

Proposed Terms of Reference for EIA studies

The primary objective of the said EIA is to identify and assess the potential impacts of the proposed development drilling and installation of offshore facilities i.e. wellhead platforms and subsea pipelines on the environment and propose management plans to mitigate adverse impacts and enhance beneficial impacts / recommend good practices. The overall objective can be broken down into the following key requirements:

- Collect, interpret and analyse environmental as well as social baseline data within the study area from secondary sources and through primary monitoring / consultation
- Identify aspects of the project that could have interactions with the environment and social impacts on the local community.
- Identify and assess potential impacts from the project activities using various prediction tools.
- Propose management plans for reducing / eliminating potential adverse environmental and social impacts and recommend mitigation measures in line with international good practice.
- Identify and quantify risks from potential accidents / emergency scenarios / disasters.
- Develop Emergency Response Plan (ERP) and Disaster Management Plan (DMP).

In line with the above objectives, an EIA report will include following components:

- Determination of baseline conditions using primary data generation and secondary data available from existing reports and studies and historical data from government published reports.
- Detailed description of all elements of the project activities during the drilling operation and installation of wellhead platforms and subsea pipelines. The elements to be analyzed will include the infrastructures of the project including supply vessels, navigational routes, waste collection & disposal and management and utility requirements e.g. power generation, material handling etc.
- Identifying the sources of pollution and assessing the impacts on the environment due to proposed project activities.
- Preparation of EIA and EMP documents with recommendations on preventive and mitigation measures for limiting the impact on environment to the desired level during various stages of project.
- Risk Assessment (RA) and Disaster Management Plan (DMP) describing the probable risks and preventive & precautionary measures to be followed in the event of emergency situations such as accidents, fire, oil spills, blowouts etc.

A. Environmental baseline information:

Environmental variants in the oceanic areas of the offshore block such as water quality, sediment quality and biological characteristics etc based on standard EIA methodology will be collected through primary and secondary data collection. The baseline data shall include the status of pollution characteristics to marine environment in terms of data on important pollutants, biological diversity index, population density etc. The specific data / information required to be collected is given below:

Oceanography:

- Bathymetry.
- Sea surface temperature.
- Sea salinity.
- Wave characteristics.
- Sea currents and tides.
- Sediment movement.

Marine Water Quality:

- Physical characteristics of water column (temperature, salinity & density at various depths).
- Chemical characteristics of water column (pH, DO levels, TSS, nutrient levels, heavy metals, TPH).

Sediment quality:

- Physical characteristics.
- Chemical Characteristics.

Natural Hazards:

- Seismic Activities.
- Seasonal Storms & Cyclones.
- Tsunamis & Tidal / Surge Waves.

Biological environment:

- Coastal ecosystems.
- Mangrove & littoral ecosystems.
- Fisheries resources.
- Planktons (phytoplankton & zooplanktons).
- Benthic fauna.
- Marine flora (sea grasses).
- Marine fauna (marine mammals, marine reptiles, fishes).
- Corals.
- Special emphasis on protected areas (demarcation), species of conservation concerns.

Socio-Economic environment:

- Status of the Fisherman population (to be engaged in fishing activities in and around the project area).

B. Impact Assessment:

The potential impacts from the project activities during its various stages will be identified, interpreted and analysed using both quantitative and qualitative techniques as required. The impacts identified and evaluated should include direct & indirect impacts as well as adverse & beneficial impacts. An overall evaluation will be carried out of all the impacts. The extent and potential consequences of the impacts will be compared against national and international standards, protocols and guidelines.

C. Environment Management Plan:

Recommendations for minimizing the significant environmental impacts will be set out as Environment Management Plan in the EIA document. The plan will include mitigative measures in line with national and international practices. The EMP will also suggest environmental monitoring plan and methodology

D. Risk Assessment

The risk assessment studies will provide a systematic analysis of the major risks that may arise as a result of project activities. This study through quantitative risk assessment (QRA) processes will outline rational evaluations of the identified risks based on their significance and provides the outline for appropriate preventive and risk mitigation measures. The preventive and risk mitigation measures will ensure that the project risks stay below As Low As Reasonably Practicable (ALARP) levels at all times during project implementation. In addition, the QRA will also help in assessing risks arising from potential emergency situations like large oil spills, well blow outs, H₂S release, vessel collisions, helicopter crash, fire & explosion etc. as well as from natural disasters like tsunamis, cyclones and earth quakes. The assessments will be followed with developing structured Emergency Response Plan (ERP), Oil Spill Response Plan (OSRP) and Disaster Management Plan (DMP) to restrict damage to personnel, infrastructure and the environment. These plans will define the responsibilities and resources available to respond to the different types of emergencies envisaged. Training exercises and other preventive management measures should be proposed in a manner that all personnel are familiar with their responsibilities and that communication links are functioning effectively.