



Technical Assistance Consultant's Report

Project Number: 44140
Date: October 2013

TA 7566-REG: Strengthening and Use of Country Safeguard Systems

Subproject: Country Safeguard Review (Papua
New Guinea)

GUIDELINE FOR PREPARATION OF AN ENVIRONMENTAL MANAGEMENT PLAN

Prepared by ADB Consultant Team

This consultant's report does not necessarily reflect the views of ADB or the Government concerned, and ADB and the Government cannot be held liable for its contents.

Asian Development Bank

Information Guideline



DEPARTMENT OF ENVIRONMENT

Environment Protection Wing, B Mobile Building, Waigani Drive, NCD

Phone (675) 3433630, Fax (675) 325 0182.

DEC Publication No: 02/2013

GUIDELINE FOR PREPARATION OF AN ENVIRONMENTAL MANAGEMENT PLAN

1.1 INTRODUCTION

This *Guideline* is intended to assist and guide prospective developers (and/or their consultants) to prepare an Environmental Management Plan (EMP) as required for undertaking *Level 2* and *Level 3* activities as required by the Director under Section 132 of the *Environment Act 2000* and procedures issued by DEC in *Nov 2012* and *March 2013* which specifically deal with the requirement for the Proponent to submit an EMP.

The objectives of this guideline is to:

- i. establish procedures to ensure that mitigation measures and monitoring requirements that have been identified during the environmental assessment will be carried through and implemented in subsequent stages of the project. As the name implies the EMP is a management document that directs how mitigation and monitoring will be complied with by the project Proponent.
- ii. Establish a consistent report structure that can be followed by all Proponents for developing the EMP.

The EMP consists of two main sections (i) identification of mitigation measures and monitoring requirements and (ii) organisational responsibilities to ensure that the EMP is effectively implemented.

The second section normally requires the Proponent to establish a management structure within the project organisation to supervise compliance with the EMP during project design to ensure that the EMP requirements are carried into the contract documents and to ensure that the contractor complies with the EMP requirements during construction. During operation the Proponent is required to meet any operational requirements of the EMP.

1.1.1 Structure of the EMP

The structure of the EMP which follows is intended to suit all development projects and is to be followed by the Proponent when developing the EMP. Any EMP which does not follow this structure will be returned to the Proponent as being inconsistent. The EMP consists of the following sections¹.

- i. Summary of Impacts
- ii. Mitigation Measures
- iii. Environmental Monitoring
- iv. Public Consultation Plan
- v. Implementing Arrangements
 - a. Implementation Schedule
 - b. Institutional and Organisational Arrangements
 - i. Responsibilities for Mitigation and Monitoring
 - ii. Reporting and Review
 - c. Cost Estimates

1.2 SUMMARY OF IMPACTS

The assessment of impacts and definition of mitigation measures is the formative part of the Environmental Management Plan (EMP).

Using the environmental assessment extract the predicted adverse environmental and social impacts that require mitigation and define the impacts in terms of their magnitude and scope for those identified for pre-construction (design), construction and operation.

1.3 MITIGATION MEASURES

Where impacts and risks cannot be avoided or prevented and impacts, mitigation measures and actions are to be identified to reduce or minimize adverse impacts so that the project is constructed and operated in compliance with applicable legislation and “best practices”. Mitigation measures are to be provided for each impact that has been identified. The project Proponent must include measures considered to be “best practices” in the design of all alternatives.

Key considerations includes the mitigation of potential adverse impacts to the level of “no significant harm to third parties”, the polluter pays principle, the precautionary approach and adaptive management. Should residual impacts remain, compensatory measures or offsets are to be considered, e.g. in replacing forest losses.

For each mitigation measure, allocate who and which organisation will be responsible for implementing the measure. Also determine the timing of implementing the measure.

¹ This section is based drawn extensively on the following documents; the *Safeguard Policy Statement 2009* and *Environmental Assessment Guidelines ADB, 2003*.

1.3.1 Mitigation Plans

During construction many of the activities will produce a range of impacts that are specific to the activity. These are best addressed by plans which provide detailed methodology to cover a wider scope of possible measures.

The following is a list of plans that are typically used for infrastructure projects. At the time of preparing the EMP the plans should provide sufficient detail for the contractor to evaluate their requirements at the time of bidding. When the project proceeds to implementation the plans will need to be developed in more detail for the contractor to implement them. For most situations the contractor will be asked to refine the plans as part of the Contractor's EMP (CEMP). Otherwise if the contractor lacks the capacity or experience to develop the plans then the contractor may need to employ an experienced environmental consultant to develop the plans to the standard required for implementation. The EMP would develop other plans as required to address particular requirements of the project.

- i. **SITE CLEARING PLAN:** The objective of the plan is to clearly identify the area to be cleared to avoid excessive clearing of vegetation. It will require definition of areas not to be cleared e.g. vegetation with high conservation value, buffer strips along water courses, etc. Show how the vegetation is to be disposed of after clearing – try and avoid burning and instead consider methods of allowing adjoining communities to collect and dispose of the material. Define methods for stripping topsoil and stockpiling it for later use in site rehabilitation.
- ii. **INVASIVE SPECIES CONTROL PLAN:** where aggressive invasive species – both flora and fauna – may be present which may invade the area as a consequence of the project either from construction or operation, the plan is to address methods of controlling the inadvertent spread of these species by project activities.
- iii. **SITE PROTECTION PLAN.** This plan would identify the erodibility risk of the soil and causes of erosion such as rainfall intensity, length and degree of slope and cover protection requirements on the construction site. The plan may require the construction of temporary or permanent installations to stabilise areas to control erosion and prevent the delivery of sediment into waterways.
- iv. **SITE MATERIALS PLAN:** Quarry sites and borrow pits used to source concrete making aggregate and gravels may need to be opened. The plan will need to develop procedures to access the area if it is held privately or in customary title. It will need to advise whether licences or approvals are required. Following completion of construction all quarries and borrow pits will need to be “closed” by being landscaped, topsoil being respread and revegetated.
- v. **STOCKPILE AND SPOIL HEAP MANAGEMENT PLAN:** The objective of this plan is to identify methods to locate stockpiles so that they do not erode thereby preventing sediment entering watercourses. Following completion of construction the areas must be closed by rehabilitating the site. Access roads to any dump sites must also be closed and rehabilitated.
- vi. **SITE REHABILITATION PLAN:** As work is completed in construction sites, quarry/borrow pit sites, and road batters, the Site Rehabilitation Plan will determine the methodology to be applied to these areas. Saving and stockpiling topsoil is an essential part of the plan together with recommendations for rehabilitating the disturbed sites including revegetation of exposed areas. The plan will also detail methodology to be used in closing work areas such as contractor's facilities which may require the removal of contaminated soil from fuel storage areas and workshop facilities.

- vii. **FUEL HANDLING PLAN:** Where large quantities of fuel will be stored on-site this plan addresses the design of fuel storage areas so that spills are contained on-site. Fuel handling and transfer procedures for refuelling from mobile tankers should be addressed with regard to where refuelling operations can be safely undertaken. The plan will also need to address training of refuelling staff in fire safety procedures and spill clean up.
- viii. **WASTE MANAGEMENT PLAN:** For large construction sites a Waste Management Plan will be required to address the collection, handling and disposal of waste. This would address all wastes to be used on site including organic and inorganic waste and dangerous and hazardous wastes. Clean up procedures for handling spills of dangerous and hazardous wastes must also be addressed. Waste Management Plans must be compliant with national legislation.
- ix. **STORAGE AND HANDLING OF HAZARDOUS WASTES:** Identify which materials are classified as hazardous materials. These would have a HAZCHEM rating and be accompanied by a Material Data Sheet (MDS). Using the MDS develop a plan the store and handle these materials together with the appropriate safety and training procedures for workers who may be required to handle these materials.
- x. **COMMUNITY CONSULTATION AND GRIEVANCE REPORTING PLAN:** Consultation with local and provincial governments, communities and stakeholders along the project route or area is imperative as an absence of consultation often ends up with misinformation and miscommunication that can hinder project activities. Consultation must be carried out prior to the project commencing and this should be frequent throughout the life of the project.
To address these issues and the complex land ownership and cultural environments that often operate within the project area a Community Consultation Plan should be prepared for projects or situations where these issues will arise. The plan will develop methodology for delivering effective and participatory consultation to the affected communities. The plan will address the project's implementation and advise on issues that the project may cause or exacerbate by its construction and operation e.g. material sources which are identified during implementation, location of labour camps, recruiting labour, community safety where haul trucks may pass through villages, dust management within villages etc. Community consultation can also be used to facilitate dialogue in arranging small community based contracts for labour intensive work such as site clearing or rehabilitation. For these situations the plan would recommend that a specialised person be included within the Contractor's team structure and costed in the Bid offer to facilitate community consultation.

Grievance Reporting Mechanism: A grievance reporting mechanism should also be included as a part of the Community Consultation and Grievance Reporting Plan which provides a method for resolving community grievances or complaints, raised during the construction phase. Normally these would be raised first with the contractor. Should the contractor be unable to resolve the issue the issue is then passed to the next higher level which in most cases would be the PMU or if no PMU has been formed then directly to the Environmental Unit (EU) in the DoW for a decision. Complaints must be made and dealt with openly and without any fear of retribution to the person making the complaint.

If a reporting procedure has not already been prepared and approved by the EU the contractor is required to prepare a Grievance Reporting Procedure that establishes the steps for any person making a complaint. All complaints will be addressed by the contractor and recorded

in a Complaints Register which will be kept on site². will be reported in the contractor's monthly reports.

The contractor is responsible for implementing the procedure which includes maintaining the Complaints Register which is to be available to the public at the work site. The contractor will be responsible for ensuring that complaints are registered and dealt with according to the procedure.

- xi. **COMMUNITY HEALTH AND SAFETY PLAN:** this plan specifically addresses community health and safety issues in such areas as developing HIV/AIDS awareness, providing briefing to communities on increased traffic passing through their areas from contractor's vehicles, procedures to access the work site etc. The plan will also need to have a grievance redress mechanism in it for communities to be able to effectively raise health and safety issues with the project management. The appointment of a Community Liaison Officer will be able to resolve many of these issues as an intermediary between the community and the project management.
- xii. **WORKER HEALTH AND SAFETY PLAN:** this will address requirements of the PNG labour legislation and provide methodology to mitigate possible adverse work place accidents and ensure a safe and healthy work place.

1.4 ENVIRONMENTAL MONITORING

For each mitigation measure identified, the EMP monitoring program is to describe the following:

- i. Activity with potential impact.
- ii. Proposed mitigation measure.
- iii. Responsibility for supervising and managing the implementation of the mitigation measure.
- iv. The cost of mitigating the impact.
- v. The Parameter to be monitored.
- vi. Frequency of monitoring and means of verification that the measure is achieving its result.
- vii. Who is responsible for monitoring the parameter?
- viii. The cost of monitoring the parameter.

Identify how the monitoring program will be organised throughout the life of the project and identify the position of the person within the organisation that will have the overall responsibility for supervising the program. Define whether any other organisations may have secondary independent monitoring roles to validate the data. Schedules and procedures to review the mitigation measures should be provided to assess after a period of time, whether any of the mitigation measures are not responding in the way that the EMP predicted. Should this be demonstrated then the mitigation and associated monitoring requirements will need to be redesigned to accommodate these changes. Changes may also be needed in the monitoring program as parameters change or become irrelevant.

Prepare a matrix of the monitoring program that summarises the above eight parameters for preconstruction, construction and operation.

² *The Complaints Register should be triplicate book with the original of the complaint being returned to the person making the complaint. The duplicate being sent to the PMU or EU, and the triplicate being retained in the book. Both the duplicate and the triplicate should show the action that was taken as to how the complaint was resolved. At the end of the month the status of any complaints raised that month is addressed in the contractor's monthly report.*

1.5 EMP IMPLEMENTATION ARRANGEMENTS

This section defines the EMP implementation schedule and identifies the roles of the various organisations responsible for supervising the implementation of the mitigation and monitoring measures.

1.5.1 Implementation Schedule

Provide a schedule of the project's main phases (design and pre-construction, construction and operation) as a time based chart together with the main activities and show this in relation to the mitigation and monitoring activities.

1.5.2 Institutional and Organisational Arrangements

For each activity where mitigation and monitoring measures have been identified, identify who (the role of the person and the organisation) that will be responsible for implementing the measure. Also identify when the measure is planned to commence and cease.

1.5.3 Organisational Roles

Identify the various organisations that will be required to supervise the implementation of the EMP and their role. These can be categorised as those with (i) direct responsibilities such as the Department of the Environment and Conservation (DEC), and (ii) other governmental organisations that may have lesser, indirect roles.

Identify organisations with roles during construction where it is expected that the majority of the mitigation and monitoring activities will be required, and also during operation where the project owner will have the overall management role for the project with oversight from DEC.

For projects that may be financed by multi-lateral agencies such as the ADB and WB an assessment of the organisation's capacity to effectively undertake their roles may be required. If capacity needs to be strengthened, a program needs to be identified and costed and included in the EMP to meet these requirements.

1.5.3.1 Proponent's Role

The Proponent will need to identify a management and organisational structure together with personnel to implement and supervise the EMP. If neither suitably qualified personnel nor a suitable management structure exists the Proponent will need to arrange to recruit personnel and establish the management organisation. For smaller projects it may be possible to arrange the supervision of the EMP by hiring an environmental consulting organisation. The management structure is to be provided as part of the EMP³.

Define the roles of the responsible personnel including the Project Manager, the Supervising Engineer, the Environmental and Social Officer and any other appointments e.g. Community Liaison Officer etc., that the Proponent considers are necessary to ensure the EMP is adequately supervised.

³ The structure of the management unit is often referred to as a Project Management Unit or PMU. Within the PMU an Environmental Unit (EU) may be organized and depending on the project's scope and objectives the EU would contain at least one person responsible for supervising environmental compliance and normally another person to address social and land acquisition issues. For smaller projects one person may manage the requirements for both environmental and social issues. The Proponent is required to address the management organizational structure for implementing the EMP as a part of the EMP.

Provide an organisational structure showing the relationship of the PMU environmental unit within the overall PMU organisational structure together with the location of the various supervising personnel so that responsibilities and reporting arrangements are clearly shown.

Examine each of the activities with regard to legislative requirements and ensure that the EMP addresses all of the requirements that the project will need in terms of licences and approvals during construction. Provide details of where such licences or approvals may be needed, the legislation and the organisation responsible for providing these approvals⁴.

1.5.3.2 Contractor's Role

The Contractor will have a major role in implementing the EMP during construction. Before construction commences the EMP is to be reviewed and re-issued by the Contractor as a contractually binding document (the Contractor's EMP (CEMP)). The CEMP will address the impacts and their mitigation measures and provide workable plans to comply with the EMP. The second role of the CEMP is to identify staff within the Contractor's project management organisation to supervise compliance with the CEMP including monitoring. The CEMP is submitted by the Contractor to the Proponent for approval and a copy sent to DEC to comply with their requirements.

1.5.3.3 DEC Role

Define DEC's role in supervising the EMP. This will include approving the EMP and possibly further on-going roles in monitoring and auditing.

1.5.4 Other Organisations

Define roles of any other organisations or stakeholders that may have supervisory roles during the implementation of the EMP and determine their role.

Some of these organisations may have approval and implementation responsibilities e.g. paying compensation for land acquisition as shown by the LARP, approving the clearing of forest land, extraction of gravel from rivers and opening quarries, etc.. The role of these supporting organisations need to be clearly established so that at the time of implementing the EMP there are no surprises in not having the necessary approvals in place.

1.5.5 Financier's Role

Define the financier's role in addressing any requirements in the EMP. For multilateral lending agencies specific reporting and monitoring procedures may be required to meet the agencies lending conditions.

Where funds have been sourced from private lending institutions, *Equator Principles*⁵ can be expected to apply.

1.5.5.1 Reporting and Review

This section will identify the reporting requirements to meet the needs of the Proponent, DEC and possibly the financier.

⁴ A common deficiency in EMPs when construction commences is often the lack of information given in the EMP about who the responsible organization is and the approval process for opening quarries, borrow pits, and for extracting sand and gravel etc.

⁵ The [Equator Principles](#) (EPs) are a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

Normally reports will be generated from the Contractor to the Proponent, from the Proponent to DEC and possibly from the Proponent to a financing organisation.

The outline for a construction project monthly report should contain the following sections.

- i. Status of work programme; work completed, construction underway and work planned.
- ii. Environmental staff situation for month.
- iii. Staff and worker awareness training carried out
- iv. Waste volumes, types and disposal (inorganic and organic)
- v. Areas re-vegetated and rehabilitated
- vi. Dust Control Report
- vii. Discovery of Artefacts
- viii. Safety and Monthly Accident Report
- ix. Weekly Monitoring Reports
- x. Copy of Contractor's Daily Record.
- xi. Defect Notices issued and status of all non-conforming work
- xii. Environmental Incidents
- xiii. Complaints received and resolution
- xiv. Other relevant environmental issues.

The proponent will normally aggregate the contractor's monthly reports into a quarterly report and together with its comments forward these as required to DEC and the financing organisation.

1.5.6 Cost Estimates

Collect all of the costs of the EMP in this section. Include costs of staff and support services, costs for implementing the mitigation measures and costs of monitoring. Present these in a table for each budget year. Calculate the cost of the EMP budget as a percentage of the total project budget cost.

2 COPIES TO BE LODGED

The proponent is required to provide ten (10) copies of the environmental impact statement during lodgement of the application to enable the Director of Environment to assess the statement is compliant with *Section 54 of Environment Act, 2000*.

Lodge the EMP with:

Director of Environment
Department of Environment and Conservation.
P.O. Box 6601, BOROKO, National Capital District,
Papua New Guinea.
Attention: Executive Director
Environment Protection Division

2.1 LETTER OF TRANSMITTAL OR COVER LETTER

Ensure that the Environmental Management Plan is transmitted to DEC with a cover letter signed by the responsible company official or its authorised representative (i.e. consultant - engaged by the company to act on its behalf).

If an external consultant is used, the letter must also authorise the consultant to make statements and provide further information on behalf of the company in relation to the EMP.

The EMP report should be presented in PDF format.

An electronic copy of the EMP should also be provided.

