions or orders passed by any court of law/any statutory authority against the project to be detailed out.

### **IV. Land Environment**

- xvii. Submit Land use map of the study area to a scale of 1: 25,000 based on recent satellite imagery delineating the crop lands (both single and double crop), agricultural plantations, fallow lands, waste lands, water bodies, built-up areas, forest area and other surface features such as railway tracks, ports, airports, roads, and major industries etc.
- xviii. submit a detailed ground surveyed map on 1:2000 scale showing the existing features falling within the right of way namely trees, structures including Archeological & religious, monuments etc. if any.
- xix. If the proposed route is passing through any hilly area, examine and submit the stability of slopes, if the proposed road is to pass through cutting or embankment / control of soil erosion from embankment. Landslide, rock fall protection measures to be indicated.

### **V. Wildlife**

- xx. The projects is located within 10km. of the sanctuary a map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon should be furnished at the stage of EC.
- xxi. Details of blasting if any, methodology/technique adopted, applicable regulations/permissions, timing of blasting, mitigation measures proposed.keeping in view mating season of wild life.
- xxii. Explore the possibilities of relocating the existing trees. Animal and wild life crossings to be provided in areas inhabited by wild life.
- xxiii. Study regarding the Animal bypasses / underpasses etc. across the habitation areas shall be carried out. Adequate cattle passes for the movement of agriculture material shall be provided at the stretches passing through habitation areas.

- xxiv. Provide compilation of road kill data on the wildlife on the existing roads (national and state highways) in the vicinity of the proposed project. Provide measures to avoid road kills of wildlife by the way of road kill management plan.

## **VI. Soil Quality Analysis**

- xxv. Submit the details on compliance with respect to Research Track Notification of MoRTH 20) Examine and submit the details of sand quarry and borrow area as per OM no.2-30/2012-IA-III dated 18.12.2012 on 'Rationalization of procedure for Environmental Clearance for Highway Projects involving borrow areas for soil and earth" as modified vide OM of even no. dated March 19, 2013.

## **VII. Climate and Meteorology**

- xxvi. Climate and meteorology (max and min temperature, relative humidity, rainfall, frequency of tropical cyclone and snow fall); the nearest IMD meteorological station from which climatological data have been obtained to be indicated.

## **VIII. Air Environment**

- xxvii. The air quality monitoring should be carried out as per the new notification issued on 16th November, 2009.
- xxviii. Examine the impact during construction activities due to generation of fugitive dust from crusher units, air emissions from hot mix plants and vehicles used for transportation of materials and prediction of impact on ambient air quality using appropriate mathematical model.
- xxix. Description of model, input requirement and reference of derivation, distribution of major pollutants and presentation in tabular form for easy interpretation shall be carried out.

## **IX. Noise Environment**

- xxx. Identify project activities during construction and operation phases, which will affect the noise levels and the potential for increased noise resulting from this project.
- xxxi. Discuss the effect of noise levels on near by habitation during the construction and operational phases of the proposed highway.
- xxxii. Identify noise reduction measures and traffic management strategies to be deployed for reducing the negative impact if any.
- xxxiii. Prediction of noise levels should be done by using mathematical modeling at different representative locations.
- xxxiv. Also examine and submit the details about the protection to existing habitations from dust, noise, odour etc. during construction stage.
- xxxv. If the proposed route is passing through low lying areas, details of fill materials and initial and final levels after filling above MSL, should be examined and submit.

## **X. Water Environment**

- xxxvi. Examine and submit the water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality likely impacts on them due to the project.
- xxxvii. Examine and submit details of water quantity required and source of water including water requirement during the construction stage with supporting data and also categorization of ground water based on the CGWB classification.
- xxxviii. Examine and submit the details of measures taken during constructions of bridges across river/ canal/major or minor drains keeping in view the flooding of the rivers and the life span of the existing bridges.
- xxxix. In case of river/ creek crossing, details of the proposed bridges connecting on either banks, the design and traffic circulation at this junction with simulation studies.
  - xl. Details to ensure free flow of water in case the alignment passes through water bodies/river/ streams etc.

## **XI. Drainage**

- xli. If there will be any change in the drainage pattern after the proposed activity, details of changes shall be examined and submitted.
- xlii. If the proposed route involves tunneling, the details of the tunnel and locations of tunneling with geological structural fraction should be provided. In case the road passes through a flood plain of the river, the details of micro drainage, flood passages and information on high levels flood periodicity at least of last 50 years in the area should be examined.

## **XII. Rain Water Harvesting**

- xlili. Rain water harvesting pit should be at least 3 - 5 m. above the highest ground water table.
- xliv. Provision shall be made for oil and grease removal from surface runoff.

## **XIII. Road and Traffic**

- xliv. Submit the details of road safety, signage, service roads, vehicular under passes, accident prone zone and the mitigation measures.
- xlvi. IRC guidelines shall be followed for widening & upgradation of road.
- xlvii. IRC guidelines to be followed for traffic safety while passing through the habitat.
- xlviii. Provision of speed breakers, safety signals, service lanes and foot paths should be examined at appropriate locations throughout the proposed road to avoid the accidents.
- xliv. In case of bye passes, the details of access control from the nearby habitation/habitation which may come up after the establishment of road.
  - l. Submit details of social impact assessment due to the proposed construction of road.
  - li. Examine road design standards, safety equipment specifications and Management System training to ensure that design details take account of safety concerns and submit the traffic management plan.

- lii. Accident data and geographic distribution should be reviewed and analyzed to predict and identify trends - incase of expansion of the existing highway and provide Post accident emergency assistance and medical care to accident victims.
- liii. The proponent shall carry out a detailed traffic flow study to assess inflow of traffic from adjoining areas like airport/urban cities. The detailed traffic planning studies shall include complete design, drawings and traffic circulation plans (taking into consideration integration with proposed alignment and other state roads etc.). Wherever required, adequate connectivity in terms of VUP (vehicle underpass)/ PUP (Pedestrian underpass) needs to be included.

#### **XIV. Land Acquisition and R&R**

- liv. Details of the properties, houses, businesses religious and social places etc. activities likely to be effected by land acquisition and their financial loses annually.
- lv. Detailed R&R plan with data on the existing socio-economic status of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternative livelihood concerns/employment and rehabilitation of the displaced people, civil and housing amenities being offered, etc and the schedule of the implementation of the project specific.
- lvi. whether governmental or on the basis of BOT etc and provide details of budget provisions (capital & recurring) for the project specific R&R Plan.
- lvii. Examine and submit the details of sand quarry, borrow area and rehabilitation.
- lviii. If the proposed project involves any land reclamation, details to be provided for which activity land to reclaim and the area of land to be reclaimed.

#### **XV. Socio-Economic Environment**

- lix. The proponent shall carry out a comprehensive socio-economic assessment and also impact on biodiversity with emphasis on impact of on-going land acquisition on the local people living around the proposed alignment. The Social Impact Assessment should have social indicators which can reflect on impact of acquisition on fertile land. The Social Impact Assessment shall take into consideration of key parameters like people's dependency on fertile agricultural land, socio-economic spectrum, impact of the project at local and regional levels.
- lx. As per the Ministry's Office Memorandum F.No.22-65/2017-IA.III dated 30<sup>th</sup> September, 2020, the project proponent, based on the commitments made during the public hearing, shall include all the activities required to be taken to fulfil these commitments in the Environment Management Plan along with cost estimates of these activities in addition to the activities proposed as per recommendations of EIA Studies and the same shall be submitted to the ministry as part of the EIA Report. The EMP shall be implemented at the project cost or any other funding source available with the project proponent.

#### **XVI. Environmental Monitoring and Management**

- lxi. Estimated cost of the project including environmental monitoring cost and funding agencies. Submit environmental management and monitoring plan for all phases of the project viz. construction and operation.
- lxii. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- lxiii. Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure.

**XVII. Alignment, ESZ & CRZ**

- lxiv. In case of alignment passing through coastal zones
- lxv. HTL/LTL map prepared by authorized agencies superimposed with alignment and recommendation of Coastal Zone Management Authority.
- lxvi. Details of CRZ-I areas, mangroves required to be removed for the project along with the compensatory afforestation, area and location with budget
- lxvii. Details of road on stilt in CRZ-I areas, design details to ensure free tidal flow

**XVIII. Employment**

- lxviii. Details of Labour camps, machinery location.

**XIX. Miscellaneous**

- lxix. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA. I (M), dated 25<sup>th</sup> October, 2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.