

Philippines Customs Modernization Project (P163428)
(A Roadmap to BOC's Full Automation in 2024)

Environmental and Social Management Framework (ESMF)



February 2020

Common Abbreviations and Defined Terms

AEO	Authorized economic operator
ASEAN	Association of Southeast Asian Nations
BOC	Bureau of Customs
CLPIA	Certificate, license, permit issuing agencies
CLPS	Certificates licenses and permits
CMTA	Customs Modernization and Tariff Act
COA	Commission of Audit
COTS	Commercial off the shelf software
CPS	Customs processing system
CSO	Customs special order
DAO	Department of Environment and Natural Resources Administrative Order
DOF	Department of Finance
DOLE	Department of Labor and Employment
E2M	Electronic-to-mobile
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ERP	Enterprise Resource Planning
GRM	Grievance Redress Mechanism
HR	Human resources
HRM	Human resource management
ICT	Information and communications technology
M&E	Monitoring & evaluation
MISTG	Management Information Systems and Technology Group
NII	Non-intrusive inspection
NSW	National single window
PDP	Philippine Development Plan
PMQA	Project management and quality assurance
PMU	Project management unit
PSC	Project steering committee
RA	Republic Act
TFA	Trade Facilitation Agreement
WB	World Bank
WCO	World Customs Organization

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1. Introduction

This Environmental and Social Management Framework (ESMF) has been prepared for the Philippines Customs Modernization Project. The Project will involve civil works for the installation of:

- Information technology hardware in Bureau of Customs offices (location to be defined).
- Fast internet cabling to connect various Bureau of Customs offices to a management information system (locations to be defined).

In addition, the modernization efforts supported by the project may lead to the disposal of electric and electronic materials.

2. Project Description

2.1 Philippines Customs Modernization Project

The project aims to transform the Bureau of Customs (BOC) into a world class Customs organization by streamlining and upgrading its operations and processes through ICT. It aims to support BOC and key border management agencies to reform and upgrade their systems, procedures and operational activities to achieve improved transparency, accountability and predictability; streamline and harmonize business processes in line with accepted international standards; reduce time to process imports and exports; lower trade transaction costs facing the trading community; and improve revenue collection performance, while strengthening controls associated with meeting community protection and national security objectives.

The project will focus on strengthening the BOC in carrying out its mandate through business process re-engineering with the aim to improve, harmonize and simplify the existing business operations and processes. This cover streamlining of customs operations, development of systems and deployment of ICT infrastructure, in line with international standards.

The project is expected to improve transparency, reduce trade costs, and increase revenue collections. It further supports and is consistent with its present leadership's 10 Point Priority Program for the BOC which are anchored on improving organizational efficiency, upgrading individual proficiencies and strengthening institutional capabilities with special focus on Priority No. 1 on the implementation of automation to improve the Bureau's processes and integrate its systems for more efficient and effective operations.

Project Components

Component 1. Modernization of Customs Operations. This component will support the modernization of BOC's core Customs Processing System (CPS), related technical infrastructure and internal capacity to manage and operate a sophisticated ICT operation to ensure it contributes to improving operational effectiveness, integrity, accountability, and organizational performance.

Subcomponent 1.1. Customs Processing System

This subcomponent will include the development and implementation of a core CPS by appointing a turn-key supplier. The CPS system will be largely built on commercial off the shelf software (COTS) solutions to provide a robust platform on which to develop the core functionality customized to the specific operating environment in the Philippines. The CPS will include the following features: trade management and registration; declaration creation, submission and processing; cargo inspection; duty suspense regimes; duty payment and accounting; clearance & release; integrated tariff management; risk management, including the use of big data analytics; and periodic and on-demand reporting. The development of the CPS will include the ability to receive, process and reconcile information (e.g. licenses and permits) from other agencies. Lastly, throughout the implementation of the CPS, this component will especially support the operationalization of modern compliance management functions. This will include areas such as risk management development, post clearance audit, authorized economic operators, advanced rulings, administrative appeals, and goods classification and valuation support.

Subcomponent 1.2. Non-Intrusive Inspection Modernization

This subcomponent will enhance fraud and contraband detection capabilities, eliminate waiting time for scanning, streamline overall inspection processes, reduce time to release legitimate trade, modernize BOC inspection processes, and improve trader perception of BOC business processes. This will be achieved by setting up two remote image analysis centers (RIAC) in existing facilities. The RIACs are a combination of hardware and software, which will allow BOC to receive and interpret radioscopic images sent from operational scanner sites in real time. The RIACs will be fully integrated into the CPS, allowing BOC to leverage its modern risk management functions for more effective targeting. In addition, this subcomponent will provide technical assistance to: (i) define a scanning usage policy to optimize the use of existing scanning equipment as well as forthcoming technology deployment already decided by BOC; (ii) optimize BOC's scanners deployment program; and (iii) strengthen BOC's capacity to effectively manage and operate its modern non-intrusive inspection technology and processes.

Subcomponent 1.3. Data Centers and Network Connectivity

This subcomponent will provide the necessary space, equipment and connectivity required to run BOC's CPS, RIAC, and Back-Office systems (see Component 2). This subcomponent will upgrade the necessary equipment and connectivity for BOC offices to effectively link to the new ICT systems. Moreover, the subcomponent will support the rental of space in two separate data centers. Given the country's increasing vulnerability to natural disasters due to climate change, the data centers will be in seismic and typhoon proof areas. Furthermore, in order to ensure business continuity, the data centers will serve as disaster recovery centers and will have structural features that can withstand earthquakes and flooding.

Component 2. Organizational Development. The project will support BOC's modernization initiative to move to a modern customs administration. The new CPS will bring in the implementation of modern customs procedures, which will create new responsibilities and demands for BOC's workforce. Therefore, this component will upgrade BOC's back-office enterprise resource planning (ERP) ICT system, support an organizational and structural review, develop human resources (HR) management and development strategies and tools, and prepare a new customs training curriculum.

Subcomponent 2.1. Administrative Systems Enterprise Resource Planning System

BOC is expected to undergo substantial growth from its current staff strength of about 3,000 staff to about 6,000 staff during the next decade. This rapid growth will put additional pressure on all the back-office and administrative systems of BOC, which are largely manual. Therefore, this subcomponent will also appoint a turn-key supplier to develop a back-office enterprise ERP system. The system will include key administrative systems for: financial management (expenditure management) systems that can integrate with the CPS and the national treasury systems; staff payroll for regular payment of salaries; human resources management for career planning of a large professional workforce; and an assets management solution that can support all core productive assets of BOC across the country.

Subcomponent 2.2. Organizational Modernization

This subcomponent will support changes in the institutional structure to ensure that the organizational model and staffing requirements are aligned with the functional responsibilities enhanced under Component 1. This will start by developing an organizational model and staffing requirements that appropriately reflect the priorities and functional responsibilities being enhanced under the project. Thereafter, using the gender-disaggregated data generated by the ERP, the subcomponent will support the development of a gender-informed competency-based human resource management strategy together with a competency-based job catalogue expected under the new modern administration. This will include the inclusion of anti-corruption and integrity information into BOC’s human resource strategy. Lastly, the subcomponent will develop a training program to build the competencies required for the modern organization.

Component 3. Project Management and Implementation Support. The implementation of the CPS and the ERP will be complex ICT implementations requiring BOC to exercise a strong methodology-based project management approach to ensure the successful and timely delivery of the ICT solutions. In order to support BOC in managing the modernization agenda, this component will also finance a Project Management and Quality Assurance (PMQA) consultancy to work together with BOC to manage and provide quality assure support during project implementation. The PMQA will support BOC’s fiduciary, monitoring and evaluation roles, together with change management and communication. This component will also support gender-related data analytical activities, and several citizen engagement mechanisms, including: (i) participatory planning and policy-making with regards to the CPS design and implementation; (ii) annual multi-stakeholder dialogues; (iii) an online grievance redress mechanism embedded in the CPS.

The mapping of the previous components matches the Feasibility Study prepared by the Bureau as follows:

World Bank’s Project Appraisal Document	Bureau of Customs’ Feasibility Study
1.1. Customs Processing System	1. Customs Processing Systems
1.2. Non-Intrusive Inspection Modernization	4. X-Ray Image Analysis Center
1.3. Data Centers and Network Connectivity	3. Data Center and Network Infrastructure
2.1. Administrative Systems Enterprise Resource Planning System	2. Administrative Back-Office Enterprise Resource Planning System
2.2. Organizational Modernization	5. Organizational Modernization
3. Project Management and Implementation Support	6. Project Implementation Unit Support

2.2 Environmental and Social Aspects

The project will equip existing BOC facilities with possible network cabling upgrades to improve BOC's connectivity to accommodate the new ICT equipment. This will involve setting up of state-of-the-art computer systems, and state-of-the-art image analysis equipment using sophisticated x-ray machines, minor building renovations and laying of underground cable pipes. Furthermore, the project will require the decommissioning and dismantling and disposal of outdated ICT equipment that includes computers, servers, modems, cable wires, and x-ray machines.

The social impacts of the project are considered low. Physical works related to improving internet connectivity and installation of ICT equipment are likely to be no more than a nuisance effect such as dust and noise increase which could be addressed through good consultation. Physical works will not require land acquisition thus resettlement is not anticipated.

The necessary civil works related to the ICT modernization are covered by this ESMF, including the risk assessment and the mitigation measures outlined in the following sections. However, once the design and the location of the ICT infrastructure is confirmed, it will be necessary for contractors to prepare and implement a site-specific environmental and social management plan (ESMP).

3. Regulatory Context

3.1 Philippine Legislation

The following national laws and regulations relevant to the environmental safeguards relevant to the proposed project are as follows:

- Presidential Decree 1586 Establishing the Philippine Environmental Impact Statement System (EIS) Law including other Environmental Management Related Measures – provides the full regulatory and procedural requirements for the conduct of an environmental impact assessment process for development projects
- DENR Department Administrative Order (DAO) No. 30-2003 Updating the Implementing Rules and Regulations of PD 1586 lays out the coverage of the EIS and specific steps and procedures to ensure compliance with the EIS law
- RA 11058 of 2017, for strengthening compliance with occupational safety and health standards and providing penalties for violations.
- RA 9003, the Ecological Solid Waste Management act of 2000, which adopts a systematic, comprehensive and ecological solid waste management program. The act ensures the proper segregation, collection, transport, storage, treatment and disposal of solid waste through the formulation and adoption of the best environmental practices in ecological waste management excluding incineration.
- RA 6969 (1990) and DAO 92- 29 Toxic Substances and Hazardous and Nuclear Wastes Control Act. The implementing rules embodied in the above numbered DENR Administrative Order regulate, restrict or prohibit the importation, manufacture, processing, sale, distribution, use and disposal of chemical substance and mixtures that present unreasonable risk and/or injury to health or the environment; to prohibit the entry, even in transit, of hazardous and nuclear wastes and their disposal into the

Philippine territorial limits for whatever purpose and to provide advancement and facilitate research and studies on toxic chemicals and hazardous and nuclear wastes.

- DAO 2013-22, Revised Procedures and Standards for the Management of Hazardous Waste. This covers the disposal of chemical substances and mixtures that present unreasonable risk and/or injury to health or the environment, such as waste electrical and electronic equipment.
- DAO 2000-02, Chemical Control Order for Asbestos, which controls and regulates the use and disposal of asbestos into the environment to avoid adverse consequences.
- DAO 2013-22 which classified e-waste as a new class of miscellaneous waste.
- DAO 2000-05 highlights the importance of public participation and social acceptability in the environmental review process.

3.2 World Bank Safeguard Policies

3.2.1 OP 4.01 Environmental Assessment

As the project involves civil works World Bank Operational Policy (OP) 4.01 Environmental Assessment applies. OP 4.01 “...requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making”. The Bank has undertaken environmental screening of the proposed project has determined that the potential environmental impacts are classified as Category B. This means that the potential impacts are of low to moderate significance, site-specific, mostly reversible and that cost-effective mitigation can be readily designed in the majority of cases.

The purpose of the Environmental Assessment is to help ensure the environmental and social soundness and sustainability of investment projects, and to support the integration of environmental and social aspects of projects into the decision-making process. The policy defines procedures to screen and assess potential impacts and mitigation, prepare safeguard instruments, ensure public consultation and transparency and that there are implementation and supervision of commitments relating to findings and recommendations of the environmental assessment.

This ESMF is an integral part of compliance with this policy. All activities proposed for funding and implementation under the Project are subject to the provisions and stipulations within this document.

3.3 Occupational Health and Safety

In the Philippines, the Occupational Safety and Health Standards were formulated in 1978 in compliance with the constitutional mandate to safeguard the worker’s social and economic well-being as well as their physical safety and health. Republic Act 11058 of 2017 strengthens compliance with occupational safety and health standards and provides penalties for violations. The Department of Labor and Employment (DOLE) administers and enforces the provision of the Standards.

The objective of the Standards is to protect every workingman against the dangers of injury, sickness or death through safe and healthful working conditions, thereby assuring the conservation of valuable manpower resources and the prevention of loss or damage to lives and properties, consistent with national development goals and with the State’s commitment for the total development of every worker as a complete human being.

All activities involving civil works in the project will follow the amended Occupational Safety and Health Standards published by DOLE. By following the standards, contractors will be required to carry out a job safety analysis and prepare a safety management plan.

4. Environmental and Social Management Roles and Responsibilities

The lead implementing agency for the project is the Bureau of Customs, an attached agency of the Department of Finance. Commissioner Guerrero reconstituted the Project Management Unit (PMU) with CSO 44-2019 on 21 March 2019. To further support the project implementation by the PMU, the project requires the procurement of a Project Management and Quality Assurance (PMQA) firm throughout the duration of the project.

Implementation will be supported by an interagency Project Steering Committee (PSC), which will provide overall direction and strategic guidance. The PSC will ensure efficient project implementation and make sure that major implementation and supervision issues are adequately addressed by the implementing groups. The PSC will be chaired by the BOC Commissioner and include representatives from public agencies and private institutions.

Environmental and social management for the project will be the responsibility of the PMU, including planning, implementation, and supervision. The BOC has assigned a safeguards advisor for the PMU. The PMU shall also be responsible in planning measures to mitigate adverse impacts. These would be integrated in the terms of reference of project design of individual subprojects and is expected to be used by potential service providers in the submitted bidding documents for project implementation if the project is to be outsourced. If to be done in house, then the safeguards instrument will be drafted by the PMU with assistance of the respective BOC District office. If necessary, the PMU may engage the assistance of experts.

5. Potential Environmental and Social Impacts and Risks

This section describes the potential impacts of the project on the physical and human environment. Most impacts are associated with the construction phase of the project.

5.1 Asbestos Containing Material

Asbestos containing material in this context refers to existing building elements (e.g. wall sheeting, roof sheeting, pipework, insulation etc.) that may contain asbestos. Asbestos is a naturally occurring rock fiber that it is harmful to humans. When products containing asbestos are damaged or wear down over time, small fibers are released and become airborne.

5.2 Land Access

It is expected that the proposed civil works will occur in locations occupied by the BOC. There will be no need to acquire land.

5.3 Community and Occupational Health and Safety

5.3.1 Community Health and Safety

The potential risks to community health and safety are associated with the project's construction phase and would mainly comprise minor dust and noise impacts and pedestrian/traffic hazards. The excavation works that may be required for the cable installations are relatively minor and will be limited in duration at any one locality and most of the works will be undertaken. Hence, dust and noise impacts are unlikely to be significant.

5.3.2 Occupational Health and Safety

The nature of the civil works to install the ICT infrastructure suggests that the occupational health and safety hazards from construction are relatively low. While the works may involve trenching activities, this will not require work within trenches and the depth is less than 1.5 meters.

5.4 Waste Management

The quantities of waste generated from construction activities are likely to be small. There will be some packaging waste from system components and there may be small quantities of residual excavated soil material from the trenching activities. Minor building renovation will also generate construction debris which need to be properly collected and disposed. While the waste quantities are expected to be limited it is important that all waste is stored, handled and disposed of securely to ensure no leakage into the environment. Potential hazardous waste includes the disposal of old ICT equipment, such as computers, servers, monitors, and cable wires together with possibly contaminated construction debris and any potential asbestos waste.

5.5 Water Quality Impacts

There is the potential for minor water quality impacts from sediment contaminated runoff or fuel spills during cable installation activities. As each section of trench is excavated spoils will be stockpiled adjacent to the trench while the cable is laid as well as open ditches on the ground as a result of the trench diggings. This exposure is likely to be only of short duration with the trenches needing to be backfilled immediately after conduit placement.

5.6 Vegetation Impacts

During the trenching activities for the cable placement there is the potential for vegetation to be present along the alignment or to encounter tree roots when digging. The cable route should be designed to avoid vegetation as far as possible. Where this is not practicable excavations should be undertaken in such a way as to avoid damage to trees or their roots. Where roots are encountered during the trenching activities these should be left intact and the cable installed so as to avoid the roots and not otherwise cause damage.

6. Mitigation Measures

Prior to the commencement of works, a risk assessment will need to be carried out to assess the likelihood and consequence of the potential impacts identified above. This will include the probability of occurrence of a particular impact with the consequence of the impact to establish the significance of a particular impact (Annex 1 describes the risk assessment methodology). Thereafter, mitigation measures will need to be proposed to mitigate the impacts and summarize the residual impact significance following

implementation of an Environmental and Social Management Plan (ESMP) that contains mitigation measures, and included in the bidding documents and its cost of implementation if part of the project cost. Mitigation measures in the case of encountering the risks provided in Section 5 are the following:

Risk	Mitigation measures
1. Worker/public exposure to asbestos during construction	<ul style="list-style-type: none"> • Obtain as-built plans of asbestos-containing building components such as roofs, ceilings, walls and water supply infrastructure from the Building Administrator and design cable network to avoid this infrastructure. • Where there are “chance finds” of suspected asbestos containing material, construction works should cease immediately at the location and the contractor must seek advice from the PMU Safeguards coordinator on appropriate management measures. • Put up sign boards warning of highly toxic materials in the area and direct pedestrians and vehicular traffic away from the diggings • Asbestos waste is discarded according to DENR 2000-02, Chemical Control Order for Asbestos. • Contractor to provide evidence of satisfactory waste disposal.
2. Unlawful land access or land acquisition	<ul style="list-style-type: none"> • Determine if the location of the civil works has any pending legal cases related to land ownership. • Works will only be carried out with the approval of the legal occupant.
3. Community health and safety incidents during construction	<ul style="list-style-type: none"> • BOC to undertake a stakeholder consultation prior to construction commencing so that stakeholders are aware of forthcoming works and associated risks. • Put up notices of construction schedule and sign boards before, after and around the construction areas
4. Worker health and safety incidents during construction	<ul style="list-style-type: none"> • Work is carried out by contractors that follow DOLE’s Occupational Health and Safety Standards and provide training and appropriate PPEs. • Ensure all existing underground services locations are known prior to trenching for cabling.
5. Construction debris and electronic waste deposited into the environment	<ul style="list-style-type: none"> • Waste from construction is discarded according to the RA 9003, Ecological Solid Waste Management Act of 2000. • Waste from discarded electronics, such as computers, monitors, and X-ray machines will be

	<p>classified as hazardous waste, and managed according to DENR 2013-22, Revised Procedures and Standards for the Management of Hazardous Waste.</p> <ul style="list-style-type: none"> • Contractor to provide evidence of satisfactory waste disposal.
6. Digging of trenches for cable wires pipe laying	<ul style="list-style-type: none"> • Cordon off working area and identify trenches with adequate signages at a considerable distance visible during the day and night. • Set aside soil overburden away from the working area and from roads, passageways and pedestrian areas with vehicular and foot traffic. Restore the dug surface into its original condition and reuse the soil to overlay and restore the trenches • Cordon off and cover any open trench and put adequate signages to avoid falling incidents and accidents
7. Pollution of receiving waters from construction runoff	<ul style="list-style-type: none"> • Limit the extent of open cable trench at any one time and avoid excavations when rain is anticipated • Ensure all hazardous materials (including fuels) are stored in banded/secure enclosures at contractor’s compound • Collect polluted waters and wastewater, treat and dispose properly
8. Vegetation damage from cable trenching activities	<ul style="list-style-type: none"> • Design cable route to avoid existing vegetation as far as practicable • When trenching in the vicinity of existing trees the presence of tree roots should be anticipated. In these situations, it is recommended that excavations be undertaken by hand to identify the extent of root systems and ensure they are avoided • If tree roots are encountered during trenching activities these should not be damaged and the cable rerouted to avoid impacts • Secure tree cutting permit if tree cutting is unavoidable • Replace removed equal if not more vegetation removed and trees cut
9. Environmental focal person to monitor the Environmental Management Plan	<ul style="list-style-type: none"> • Assign a knowledgeable environmental focal person to strictly monitor the implementation of the Environmental Management Plan

7. Consultation and Grievance Redress Mechanism

7.1 Consultation Plan

Given the limited extent and duration of the civil works, consultation will be carried out by BOC through direct engagement with neighboring residents and businesses along the proposed fiber-optic cable routes. This consultation will be required to inform the residents and business owners of the potential disruption associated with the cable installation. This consultation should be undertaken face-to-face and should describe the scope of works, timing and likely impacts, together with details of the grievance redress mechanism. Consultation should be undertaken once the cable routes are determined and then again two weeks prior to construction commencing.

7.2 Grievance Redress Mechanism

A grievance redress mechanism (GRM) is presented below to uphold the project's social and environmental safeguards performance. The purpose of the GRM is to record and address any complaints that may arise during the implementation phase of the project and/or any future operational issues that have the potential to be designed out during implementation phase.

The key objectives of the GRM are:

- Record, categorize and prioritize the grievances;
- Settle the grievances via consultation with all stakeholders (and inform those stakeholders of the solutions);
- Forward any unresolved cases to the relevant authority.

The following GRM shall be put in place to register, address and resolve complaints and grievances raised by stakeholders during implementation of the Project. Contractors are required to adhere to this formal process.

Complaints may be submitted in person, via telephone, electronically, in letter to the PIU. All complaints must be formally registered in the complaint register. Should the complaint be received by the Contractor's Site Supervisor directly, they will endeavor to resolve it immediately and submit notification of the complaints and resolution to BOC for entry into the complaints register. For all grievances DIDA is responsible for ensuring that, on receipt of each complaint, the date, time, name and contact details of the complainant, and the nature of the complaint are recorded in the Complaints Register.

Should the complainant remain unsatisfied with the response of the Contractor's Site Supervisor, the complaint will be referred to the Assistant Project Manager (APM) of the PMU. The APM and Safeguards coordinator will take earnest action to resolve complaints at the earliest time possible. It would be desirable that the aggrieved party is consulted and informed of the course of action being taken, and when a result may be expected. Reporting back to the complainant will be undertaken within a period of two weeks from the date that the complaint was received.

If the APM is unable to resolve the complaint to the satisfaction of the aggrieved party, the complaint will then be referred to the Project Steering Committee (PSC). The PSC will be required to address the concern within 1 month.

To ensure broad public awareness of the grievance mechanism, the Project shall erect appropriate signage at all works sites with up-to-date project information and summarizing the GRM process, including contact details of the relevant Contact Person. Public information bulletins websites and other public information will also include this information. Anyone shall be able to lodge a complaint and the methods (forms, in person, telephone) should not inhibit the lodgment of any complaint.

8. Budget

The following is an indicative budget for implementing the EMSF, which will be covered by the project.

Budget Item	Detail	Cost Estimate (PHP)
Stakeholder consultations	Catering, venue hire, media, materials, travel and accommodation, etc.	250,000
Institutional Training	Venue, stationery, refreshments, training materials	250,000
Disclosure of safeguard instruments (ESMPs)	Report production, distribution	100,000
Monitoring and reporting	Travel and accommodation cost	200,000
GRM related costs	Communication, transportation, support costs	200,000
		Total: 1,000,000

Annex 1. Risk Assessment Methodology

STEP 1

Assign a rating and score for each of the three criteria (A-C) listed in the table below, and then add the scores to determine the consequence rating for an impact.

RATING	DEFINITION OF RATING	SCORE
A. Extent – the area over which the impact will be experienced		
Local	Confined to the project site or study area	1
Wider catchment or province	Extends beyond the project site to the wider, surrounding area.	2
Island or national	Extends to the whole island or nation.	3
Regional or global	Extends to the ASEAN region and potentially beyond.	4
B. Intensity – the magnitude of the impact i.e. whether the impact will result in minor, moderate or major environmental, economic and social (including human health) changes		
Low	Minor or negligible changes, disturbances, damages, injuries or health effects. Likely to generate minimal interest or concern amongst the local community/stakeholders. <u>Examples:</u> dust and exhaust gases from construction machinery; temporary or single exceedance of a pollution limit or threshold; first aid cases; minor discomfort or irritation from construction noise; increased traffic on local roads to transport construction materials to a project site.	1
Medium	Moderate changes, disturbances, damages, injuries or health effects. Likely to generate more prolonged interest or concern amongst local community/stakeholders. <u>Examples:</u> generation of hazardous waste; large fish kill incident; frequent exceedance of a pollution limit or threshold; clearance of village food gardens; influx of workers from overseas for project construction; moderate disruption of daily life/work activities within a village; intermittent production of foul odor near a village; infrastructure damage from flooding or strong winds.	2
High	Major or severe changes, disturbances, damages, injuries or health effects. Likely to generate widespread and intense interest or controversy amongst local, national and regional communities/stakeholders. <u>Examples:</u> clearance of endangered species habitat; drawdown of limited groundwater supplies; large increase in suspended sediment levels from dredging; destruction of cultural artefacts; forced relocation of village settlements; permanent disabilities or fatalities; loss of coastal buildings and infrastructure due to extreme weather events.	3
C. Duration – the timeframe over which the impact will be experienced and its reversibility		
Short-term	Up to 2 years – impact is reversible or limited to when particular development activities or environmental events are taking place. Remediation or recovery is possible.	1
Medium-term	2 to 15 years – impact is reversible or limited to when particular development activities or environmental events are taking place. Remediation or recovery is possible.	2
Long-term	More than 15 years – impact is permanent or gradually reversible with sustained remediation and recovery efforts.	3

The combined score of the three criteria (extent, intensity, duration) corresponds to a consequence rating, as follows:

Combined score (A+B+C)	3 – 4	5 – 6	7 – 8	9 – 10
Consequence rating	Minor	Moderate	Major	Massive

STEP 2

Assess the probability of the impact occurring according to the following definitions:

Probability – the likelihood of the impact occurring	
Improbable	Unlikely to occur during project lifetime. < 20% chance of occurring
Possible	May occur during project lifetime. 20%–60% chance of occurring
Probable	Likely to occur during project lifetime. > 60%–90% chance of occurring
Highly probable	Highly likely to occur, or likely to occur more than once during project lifetime. > 90% chance of occurring

STEP 3

Determine the overall significance of the impact as a combination of the consequence and probability ratings, as set out in the matrix below:

		PROBABILITY OF OCCURRENCE			
		Improbable	Possible	Probable	Highly probable
CONSEQUENCE OF IMPACT	Minor	VERY LOW	VERY LOW	LOW	LOW
	Moderate	LOW	LOW	MEDIUM	MEDIUM
	Major	MEDIUM	MEDIUM	HIGH	HIGH
	Massive	HIGH	HIGH	VERY HIGH	VERY HIGH

STEP 4

State the level of confidence in the assessment of the impact as high, medium or low. The level of confidence will depend on the extent and type of information available, whether it is qualitative or quantitative, and whether it is based on direct measurements, extrapolated data, estimations or expert opinion.

STEP 5

5(a) – identify and describe practical mitigation measures that can be effectively implemented to reduce the impact.

5(b) – assume mitigation measures have been implemented and reassess the impact, by following steps 1 to 4 again. The point of the second assessment is to examine how impact extent, intensity, duration and/or probability are likely to change, after mitigation measures have been put in place.

STEP 6

Summarize all the impact assessment ratings in a single table that can be included in the executive summary or concluding section of an EIA report.