الدليل الإرشادي الفني لمتطلبات دراسة تقييم الأثر البيئي ووثيقة الشروط المرجعية ونطاق العمل للدراسة للمشاريع الصناعية

Technical Guidance on the Requirements for Environmental Impact Assessment Study (EIA) and its Terms of References & Scope of Works (ToR & SoW) For Industrial Projects

It's important to clarify that this Technical Guidance (TG) does not aim to offer specific, detailed instructions for recommended methodologies. Instead, it presents overarching concepts and considerations applicable to the diverse surveys typically employed in environmental impact assessment studies. The methods outlined herein are not exhaustive. Consequently, the competent authority, MECC, retains the right to supplement or revise this TG as deemed necessary.

List of Abbreviation

Abbreviation	Definition
CEMP	Construction Environmental Management Plan
DEMP	Decommissioning Environmental Management Plan
EC	Environmental Consultant
ECP	Environmental Compensation Plan
EIA	Environmental Impact Assessment
EPA	Environmental Permit Application
MECC	Ministry of Environment and Climate Change
NOC	No Objection Certificate
OEMP	Operation Environmental Management Plan
PP	Project Proponent
SEA	Strategic Environmental Assessment
TG	Technical Guidance
ToR & SoW	Term of Reference and scope of Work

1. Introduction

This set of technical guidance, denoted as TG, represents a pivotal component within a comprehensive compilation carefully crafted by Qatar Ministry of Environmental and Climate Change (MECC). The overarching purpose of this compilation is to provide invaluable assistance to a diverse audience, including both government entities and non-governmental project proponents (PP) and ECs which is responsible on conducting Environmental Impact Assessment (EIA) on Industrial Projects. At its core, the compilation serves as a guiding framework, offering a meticulously structured set of guidelines specifically tailored to facilitate the particular and effective execution of Environmental Impact Assessments (EIAs).

Designed with a focus on large-scale Industrial projects, TG encapsulates a wealth of knowledge and best practices essential for navigating the complexities inherent in Industrial environmental impact evaluations. The primary objective of TG is to institute a consistent, transparent, and standardized approach to the EIA on Industrial projects. By doing so, it establishes a guidance that promotes uniformity and clarity, essential elements for ensuring the reliability and credibility of the assessment process.

While the nature and details of projects may inherently vary, TG emphasizes the paramount importance of adherence to these guidelines across the spectrum of Industrial EIAs. This emphasis on conformity ensures that the assessment process maintains a uniform and rigorous standard irrespective of project specifics. In essence, TG sets forth a blueprint for conducting EIAs that transcends the diversity of projects, providing a reliable and robust foundation for evaluating environmental impacts associated with large-scale infrastructure endeavors. Through the dissemination and adherence to these guidelines, the compilation strives to foster a culture of environmental responsibility, sustainable development, and transparent decision-making within the broader landscape of project planning and implementation.

2. Objective of this TG

This guide is fundamentally aimed to ensure the preservation of the environment through the active promotion of thoughtful consideration for designs, options, and alternatives that are environmentally friendly. Its overarching objective is to anticipate and prevent any adverse environmental consequences that may arise during the various stages of the designated project's entire life cycle. By encouraging a proactive approach, the guide endeavors to shape pivotal decision-making processes, fostering a sustainable and ecologically responsible trajectory for the project. It places a strong emphasis on adopting sustainable practices that not only mitigate potential environmental impact but also contribute positively to the overall well-being of the public health. Through its comprehensive perspective, the guide aims to instill a sense of environmental stewardship, guiding decision-makers in making choices that align with long-term ecological sustainability.

3. Definitions of an EIA report

3.1 Environmental Impact Assessment (EIA):

The Environmental Impact Assessment (EIA) process serves as a systematic and comprehensive tool employed to scrutinize the potential environmental consequences of a proposed project or development. The overarching objective is to accurately identify and evaluate both the favorable and adverse impacts on the environment that may ensue if the project moves forward. By conducting this assessment before the actual initiation of the project, the primary aim is to gain a thorough understanding of the implications the development may have on the surrounding ecosystem.

The EIA process involves a rigorous examination of various factors, ranging from air, noise and marine water quality, marine flora and fauna, water circulation and flushing, chemical, physical and biological component of marine environment, hydrodynamic modelling, marine habitat and socio-economic considerations.

Through this in-depth analysis, the goal is to provide decision-makers and stakeholders with a holistic view of the potential consequences associated with the project. This includes not only the immediate and direct impacts but also those that may manifest over the long term.

Furthermore, the proactive nature of the Industrial EIA stresses its significance in guiding project planners and developers toward adopting strategies that mitigate, alleviate, or even eliminate identified adverse environmental effects. Simultaneously, it offers an opportunity to explore and enhance positive impacts, fostering a balance between the project's objectives and the preservation of the environment.

The core of the Industrial EIA lies in its commitment to informed decision-making, environmental protection, and the promotion of sustainable development. By providing a comprehensive overview of the potential impacts, EIA ensures that project proponents, regulatory bodies, and the public are equipped with the necessary information to make choices that align with environmental regulation, conservation, and the broader goals of sustainable growth.

3.2 Term of Reference and Scope of Work (ToR & SoW) For EIA:

The ToR & SoW serves as a comprehensive guide, outlining the scope and context of the EIA. This includes a clear definition of the study area, both geographically and thematically, establishing the boundaries within which the assessment will take place. The ToR and SOW also specifies the goals and expectations of the assessment, providing a roadmap for the entire evaluation process. It outlines the methodologies to be employed, data requirements, and criteria for determining the significance of environmental impacts.

The Term of Reference and Scope of Work (ToR & SoW) represent a foundational document serving as a contractual agreement between the project proponent and the ministry (MECC), outlining the specific aspects to be scrutinized in the Environmental Impact Assessment (EIA). This document delineates the precise components and parameters to be addressed in the EIA, encompassing details such as the methodology, duration, and frequency of surveys and samples. Additionally, it establishes the regulations governing the assessment process. The ToR & SoW functions as a comprehensive guide, providing a detailed framework for the EIA's scope and context. This involves a clear definition of the study area, both in geographical and thematic dimensions, setting explicit boundaries for the assessment. Furthermore, these documents articulate the goals and expectations of the assessment, essentially crafting a roadmap that directs the entire evaluation process. In essence, this foundational document ensures a systematic and standardized approach to the EIA, offering a robust framework aligned with established regulations and expectations.

4. General Requirements

4.1. All communications, correspondences, reports, etc. with/to MECC- ENVIRONMENTAL AFFAIRS shall be through the Competent Authority.

4.2. The Project Proponent (PP) shall submit an application for Environmental Permit (completion of Form with all the required information and documents and submission of Form to MECC- ENVIRONMENTAL AFFAIRS via the Competent Authority).

4.3. The EC visit the project site and surrounding area to understand the type of sensitive receptors.

4.4. The EC shall prepare a detailed ToR & SoW document for the EIA study satisfying the requirements of MECC- Environmental Affairs. The PP shall obtain approval of the prepared Scope of Work for the EIA from MECC- Environmental Affairs.

4.5. The detailed ToR & SoW for the EIA shall be prepared and submitted as one document comprising all the related environmental aspects and issues.

4.6. The EIA report shall be prepared and submitted as one document comprising all the required environmental aspects and issues.

4.7. The detailed ToR & SoW for the EIA study should include, but not limited, and define to the greatest extent the relevant elements stated below:

4.7.1. Contain early description of the environment likely to be affected by the project / activity, including the natural, social, historical, cultural and economic elements of that environment, as much as applicable. A detailed map/drawing, minimum A3 size, shall be provided.

4.7.2. PROJECT LOCATION AND SCALE section shall include a table of PROJECT AREA- CORNER COORDINATES (X and Y) and A3 PROJECT LOCATION MAP and PROJECT SITE PLAN/ Site Layout (consulting engineer) and figures illustrate the existing location of facilities. The location of the project according to Qatar and according to industrial area if needed and according to surrounding industries.

4.7.3. Details of the project surrounding industries (Description of Locations and Distance from the Proposed Project Site)

4.7.4. Information about EIA's EC, contractor, design consultant etc. shall be provided.

4.7.5. A copy of the report Experts CVs involved in EIA report shall be submitted.

4.7.6. All environmental permits and approvals, including EPs (environmental permits) issued for the existing facility shall be submitted along with the ToR & SoW.

4.7.7. Specify and discuss the types / range of alternatives and mitigation measures in carrying out the EIA and justify selecting these alternatives and measures. The detailed ToR & SoW for the EIA should cover both alternatives to the proposed project / activity (including no development option), and alternative methods of carrying it. The range and types of alternatives and mitigation measures should reflect potential environmental impacts, possibilities for mitigation, and results of consultation.

4.7.8. Identify all the regulations, bilateral and international agreements, protocols and conventions and the guidelines, standards and limits that need to be taken in consideration within all project's phases and seeking the MECC- ENVIRONMENTAL AFFAIRS approval on it. These should be elaborated in detail in the EIA study.

4.7.9. Provide project's completion plan summary from start through construction. The plan shall identify all concerned/ interested parties that required consultation with and/or approval from.

4.7.10. All submissions to MECC- ENVIRONMENTAL AFFAIRS shall be provided in hard and soft copy. The soft copy shall be an editable and unprotected digital copy (word, excel, power point, etc.) of the report and all its attachments. Copy from the used regulation/ limits/ standards/ etc. used as references (other than locals) should be provide to MECC- ENVIRONMENTAL AFFAIRS as a part of the EIA report. All studies, report, action plans, etc. shall be conducted according to MECC- ENVIRONMENTAL AFFAIRS's regulations & guidelines. Other regulations & guidelines shall be approved by MECC- ENVIRONMENTAL AFFAIRS prior to using them.

4.7.11. Identify additional regulatory approvals that may be required to complete the proposed project / activity.

4.7.12. Identify any government policies that may need to be addressed while carrying the EIA.

4.7.13. Outline the plan for completing the EIA, including sources of data collection, summary and brief description of any baseline and other studies that are needed.

4.7.14. Detailed Scope of Works (SOW) for all the environmental information needed/ required to conduct the EIA study should be developed and included in the submitted (EIA's ToR & SoW) document.

4.7.15. Describe the methodology to assess the impact generated from/ by the project on the surrounding environment (e.g. modeling, simulation, etc.)

4.7.16. Identify / describe key decision-making milestones during the preparation of the EIA.

4.7.17. Provide program for carrying out the EIA, including an estimated start date, and dates for any milestones or decisions.

4.7.18. Identify reports to be submitted to MECC- ENVIRONMENTAL AFFAIRS, which shall include both hard and soft copies of the reports and the data collected.

4.7.19. Identify any future environmental plan to be prepared and submitted, when and by whom, including the methodology, time frame and the responsible party and the concerned party(s).

4.7.20. Address Construction Environmental Management Plan (CEMP)'s including all the related plan and program (e.g. monitoring program).

4.7.21. Address Operation Environmental Management Plan (OEMP)'s including all the related plan and program (e.g. monitoring program).

4.8. The EC shall prepare the Environmental Impact Assessment (EIA) study upon approval of the detailed ToR & SoW by MECC- ENVIRONMENTAL AFFAIRS.

4.9. The detailed ToR & SoW of the EIA study shall include, investigate, collect data, analyze, assess and identify quantitatively the impact of the project to the all, but is not limited to, the following environmental aspects. These aspects shall be integrated into the design options and geotechnical investigations, where applicable.

4.9.1. Ambient air quality (include modeling the impacts).

4.9.2. Noise and vibration (include modeling the impacts).

4.9.3. Soils and Groundwater (baseline and contamination) including the soil sampling, testing and analysis, as per Clause 2

4.9.4. Socio-Economics.

4.9.5. Cultural heritage and archeology.

4.9.6. Waste Management.

4.9.7. Landscape and visual impact.

4.9.8. Accident and incident.

4.9.9. Effect on sensitive receptor.

4.9.10. Social Impact Assessment.

4.10. The EIA report shall include all, but is not limited to, the following:

4.10.1. Recommendation of options and measures to be taken for the design project.

4.10.2. Recommendations for mitigation measures and environmental option solutions such as noise barrier, etc. outlining the integration of different sectors and included in the construction environmental management plans.

4.10.3. The evaluation of environmental monitoring data and analyses shall be presented in Graphical and Interpretative format within the submitted report.

4.10.4. The data collected and analyzed from the approved monitoring program.

4.10.5. CEMP's and OEMP's, framework, all the related environmental and occupational health and safety aspects and issues, mitigation measures, conclusion, recommendations, table of content, responsibilities for each party, etc. should be developed in detailed within the EIA's report.

4.10.6. Calibration certificates for all monitoring equipment used during the EIA study.

4.11. The proposed environmental studies shall be prepared to comply with the requirements of the Environmental Assessment process of Qatar as laid down in the Decreed Law No 30, 2002 for the protection of the environment and its executive Bylaw and the MECC-ENVIRONMENTAL AFFAIRS requirements.

4.12. The EC shall carry out technical investigations for air quality, and noise impact, as per addressed in this technical guidance, in order to propose concept and undertake quantitative modeling. This shall be included in all design options indicating the source of pollution, type of impact, the receptors and location of impact including land use and different peak time periods.

4.13. All environmental investigation site works, monitoring, sampling, testing, laboratory testing and factual reporting shall be undertaken by EC(s) and sub-contractor(s) approved by Qatar General Organization for Standards & Metrology (QGSOM), and engaged by the EC subject to Client’s approval:

4.14. Deliverables:

4.14.1. All technical submittal shall be in English language. The abstract of the EIA should be submitted in both Arabic & English language.

4.14.2. All submissions shall be provided in hard and soft copy. The soft copy shall be an editable and unprotected digital copy (word, excel, power point, etc.) of the report and all its appendixes and attachments.

4.14.3. The EC shall submit One (1) original hardcopy and One (1) softcopy, in PDF format, of the DRAFT EIA's ToR & SoW document (including all the appendixes and attachments).

4.14.4. The EC shall submit One (1) original hardcopy and One (1) softcopy in PDF, and One (1) softcopy in an editable and unprotected digital copy (word, excel, power point, etc.) formats, of the FINAL EIA's ToR & SoW document (including all the appendixes and attachments).

4.14.5. The EC shall submit One (1) original hardcopy and three (3) softcopies in PDF format, and One (1) softcopy in an editable and unprotected digital copy (word, excel, power point, etc.) formats of the DRAFT EIA document (including all the appendixes and attachments).

4.14.6. The EC shall submit One (1) original hardcopy and Six (6) softcopies in PDF and One (1) softcopy in an editable and unprotected digital copy (word, excel, power point, etc.) formats, of the FINAL EIA document (including all the appendixes and attachments).

4.15. In the description of the project phases

4.15.1. Operation phase.

4.15.1.1. Detailed Description of the Operation Phase (Attach Illustrative Drawings/Diagrams) shall be provided including but not limited to the following:

4.15.1.2. Main Project Components

4.15.1.3. Description of Industrial Processes (Supported by Catalogues Manuals, Diagrams (Detailed diagrams showing the flow of raw materials, intermediates, products and waste streams within the plant.), etc).

4.15.1.4. Electrical power used and its source.

4.15.1.5. Table of the row material will be used include but not limited to the following:

4.15.1.5.1. The material

4.15.1.5.2. The type (solid-liquid-gas)

4.15.1.5.3. Quantity (kg/day)

4.15.1.5.4. Source

4.15.1.5.5. Attaching the MSDS of the chemical materials

4.15.1.5.6. Alternatives Considered for the Raw Material Used

4.15.1.5.7. Reasons for Selecting the Used Technology

4.15.1.5.8. Expected Number of Workers and their Accommodation Site

4.15.1.5.9. Type and source of the fuel

4.15.1.6. Rate of consumption

4.15.1.7. provide the unit used (Electricity grid, generators, Solar Cell)

4.15.2. water sources

4.15.2.1. Rate of consumption

4.15.2.2. provide the unit used (public network, groundwater, Surfacewater)

4.15.3. Water balance diagram - Showing water intake, usage, recycling, treatment and disposal.

4.15.4. Energy balance diagram - Depicting various energy requirements, sources and consumption.

4.15.5. Schedules of plant operation - Details of working hours, shift patterns, shutdowns, maintenance activities etc.

4.15.6. Infrastructure requirements - Description of buildings, roads, utilities, storage facilities etc. required to support operations.

4.15.7. Mode of transport - Details of transportation of raw materials, products, waste etc. Roads/rail/pipeline to be used.

4.15.8. Details of pollution control equipment - Specifications of air pollution control devices, effluent treatment plants, other equipment to meet norms.

4.15.9. Risk assessment - Identification of health, safety and environmental risks from operations and measures for risk mitigation.

4.15.10. Monitoring plan - Details of environmental monitoring stations, parameters and frequency of monitoring during operations.

4.15.11. Disaster management plan - Emergency preparedness and response plan for situations like fire, explosion, leakage etc.

4.15.12. Waste management plan - Complete plan for handling, storage, transport and disposal of all solid/liquid/hazardous wastes.

4.16. Waste generated from the operation phase, treatment and methods of disposal (Indicate Expected Concentration of Liquid Wastes, Gaseous emissions and solid wastes)

4.16.1. detailed description of the liquid wastes shall be provided including but not limited to the following:

4.16.1.1. Discharge rate Control methods and Disposal methods of the Sanitary

4.16.1.2. Industrial Discharge

4.16.1.2.1. Discharge rate

4.16.1.2.2. Control methods

4.16.1.2.3. Disposal methods (directly to the municipal system, there is a treatment unit of industrial wastewater and after treatment wastewater is discharged to public network, stored without treatment)

4.16.1.2.4. If there is a treatment unit of industrial wastewater a scheme of the treatment unit to be used and the discharge concentration from the treatment unit shall be attached

4.17. Detailed description of the Gaseous Emissions (Air Pollutants) shall be provided including but not limited to:

4.17.1. The sources of the pollutants (Pollutants from Stationary Sources, Pollutants form Mobile Sources, Pollutants from fuel Combustion)

4.17.1.1. Detailed description of the Solid Wastes shall be provided including but not limited to:

4.17.1.1.1. Methods of Transport, Handling and Storage

4.17.1.1.2. Waste disposal (landfill, contractor, others)

4.17.1.2. Detailed description of the Hazardous Wastes and Material shall be provided including but not limited to:

4.17.1.2.1. Methods of Transport, Handling and Storage

4.17.1.2.2. Waste disposal (landfill, contractor, others)

5. Environmental Soil and Groundwater

This section provides the minimum requirements that need to be addressed for the soil and groundwater within the detailed ToR & SoW of the EIA study.

1. Internationally accepted code of practices shall be defined within the ToR & SoW for the following activity:

1.1. Site assessments/ investigation.

1.2. Soil and groundwater sampling.

2. Parameters analysis shall be conducted to internationally recognized standards for both soils and groundwater (e.g. New Dutch, USEPA), where relevant. Where these standards do not provide limits for certain parameters, other appropriate internationally standards shall be suggested and adopted for comparison upon MECC- ENVIRONMENTAL AFFAIRS's approval.

3. The following shall also be provided:

3.1. Sampling locations for soil and groundwater.

3.2. Parameters to be analyzed.

3.3. Samples' depths.

3.4. The total depth of the boreholes.

4. A3 size colored map showing the suggested sampling locations and list of GPS coordinates shall be provided.

5. Analyzing methodology to be followed (device/ method, detection limit, etc) should be provided.

6. Reference points used for comparison.

7. The EC should make integrated testing program to plan the environmental soil & groundwater investigation by obtaining soil and water sample for environmental tests (three locations per package as minimum). The EC shall undertake the required tests for each package including, but not limited, the following items:

7.1. <u>For Soil:</u>

1. Organic compounds
2. pH
3. Major nutrients - nitrogen (N)
4. Phosphorus (P)
5. Potassium (K)
6. Secondary nutrients – e.g. sulphur
7. Calcium
8. Magnesium,
9. Minor nutrients – e.g. iron, manganese
10. Heavy Metals: Copper, Chromium, Cadmium, etc

11. Zinc
12. Boron
13. Aluminum
14. Mercury
15. Lead
16. Soil organic matter
17. Moisture content
18. TPH (DRO, GRO and Heavy Fraction, etc)
19. VOC and BETX
20. Total Coliform, Fecal Coliform and Egg Parasites.

7.2 For Groundwater:

1. Organic compounds
2. pH
3. Major nutrients - nitrogen (N)
4. Phosphorus (P)
5. Potassium (K)
6. Secondary nutrients – e.g. sulphur
7. Calcium
8. Magnesium,
9. Minor nutrients – e.g. iron, manganese
10. Heavy Metals: Copper, Chromium, Cadmium, etc.
11. Zinc
12. Boron
13. Aluminum
14. Mercury
15. Lead
16. Electrical conductivity
17. TPH (DRO, GRO and Heavy Fraction, etc)

18. VOC and BETX
19. BOD5-20
20. COD
21. Total Coliform, Fecal Coliform and Egg Parasites.

8. The assessment of all types of impact on the soil and groundwater generated from the project (all phases) shall be identified within the ToR & SoW and addressed in detail in the EIA study.
9. Where contamination is suspected at any site the EC shall address the following minimum requirements within the ToR & SoW for the EIA:

9.1. The assessment in this/ such case will examine the size, extent and severity of the soil & groundwater contamination, which shall be undertaken by:

9.1.1. Desktop study.

9.1.2. Site walkover.

9.1.3. Soil and groundwater investigation. The SOW for the investigation of the soil & groundwater shall be prepared according to the requirements stipulated above.

9.2. Five (5) groundwater monitoring wells shall be drilled, collecting soil samples from the boreholes during drilling. Visual and olfactory evidence of soil contamination will be recorded. Collection and analysis of the groundwater shall be sampled from each well. Wells shall be drilled, developed and left to stand for a few days before sampling to allow conditions in the well to equilibrate with those in the surrounding aquifer.

9.3. The EC shall identify the parameter(s) (physical, chemical and biological characteristics/ contaminants) related to the source/ type of contamination for soil and groundwater to be analyzed accordingly.

9.4. The depth of the boreholes and the number/depth of soil samples per borehole shall be defined.

9.5. The groundwater movement (horizontal direction) and the fluctuation (vertical direction) shall be identified, and contour maps shall be presented.

9.6. Results of the soil and groundwater analysis will be compared to applicable local and/or international standards (as per the requirements stated previously). The exceedances in pollutants' concentration, level and extent of contamination shall be discussed and a contour map shall be plotted

9.7. The findings, a discussion of the level and extent of contamination and recommendations for remediation/ rehabilitation and/or follow-up work shall be included in the EIA.

10. Where contamination is identified/ indicated, the EC shall advice in the EIA report on the key indicators and additional requirements to identify contaminants, the extent of contamination and provide recommendations and solutions to remediate or/and rehabilitate the area and the affected/effected

elements. For that a separate detailed SOW shall be prepared as an appendix to the EIA report for future work to be done, which shall include but not limited to the following

10.1. Adequate/ suitable grid of boreholes shall be established in the contamination area, for comprehensive investigation. Detailed SOW for that should be developed and submitted to MECC- ENVIRONMENTAL AFFAIRS for reviewing and approval prior to any execution of work in the field.

10.2. Colored contour maps shall be developed for the contaminates in the soil & groundwater.

10.3. An appropriate dispersion model for groundwater contamination shall be used. This will be used to aid identification of potential mitigation and remediation options for any contamination found.

10.4. Quantitative Risk Assessment (QRA) study shall be conducted to identify the need of site (soil/ groundwater) clean-up/ remediation/ rehabilitation.

10.5. Upon the result (conclusion and recommendation) of the QRA, different options of site (soil/ groundwater) clean-up/ remediation/ rehabilitation shall be discussed and assessed and then ranked based on all the related aspects (cost, efficiency, time, etc.)

10.6. Checking for the presence of a floating layer of oil on the water surface (groundwater) using an interface probe.

10.7. The groundwater movement (horizontal direction) and the fluctuation (vertical direction) should be identified and cantor maps should be drawn.

6. Air Pollution and Ambient Air Quality

This section provides the minimum requirements that need to be addressed for the ambient air quality within the ToR & SoW of the EIA study.

1. The EC shall provide assessments of the project and identify the sensitive receptors including air quality investigation to reduce negative impacts from the project. The air quality monitoring shall measure air pollutants (e.g. PM10, NOx and all the pollutants that emitted from the facility/ project) over a period based on the potential health effects of air pollutants and MECC- ENVIRONMENTAL AFFAIRS's requirements.

2. The EC shall provide baseline data with acceptable international standards (by MECC- ENVIRONMENTAL AFFAIRS) to interpret and justify the outcome of the assessment with the environmental report(s) that is in compliance with the Qatar Decreed Environmental Law 30, 2002 and its Executive Law according to the following:

    2.1. Collecting data from the nearest continuous monitoring station, which should be:

        2.1.1. Real time (continues reading)

        2.1.2. QA/QC

        2.1.3. Recently recorded (no more than 12-month-old)

2.1.4. Obtained from no less than a continues 3-month campaign.

2.2. For that a briefing should be represented in table form that include but not limited to:

2.2.1. source of data

2.2.2. the monitored pollutant(s)

2.2.3. monitoring starting and ending date (dd/mm/yyyy)

2.2.4. duration (d)

An A3-size colored map showing the location of the source data with respect to the project site should also be provided

1. The data in (2.2) above should be verified by using passive sampler technique, which should be justified technically (the technique and the verification) by the EC. The sampling locations shall be defined and for a continuous period no less than 30 days. The collection of samples shall be in a frequent bass, which define and the monitoring location by the EC (with detailed technical justifications) and approved by the MECC- ENVIRONMENTAL AFFAIRS.
2. The impact of the project for the operation phase shall be quantitatively modeled according but not limited to the following:

    2.1. USEPA-AIRMOD (last version) shall be used. If the EC is proposing to use a different modeling program, the program shall be approved by a recognized national competent authority in UK, Germany, etc. and shall be accepted by MECC-ENVIRONMENTAL AFFAIRS.

    2.2. All the existing, under construction, and planned projects within the Project's and the surrounding areas should be taken in consideration with the air quality inventory and modeling.

    2.3. The metrological data intend to be used in the model should be QA/QC, from a local station (in Qatar), for the period 10~15 years and not old than 1 year from the study starting date.

    2.4. QA/QC Real Vertical Metrological data should be used. Assumptions are not accepted. The missing height in Qatar should also be defined both in summer and winter.

    2.5. The time-averaged should be specified based on the adopted national, regional and international regulations; the priority should be for Qatar National Environmental Regulations.

3. If the Project Proponent/ EC propose to do the required monitoring campaign by using an Air Quality Monitoring Station/Unit (real time continues reading) in addition to/replacing of passive sampler technique, the following shall be address in addition to the above related requirements:

3.1. The EC shall submit separately detailed SoW for the monitoring campaign which shall be conducted based on continuous recording (real-time) and by using approved method for the above parameters. Furthermore, meteorological conditions measuring equipment (wind speed, wind direction, temperature, humidity, etc.) should be included in the same station. The campaign duration should be no less than continuous one months.

4. Comprehensive report for the site(s) selection of the AQMS should be submitted to MECC-ENVIRONMENTAL AFFAIRS for approval prior to any execution of the related field-works (the starting time shall be set according to this report). The report shall be developed according to and including, but not limited to:

   4.1. Wind-rose diagram showing the predominant wind direction in the area, which should split in months (separate diagram for each month). For that, 10~15 years of metrological data should be used and not old than 1 year from the study starting date. The wind-rose diagram should split in months (separate diagram for each month).

   4.2. Sources of pollution in the area including, but not limited to power plants, traffic, industries…etc.

   4.3. Ranking criteria for the selection of AQMS

   4.4. Detailed technical justification for the selected AQMS's techniques.

5. The Pollutants' Max Ground Level Concentration (Max GLC) contour line should be drawn and the concentration on the sensitive recaptures shall be indicated separately for the:

   5.1. Current situation.

   5.2. Current situation, and all the existing, under construction, permitted, proposed and planned projects with the affected and effected area.

   5.3. The Project impact in addition to item (2) above

7. Noise and Vibration

This section provides the minimum requirements that need to be addressed for the noise and vibration within the ToR & SoW of the EIA study.

The EC shall provide the noise baseline condition, identify the sensitive receptors and assess (quantitatively) the impact of the project and set the mitigation measures to prevent/ minimize to the acceptable level the noise impacts of the project. The assessment shall be supported by appropriate modeling works as approved by MECC- ENVIRONMENTAL AFFAIRS. The SOW shall include but not limited to the following:

1. Internationally accepted code of practices shall be defined for the investigation, data collection and analysis, in addition to Qatari national guidance and standards, where appropriate.

2. The baseline noise levels shall be obtained using precision integrating sound level meters conforming to Type 1 specification and related standards.
3. The monitoring (measurements) shall be conducting day and night, during a working day and weekend (Friday and Saturday). The day, time and duration should be stated.
4. A3 size colored map showing the suggested monitoring locations, the location of the sensitive receptors and list of GPS coordinates should be provided.
5. The noise and vibration contribution from the project activities shall be added to the existing ambient noise levels in order to determine the cumulative impact on the all recipients. Quantitative assessment of noise emissions from the project's activities shall be undertaken, and sound levels at the sensitive receptors will be predicted using an advance modeling technique. The result shall be compared with applicable noise limits.
6. Noise and vibration impacts generated from construction activities shall be assessed quantitatively in accordance to adopted standards.
7. Operational noise levels shall be calculated, modeled and simulated by a computer model related to the type of the project/ source of impact.
8. As per the Law 30/ 2002 and its Executive Order, the noise level should be calculated as an average of 10 min readings (Leq 10min).
9. The monitoring period at any station (spot) should be continued for no less than 30 min.
10. The exact GPS coordinate and the description of the Spot should be identified.

8. Template for ToR & SoW Table Of Contents

9. Template for EIA Table of Contents

6.5. Impacts from Operational Phase

6.5.1. Emissions from Plant Operations

6.5.1.1. Baseline Scenario Emissions

6.5.1.2. Emissions to Air – Normal Operation Scenario

6.5.1.3. Emissions to Air – xx Cycle 1 Scenario

6.5.1.4. Emissions to Air – xx Cycle 2 Scenario

6.5.1.5. Emissions to Air – Abnormal Operation (Start Up)

6.5.1.6. Emissions to Air – Abnormal Operation (Shut Down)

6.5.1.7. Emissions to Air – Abnormal Operation (Emergency Trip)

6.5.1.8. Emissions to Air – Cumulative Scenario (Baseline + Normal Operation + Committed Development Sources)

6.5.2. Emissions from Road Transport of Materials and Product

6.5.3. Modeled Results (for all possible scenarios)

6.5.3.1. Baseline Scenario (Predicted Concentrations for all related emission)

6.5.3.2. Normal Operation Scenario (Predicted Concentrations for all related emission)

6.5.3.3. xxx Cycle 1 Scenario (Predicted Concentrations for all related emission)

6.5.3.4. xxxx Cycle 2 Scenario (Predicted Concentrations for all related emission)

6.5.3.5. Abnormal Operation (Start Up) Scenario (Predicted Concentrations for all related emission)

6.5.3.6. Abnormal Operation (Shut Down) Scenario (Predicted Concentrations for all related emission)

6.5.3.7. Abnormal Operation (Emergency Trip) Scenario (Predicted Concentrations for all related emission)

6.5.3.8. Cumulative Scenario (Baseline + Normal Operation + Committed Development Sources) (Predicted Concentrations for all related emission)

6.5.4. Discussion and Conclusions

6.6. Impact Assessment Approach

6.7. Assessment of Impacts and Mitigation during Construction Phase

6.8. Assessment of Impacts and Mitigation during Operational Phase

6.8.1. Impacts during Operation of the facilities

9.5. Assessment of Impacts and Effects and Mitigations from Commissioning and Operations

9.6. Assessment of Impacts and Effects and Mitigations from Accidental Events

10. Terrestrial Ecology

10.1. Legislative Framework, Policies and Standards

10.2. Scope and Study Area

10.3. Environmental Baseline Characterization

10.3.1.1. Ecological Survey Methodology (Natural Habitats and Vegetation, Fauna)

10.3.2. project Site

10.3.3. Construction Laydown Area

10.4. Assessment Criteria

10.5. Assessment of Impacts and Effects and Mitigations from Construction Phase

10.6. Assessment of Impacts and Effects and Mitigations from Commissioning and Operations

10.7. Assessment of Impacts and Effects and Mitigations from Accidental Events

11. Waste and Wastewater

11.1. Legislative Framework, Policies and Standards

11.2. Scope and Study Area

11.3. Environmental Baseline Characterization

11.4. Assessment Criteria

11.4.1. Sensitivity of Receptor

11.4.2. Impact Assessment

11.4.3. Effect Significance

11.5. Assessment of Impacts and Effects and Mitigations from Construction Phase

11.6. Assessment of Impacts and Effects and Mitigations from Commissioning and Operations

11.7. Assessment of Impacts and Effects and Mitigations from Accidental Events

12. Marine Environment and Ecology

12.1. Legislative Framework, Policies and Standards

12.2. Scope and Study Area

12.3. Environmental Baseline Characterization

12.3.1. Seawater Quality

12.3.2. Water Quality for discharge (e.g. Cooling Water Return Outfall)

12.3.3. Marine Ecology

12.4. Assessment of Impacts and Effects and Mitigations from Construction Phase

12.5. Assessment of Impacts and Effects and Mitigations from Commissioning and Operation of project Facility

12.6. Assessment of Impacts and Mitigations during Accidental Events

13. Socio-Economics and Community Health

13.1. Legislative Framework, Policies and Standards

13.2. Scope and Study Area

13.2.1. Spatial Area of influence

13.2.2. Valued Environmental and Social Components (VECs)

13.2.3. Temporal Area of Influence

13.2.4. Sources of cumulative impacts

13.3. Baseline Characterization

13.3.1. Methodology

13.3.2. Historical Background

13.3.3. Governance, Administration and National Development Framework

13.3.4. Natural Capital

13.3.4.1. Agriculture and Food Security

13.3.4.2. Oil and Gas

13.3.5. Demographics and Population

13.3.6. Economic Overview

13.3.7. Employment

13.3.8. Education

13.3.9. Housing, Infrastructure and Services

13.3.10. Healthcare

13.3.11. Culture, Recreation and Sports

13.4. Assessment of Impacts and Effects and Mitigations from Construction Phase

13.5. Assessment of Impacts and Effects and Mitigations from Commissioning and Operations

13.6. Assessment of Impacts and Effects and Mitigations from Accidental Events

13.7. Assessment of Cumulative Impact and Effects and Mitigation Measures from Source Cumulative Impacts (SCIs)

14. Archaeology and Cultural Heritage

14.1. Legislative Framework, Policies and Standards

14.1.1. National Legislations

14.1.2. International Conventions

14.2. Scope and Study Area

14.3. Baseline Characterization

14.4. Assessment of Impacts and Effects and Mitigations from Construction Phase

14.5. Assessment of Impacts and Effects and Mitigations from Commissioning and Operations

15. Climate Change

15.1. Legislative Framework, Policies and Standards

15.2. Scope and Study Area

15.3. Environmental Baseline Characterization

15.3.1. Global Challenges

15.3.2. Climate Change in Qatar

15.3.3. Qatar GHG Emissions and Targets

15.4. xxx Emissions (e.g. GHG emissions)

15.4.1. Potential Sources of Emissions

15.4.2. Assessment Approach and Criteria

15.4.2.1. Emissions during Construction of project Site

15.4.2.2. Emissions from Operation Phase

15.5. Assessment of Impacts and Effects and Mitigation from Construction Phase

15.5.1. Impacts from Construction of the project Facilities including Transportation of Workers

15.5.2. Mitigation and Control Measures

15.6. Assessment of Impacts and Effects and Mitigations from project Operations

15.6.1. Impacts of xxx Emissions (e.g. GHG) from Operations Phase