Environmental Assessment and Review Framework

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Papua New Guinea: Highlands Region Road Improvement Investment Program - Project 2

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ABBREVIATIONS

ADB	-	Asian Development Bank
AP	-	Affected Person
BOQ	–	Bill of Quantities
CEMP	-	Construction Environmental Management Plan
CSC	-	Construction Supervision Consultant
DC	-	Design Consultant
DoL	-	Department of Labor
DoW	-	Department of Works
DEC	-	Department of Environment and Conservation
EA	-	Executing Agency
EARF	-	Environmental Assessment Review Framework
EMP	-	Environmental Management Plan
EP	-	Environmental Permit
EMU	-	Environmental Management Unit (of the DOW)
EO	-	Environmental Officer (in DOW's EMU)
EPAR		Environmental (Precsribed Activities) Regulations
ESO	-	Environmental and Safety Officer (contractor)
GRM	-	Grievance and Redress Mechanism
HCRN		Highlands Core Road Network
HRMG	-	Highlands Road Management Group
HRRIIP	-	Highlands Region Road Improvement Investment Program
IA	-	Implementing Agency
IES	-	International Environmental Specialist (in CSC)
IEE	-	Initial Environmental Examination
EPAR	-	Environmental (Prescribed Activities) Regulation
MFF	-	Multi-Tranche Financing Facility
NGO	–	Non-Government Organization
NRA	-	National Road Authority
PCR	-	Physical Cultural Resources
PFR	-	Periodic Financing Request
PIU	-	Project Implementation Unit
PNG	-	Papua New Guinea
QPR	–	Quarterly Progress Report
RE	-	Resident Engineer
SPS	-	Safeguard Policy Statement
SEC	-	Secretary of Environment and Conservation

CURRENCY EQUIVALENTS

(as of 01 September 2013)

Currency Unit – Kina (K)

K1.00 = $0.44

$1.00 = K2.28

A. INTRODUCTION

1. The Government of Papua New Guinea (GoPNG) has requested the Asian Development Bank (ADB) to provide a multi-tranche financing facility (MFF) to facilitate investments to support the proposed Highlands Region Road Improvement Investment Program (HRRIIP) or the "Program". The proposed investment program will establish a sustainable road system in the highland region that will enable optimum use of its natural, mineral and human resources for the people of the highlands region, including fostering rural development. This Environmental Assessment Review Framework (EARF), to be reviewed as part of development of each project or tranche and updated as required, will apply to all subprojects under the MFF so as to ensure that the environmental impacts are appropriately addressed and mitigated to acceptable levels.

2. This EARF identifies the broad scope of the MFF and outlines the environmental, policy, procedures and institutional requirements for preparing sub-projects. The executing agency (EA) will be the Department of Works (DoW) and the implementing agencies (IA) will be the Highlands Road Management Group (HRMG) and National Roads Authority (NRA) (for road maintenance). The implementation of Project 2 will be managed by the DOW's project implementation unit (PIU) supported by a construction supervision consultant (CSC). The detailed design of subprojects for future tranches (Project 3 and Project 4) will be undertaken by a design consultant (DC) in coordination with the DoW.

3. As per MFF procedures funding from ADB will be released in stages (tranches). The program will focus on the development and maintenance of Highlands Region roads, part of the Highlands Core Road Network (HCRN). Project 2 will be focused on rehabilitation and upgrading of three road sections comprising 118 km of the HCRN.

B. SCOPE OF APPLICATION OF THE EARF

1. Requirements for a Multi-Tranche Financing Facility

4. Under the ADB's MFF loan procedures implementation of safeguards will follow the requirements of GoPNG's legal framework plus any additional requirements of ADB's Safeguards Policy Statement 2009 (SPS). The general process requires for each sub-project; (i) an initial screening and categorization; (ii) preparation of an environmental assessment including the identification and establishment of required environmental mitigation and management measures; and (iii) monitoring of compliance with the approved measures. As a consequence the adoption of the SPS in June of 2009, this EARF is an update of the previous HRRIIP framework prepared to comply with the then prevailing ADB Environmental Policy 2003. This updated EARF also incorporates lessons learned from Project 1 and proposes improvements to further streamline environmental safeguards in sub-project implementation.

2. Lessons Learnt from Project 1

5. During the implementation of Project 1 several issues and concerns have been raised. These experiences will serve as lessons learnt and have been identified in this EARF so that they can be integrated in updated procedures for Project 2. The primary lessons learnt in the implementation of Project 1 involve the (i) contractor's performance in environmental management; and (ii) establishment of a grievance and redress mechanism.

6. The preparation of the construction environmental management plan (CEMP) and its subsequent approval took longer than expected, in addition compliance with the CEMP was not

consistent. Works had already commenced prior to the approval of the CEMP. This was primarily due to the fact that the contractor did not identify the need for an environmental and safety officer (ESO) until late in implementation and when the ESO finally took up their position they proved to be unfamiliar with the environmental requirements of the contract. The Project 1 CSC did not mobilize its environmental specialist in a timely or efficient manner and there was no environmental officer in the PIU available to provide assistance to Project 1. Hence there was little instruction or guidance given to the contractor in the environmental aspects of the contract.

7. These shortcomings were subsequently addressed through the deployment of national environmental specialists to both the CSC and the PIU, with further guidance being provided by the DC responsible for designing and preparing Project 2 though its international environmental specialist.

8. To address the failures in environmental safeguards application evident in Project 1, a much enhanced environmental management capability has been proposed for Project 2. This includes providing for long term capacity building in environmental management for DoW and the DoW's existing environmental management unit (EMU).[1] This will include; under output 4 of Project 2; expansion of the EMU by two additional staff (covering environmental and social safeguards) and inclusion of an international environmental specialist on the CSC team who will provide concentrated training and awareness raising in year 1 and year 2 of Project 2 implementation, reducing to shorter inputs in year 3 and year 4.

9. Under Project 1 there was no definitive grievance and redress mechanism (GRM) established for the works; there was no prescribed procedure developed in either the initial environmental examination (IEE) or resettlement plan (RP) prepared for Project 1 sub-projects. Complaints, issues and concerns from stakeholders were received by the contractor's site office or DOW and handled in an ad hoc manner as a formal mechanism has not been established to resolve issues and complaints.

10. A GRM is proposed for Project 2 and is discussed in Section 4 of this EARF of this EARF. The implementation of the GRM will be monitored by the PIU and the findings included in the monthly environmental monitoring reports.

3. Scope of the EARF

11. In compliance with the criteria established in the SPS; subprojects identified under Project 2 will be classified as Category B because the potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be readily designed. The appropriate level of assessment for category B subprojects is IEE. As described in detail below, the Program also must comply with the environmental regulations of GoPNG which are derived from the Environment Act 2000. The Environment (Prescribed Activities) Regulation 2002 (EPAR) categorizes designated projects that need environmental assessment as "Prescribed Activities" according to the anticipated potential environmental impact. Projects that likely to have significant adverse environmental impact (Level 2 and Level 3) are required to obtain an Environmental Permit (EP) from the Department of Environment and Conservation (DEC) following environmental assessment.

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[1] The EMU was established under an earlier project but has never been staffed with more than one environmental specialist who is also the manager of the unit.

12. The EARF covers:

- Scope of works proposed under Project 2 and anticipated environmental impacts;
- Preparation, review and clearance of environmental assessment documents;
- Preparation of the environmental management plan (EMP);
- Requirements for public consultation and disclosure;
- Grievance redress mechanism;
- Monitoring and reporting; and
- Institutional arrangements and budget.

C. LEGAL AND POLICY FRAMEWORK

1. Papua New Guinea Environmental Regulations

13. Environmental impact assessment and management in PNG is addressed by the Environment Act 2000 (The Act) and its accompanying regulatory instruments including the EPAR, and the Guideline for Conduct of Environmental Impact Assessment and Preparation of an Environmental Impact Statement 2004. The Act and regulations are administered by the DEC.

14. The EPAR categorizes projects as “Prescribed Activities” in two schedules according to the anticipated potential environmental impact. Schedule 1 consists of Level 2 activities that are further subdivided into two categories Level 2A or 2B activities, with Level 2B creating more impact than Level 2A but less than Level 3. The Level 3 requirements will be triggered if an investment is 50 million Kina or more.

15. There is no specific listing in the “Prescribed Activities” covering the upgrading or rehabilitation of existing roads. However, ancillary activities to the works such as quarrying, and/or extraction of gravel may require an EP. Therefore the IEE will be submitted to the EMU for review and a copy sent to DEC for notification and determination on need for an EP. The contractor will be advised of this possibility and be responsible for determining specific DEC requirements together with any necessary submission for obtaining the requisite EPs.

2. ADB Safeguard Requirements

16. The implementation of Project 2 will also need to comply with and fulfill the environmental safeguards requirements of ADB. The SPS sets out the policies and principles for the protection of the environment and communities.

17. The SPS requires that through a process of screening, categorization and assessment the HRRIIP will (i) reflect fully the policy objectives and relevant policy principles and safeguard requirements governing preparation and implementation of projects and/or components; (ii) explain the general anticipated impacts of the project and/or components; (iii) specify the requirements that will be followed for information disclosure, meaningful consultation, and grievance redress mechanism; (iv) describe implementation procedures and responsibilities, including budgets, institutional arrangements, and capacity development requirements; and (v) specify monitoring and reporting requirements.

18. This will be achieved through the identification of the impacts and the establishment of appropriate mitigating measures to minimize, or if at all possible, eliminate the adverse impacts

of the development and/or provide compensation for impacts that cannot be avoided, as established by the process and procedures included in this EARF.

19. The ADB will review, evaluate and assess the capacity of the borrower/client to properly manage the environmental and social impacts and risks of the HRRIIP and to implement the relevant national laws and regulations and the ADB requirements.

20. If gaps are identified relative to the existing national laws for safeguards and ADB requirements or if there are apparent gaps in the borrower/client capacity, details of the specific requirements to fill gaps will be incorporated in the EARF to ensure that the policy and principles of the SPS are complied with.

D. SCOPE OF WORKS IN PROJECT 2

21. Project 2 includes the rehabilitation and upgrading of three existing roads: (i) Ialibu to Kagua Road located in the Southern Highlands province; (ii) Kotna to Lapramp Road in the Western Highlands; and (iii) Mendi to Tambul Road located in the Western and Southern Highlands provinces. The proposed works will be similar to those under Project 1, with variations in the rehabilitation works for bridges. The works will be contained in the existing corridor of the roadways.

1. Proposed Works for Project 2 Subprojects

22. The rehabilitation and upgrading of the roads would approximately take 24 months per package and would involve the following activities:

- Transport, handling and storage of construction materials and machinery to site;
- Preparation of Contractor's and CSC's campsites;
- Establishment of ancillary facilities, i.e. identification and establishment of suitable material sources/quarries, batching, crushing and asphalt plants;
- Clearing and grubbing (shoulders and drainage);
- Excavate defective sections and improve side drains as required;
- Excavation and/or filling to widen the existing road bench;
- Culvert removal, installation, extension and/ or replacement;
- Construct masonry retaining walls;
- Construction of gabion protection works;
- Rehabilitate bridges which may include installation of new steel decks if necessary, removing rust and repainting;
- Backfill and compact as required;
- Layout sub-base and base materials;
- Install road furniture required (guardrails, pavement markings, etc.); and
- Pave roadway.

2. Anticipated Environmental Impacts

23. The environmental impacts projected in the implementation of the Project 2 Roads will be generally insignificant as the works only involve rehabilitation and upgrading of existing roads within the existing corridor based on experience gained from the implementation of the Project 1 Roads. There are some locations where there will be trimming of trees or work on the edges of agricultural land near the road to control land slips and construct the improved carriageway. The

potential environmental impacts associated with the subprojects particularly occur during the construction and operation phases, which will typically involve:

- Earthworks. The land for the roads can be subject to heavy rains and soil erosion problems can be expected in most areas. Soil erosion control measures will be undertaken to minimize the possibility of loss of useful soil resources. Clearing and grubbing activities for the establishment of the required facilities, quarries, camps and offices will result in loss of vegetation which may further result in soil erosion and increased sedimentation of nearby water bodies; Impairment of water quality from uncontrolled runoff from the operation of quarry and material fill sites may also contribute to the sedimentation of waterways if not properly managed;
- Air Quality. Major earthworks are not expected but there is possibility of increasing dust during construction. The impact of residual emissions is not expected to be significant because these will be for a very short duration.
- Noise. Construction activities may cause noise impacts for a short duration. Nonetheless, all mechanical equipment (e.g., excavators, drills, stone crushers, concrete mixers).
- Surface Water. The main concerns are primarily related to construction run-off from unprotected cleared areas, spillage and leakage from storage sites and machines, and domestic sewage from the temporary camps for workers;
- Use of Bitumen. Fumes from bituminous chemicals may have an impact if not properly mitigated. In general, the fumes are likely to be well dissipated in the open terrain and are unlikely to accumulate to nuisance levels. Improper handling of these materials may result to pollution of the surrounding areas; Nearby water bodies and aquifers may be contaminated by the stored materials if improperly handled; Contamination of the soil may occur as a result of this activity. The application/utilization of bitumen during the works may also present a health risk to the workers;
- Social and health impacts. Created by establishment of a construction camp in an area for two years and employment of people from outside of immediate village areas.

24. This EARF has been prepared to provide a general framework and guidance for the future subprojects that will arise, the assessment to be prepared for each sub-project will provide a site-specific plan for mitigating measures to avoid or reduce impacts of proposed works and the contractor will further detail their construction methodology in the CEMP. During the rehabilitation and upgrading works, it shall be ensured that the contractor strictly implements the approved CEMP and that the contractor employs the best engineering practices in the works to eliminate or adequately mitigate the adverse impacts that will accrue from the implementation of the works.

E. PREPARATION, REVIEW AND CLEARANCE OF ASSESSMENTS

1. Environmental Criteria for Sub-Project Selection

25. In selecting subprojects, a set of selection criteria including environmental consideration will be used for the first level of screening. A candidate subproject should meet the following environmental related conditions:

(i) Is an existing or former road (i.e. a road bench exists and restitution of a trafficable road will not require major earthwork or construction of structures);
(ii) Has the support of the local population and the district and provincial administrations;
(iii) Does not require removal of permanent structures;
(iv) Is on Government land, or there is an agreement with the affected community that allows (a) use of land for road improvement works initially, and (b) acquisition of land after going through the necessary procedures and payment of required compensation;
(v) Does not endanger or provide access to at-risk flora and fauna; and
(vi) Does not have any other significant adverse environmental and social impacts;

26. By conducting the first level screening the chances of having significant adverse environmental impacts are unlikely. The environmental assessment process to be applied will confirm this or recommend necessary work. All subprojects with category A and B will be subject to environmental assessment.

2. Subproject Screening and Categorization

27. As prescribed in the criteria established in the SPS, all sub-projects will be screened and categorized based, at the minimum, on the preliminary design and sufficient information to assess the extent and scale of the works that will be undertaken and the projected significance of the environmental impacts. Based on this the environmental categorization of each subproject can be determined and the level of environmental assessment required can be identified.

28. For sub-projects that will be classified as Category A, an environmental impact assessment (EIA) report will need to be prepared. Moreover, at the minimum, two rounds of public consultations will need to be conducted and documentation of these consultations incorporated in the EIA. The EIA or its summary will need to be made available to the ADB's Board of Directors and general public at least 120 days before Board consideration of the Project. Similar disclosure procedure will also apply to Category "B Sensitive" subprojects (i.e. subprojects that will affect ecologically sensitive environment such as national parks, conservation areas, forests, sensitive marine protected areas).

29. The works proposed under Project 2 are similar to those created under Project 1 and as such are site-specific, few if any impacts are irreversible and mitigation measures for anticipated impacts can be made readily, therefore Category B is the appropriate categorization with IEE as appropriate level of assessment.

3. Environmental Assessment

30. Environmental assessments based on the requirements of the SPS will need to be prepared for each and every sub-project that will involve physical works. As per the SPS, the assessments will cover the items listed below (refer to Appendix 1 for detail):

- Introduction to the Program, Project and subprojects (components);
- Description of the existing legal and policy framework for environmental protection and management;
- Description of the subproject works and timeframe for the implementation;
- An assessment of the pre-construction, construction and operation impacts on physical and biological environment including water quality and habitat, as the roadways are already existing and is not likely that rare, threatened, or endangered species, and ecologically-sensitive habitats will be affected by the subprojects but this should be confirmed in the assessment;
- An assessment pre-construction, construction and operation impacts on socio-cultural and economic environment , including identification of possible physical cultural resources (PCR) at materials sources/sites;
- Identify potential impacts of climate change on the subprojects, and recommendations for adaptation measures to climate proof or increase resilience in project design;
- Detailed measures to mitigate impacts to acceptable levels in a targeted and specific EMP. The EMP will include (i) mitigations measures; (ii) institutional arrangements; and (iii) monitoring requirements and plan;
- Documentation of the public consultations with affected people and stakeholders in based and in coordination with specialists preparing the social assessments and resettlement plans (if required) and establish procedures for disclosure of the draft environmental assessments;
- Based on the experience gained from the previous Project, establish procedures for a grievance redress mechanism;
- Conclusions and recommendations.

31. The DoW, through the EMU, will be responsible for the implementation of the entire environmental assessment and review procedures and for selecting additional subprojects. This will include, but not be limited to, ensuring that the EARF procedures are strictly adhered to, and that preparation of assessment will be carried out in a timely and adequate manner, environmental monitoring and institutional requirements will be fully met while meaningful public consultations will be carried out satisfactorily. DoW will submit the IEEs and monitoring reports to ADB for review in a timely manner. The ADB will review and clear all assessments prepared. The assessments will be prepared following ADB prescribed format (Appendix 1) which also complies with requirements of Environment Act and EPAR.

32. The DoW through the PIU will submit the IEEs to DEC for the requisite notification and should DEC require an EP for the subproject, DoW will apply for an EP and will be the Permit Holder on record for the subproject. Ancillary activities such as establishment of materials sources and quarries which the contractor will require for works will require an EP from the DEC.

33. As such the contractor is obligated to apply and secure and EP prior to the establishment of the materials sources and quarries. In this context, the Contractor will be the

EP holder for the said activities. It should be emphasized that it is the contractual obligation of the Contractor to comply with the regulatory requirements of the GoPNG. Training and induction relevant to the environmental regulations of the GoPNG will be provided to the contractor after the contract is awarded by the CSC together in coordination with the DoW.

34. All assessment and monitoring reports will be disclosed following ADB's Public Communications Policy and will be uploaded to ADB's website upon clearance. During the assessment at least one public consultation will be conducted with local community (beneficiaries and affected people), small businesses, the local and national government, and other stakeholders.

35. DoW through the EMU will be responsible for ensuring that environmental assessments are prepared, and EMPs are implemented for subprojects as outlined in this framework. The assessment reports should be submitted to ADB together with the Periodic Financing Request (PFR) for review and approval prior to commencement of any work proposed under the Project. DoW through the EMU-DoW will monitor the progress of the environmental work stream to ensure that environmental safeguards as set out in this EARF are implemented and Project 2 complies with country safeguards requirements and the SPS. The assessments and other relevant project information will be disclosed to the local community before commencement of any civil works as stated in Section G of this EARF.

F. REQUIREMENTS FOR ENVIRONMENTAL MANAGEMENT PLANS

1. Environmental Management Plans

36. The EMP should be a result of the environmental assessments that will be prepared for sub-project. The EMP provides the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

- **Mitigation**: (a) identifies and summarizes anticipated significant adverse environmental impacts and risks; (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.
- **Monitoring**: (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and(b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

- **Implementation arrangements**: (a) specifies the implementation schedule showing phasing and coordination with overall project implementation; (b) describes institutional or organizational arrangements, namely, who is

responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan; and (d) performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

37. The EMP included in the IEE will be updated as required based on detailed design. The DoW will include the requirements of the updated EMP, along with all other relevant safeguards provisions, in the bid documents. Where modifications to designs are incorporated at a later stage, additional or further updated assessments (including EMPs) IEEs will be prepared and submitted to ADB for review and clearance.

2. Contractor Environmental Management Plan (CEMP)

38. Based on the EMP included in the approved IEEs, at the onset of project implementation, model construction contracts will be prepared which incorporates the general environmental safeguards and practices required for the development. These will be modified specific to each subproject to ensure that all special or particular safeguard requirements and mitigation measures, recommended in the EMP provisions based on detailed design, are incorporated within the contract of each subproject. The DoW will also allocate sufficient resources to supervise EMP implementation including monitoring of the environmental mitigation measures of all construction contracts. Further, the contractor will be provided with the necessary training on the preparation of the CEMP, safeguards requirements of the ADB and the requisite environmental regulations of GoPNG especially those that relate to the materials sourcing and opening and operation of quarries. This will be undertaken by the PIU-EMU of the DoW supported by the CSC.

39. Based on the EMP included in the bid documents the contractor, after receiving induction training, will be prepare a CEMP which will specify the construction methodologies they will use and identify where materials (such as aggregates and gravel) will be obtained from. The CEMP will respond to the mitigation and monitoring measures stipulated in the contract (as adapted from the IEE/EMP).

40. The CEMP will set out how the contractor will achieve environmental safeguards, identify the staff designated with responsibility for ensuring and reporting CEMP implementation including implementation of the GRM. The CEMP will also establish how the contractor will report on CEMP implementation and corrective actions as part of Monthly Reporting to DOW. The contractor may only move to the site and commence work after the CEMP has been reviewed and approved by DoW.

G. CONSULTATION AND INFORMATION DISCLOSURE

41. As required by the SPS and Public Communications Policy (2011) of the ADB, communities and stakeholders are to be consulted as part of project preparation and implementation and relevant project information is to be disclosed publically. Consultations will be undertaken as part of the environmental assessment and poverty and social assessment

processes as well as for preparation of social safeguard documentation such as resettlement plans. The safeguards documents will record the consultations including date, locations and number of participants (male and female) for all meetings, main issues raised and response to those issues or concerns.

42. Disclosure of environmental and social safeguards documents procedures of the ADB require that (i) DoW ensure that all environmental assessment documentation, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of the project-specific record; (ii) all environmental documents are subject to public disclosure, and therefore may be made available to public, on request; (iii) for category A and B-sensitive subprojects, the documents will be publicly disclosed through ADB's website 120 days before a PFR is submitted to ADB, and (iv) DoW will consult the public, particularly the project affected persons. Moreover, disclosure of relevant environment safeguards documents will be in an appropriate form, manner, and language and at an accessible location to be understandable to the affected people and local stakeholders.

H. GRIEVANCE REDRESS MECHANISM

43. There was no definitive GRM established for Project 1 of the HRRIIP. During the course of the project it is possible that people will have, concerns with the project's environmental performance including the implementation of the EMP. Issues may occur during construction and again during operation. Any concerns will need to be addressed quickly and transparently, and without retribution to the AP. The GRM that will be established for Project 2 will take into consideration lessons learnt from Project 1 despite the absence of such a mechanism and the requirements of the DEC.

44. The following process is to be used and commences with an attempt to resolve the problem directly at sub-project level. If this cannot be achieved then the grievance moves to the resolution process outlined in Section 87 of the Environment Act. This procedure is for addressing environmental issues. Any grievances dealing with land and compensation issues are to be directed to the Department of Lands (DoL) which has established procedures for dealing with these issues.

1. During Construction

- Most complaints arising during construction are expected to be minor complaints concerning dust or noise that should be able to be resolved quite easily and acted upon immediately at the sub-project level by the Resident Engineer (RE). Where the complaint is of a more serious nature the RE has up to two days to resolve the compliant.

- AP are initially to discuss their complaint directly with the Ward Councillor in their village. If the Ward Councillor supports the complaint both persons take the complaint to the RE who will review the complaint within two days. All complaints arriving at the site office are to be entered in a register that is kept at site by; date, name, contact address and reason for the complaint. A duplicate copy of the entry is given to the AP for their record at the time of registering the complaint.
- The register will show who has been directed to deal with the complaint and the date when this was made together with the date when the AP was informed of the decision and how the decision was conveyed to the AP. The register is then signed off by the person who is responsible for the decision and dated. The register is to be kept at the front desk of the Site Office and is a public document. The duplicate copy given to the AP will also show the procedure that will be followed in assessing the complaint, together with a statement affirming the rights of the AP to make a complaint. For anybody making a complaint no costs will be charged to the AP. If the complaint of the AP is dismissed the AP will be informed of their rights in taking it to the next step. A copy of the decision is to be sent to the PIU.
- Should the AP not be satisfied, the AP may take the complaint to the Secretary of the Environment and Conservation (SEC) and continue the grievance in accordance with Section 87 of the Environment Act 2000 - procedure for dealing with compensation claims for environmental impacts. The procedure is set out as follows:

    - The AP meets with EP holder to formally register concern over impact and seek redress. A copy of the alleged impact is submitted to SEC.
    - EP holder has to determine whether the impact has occurred due to its activities.
    - If EP holder accepts responsibility for the impact, it can negotiate a mutually acceptable settlement with AP within 90 days.
    - If EP holder rejects responsibility for the impact, AP can request DEC to carry out a verification investigation.
    - If SEC confirms that the impact has occurred, he/she will advise the EP holder and AP to negotiate a settlement within 90 days.
    - If a negotiated settlement is not reached, the EP holder or AP can request SEC to formulate a determination. Once this request is made, SEC will have 90 days to reach a determination. If either party is dissatisfied with the determination, they can appeal to the National Court.
    - Should the AP not be satisfied with the ruling of the SEC, the AP may at their discretion take the grievance to the PNG judicial system. This will be at the AP's cost but if the court shows that the SEC or the administration have been negligent in making their determination the AP will be able to seek costs.

- All of the foregoing steps will be recorded in an inventory/register and included in Monthly Reports and will be subject to monitoring.

2. During Operation

45. The same procedure is followed except that the complaint is now directed to the NRA which will be responsible for making the improved road to rectify. During operation the same conditions apply; i.e. there are no fees attached to the AP for making a complaint, the complainant is free to make the complaint which will be treated in a transparent manner and the AP will not be subject to retribution for making the complaint.

I. MONITORING AND REPORTING

1. Monitoring

46. An integral part of environmental protection is ensuring compliance with the approved CEMP and periodic monitoring of the condition of the immediate environment to ensure corrective actions required are implemented as quickly as possible and to determine any occurrence of undesirable changes as a result of the project during construction and operation phases. The monitoring program will be conducted on two levels (i) compliance monitoring and (ii) baseline and conduct of monitoring to determine the extent of variations and changes in the levels of pollutants in the environment and other parameters and indicators considering the implementation or operation of the project.

47. The environmental monitoring activities in the current Project 1 roads (Laiagam to Porgera and Mendi to Kandep) are being undertaken by the environmental specialist recruited under the CSC. An officer tasked with environmental management in the Hagen-based PIU has no involvement in the activities. The PIU-Hagen is provided an informal and unofficial copy of the monthly environmental monitoring reports which are officially submitted to the Project Director in Port Moresby.

48. The EMU-DoW will have overall responsibility for the management, monitoring and reporting for the implementation of the EMPs for Project 2 and will be supported by the CSC. The existing EMU will be expanded to include an Environmental Officer (EO) and Social Officer who will receive training and capacity building from the Manager-EMU and international environmental specialist (IES) assigned to the CSC. The EO will be responsible for liaising with the contractor and providing training, advice and assistance in the preparation of the CEMP and its implementation as well as assisting the EO in monitoring and reporting on implementation.

49. Monitoring will relate to compliance with construction contracts (including EMP measures and provisions), the state and health of the nearby environmental resources, and the effectiveness of mitigation measures and complaints. Monthly progress reporting will include a summary of the environmental monitoring report submitted to the DoW on a monthly basis and to ADB semi-annually. Table 1 below provides the key tasks for environmental monitoring that will be incorporated into the EMP.

TABLE 1 - KEY TASKS FOR ENVIRONMENTAL MONITORING

No.	Environmental Monitoring Tasks	Implementation Responsibility	Implementation Schedule
1	**Design Phase**		
1.1	Disclosure of subprojects to DEC and monitor permitting	DoW-EMU (EO) and CSC	Prior to construction
1.2	Audit project bidding documents to ensure IEE and EMP included in bids and environmental criteria are included in evaluation	DoW-EMU (EO) and CSC, ADB	Prior to issue of bidding documents
2	**Construction Phase**		
2.1	Training and briefing of contractor's management, site agents with regards to all IEE and EMP requirements	DoW-EMU (EO) and CSC Contractor	First training prior to preparation of CEMP and commencement of each contract and refresher courses at yearly intervals throughout construction period
2.2	Monitor the performance of environmental training by contractor and briefings and of the environmental awareness of Contractors staff, tool box talks and & refresher courses. Contractor to report on CEMP implementation in Monthly Reports	DoW-EMU (EO) and CSC Contractor	Ongoing, prior to and during implementation of works and operation
2.3	Regular (monthly) monitoring and reporting (quarterly) of contractor's compliance with CEMP and statutory environmental requirements	DoW-EMU (EO) and CSC	Continuous throughout construction period
2.4	Regular (monthly) monitoring and reporting (quarterly) of complaints and responses or environmental mitigation measures	DoW-EMU (EO) and CSC	Continuous throughout construction period
2.5	Monitor adjustments to the CEMP for unexpected impacts and the thorough implementation of detailed CEMP	DoW-EMU (EO) and CSC	During all phases of the subprojects
2.6	Commissioning phase monitoring of road maintenance and facilities versus environmental contractual performance criteria. Check EP compliance	DoW-EMU (EO) and CSC	At commissioning
3	**Operation and Maintenance Phase**		
3.1	Observations during routine maintenance inspections of facilities. Inspections will include monitoring implementation of operational mitigation measures versus environmental criteria specified in EMP for operational impacts	DoW-EMU (EO) and CSC	As per HRMG inspection schedules
3.2	Post construction monitoring of water quality at any sites where complaints about air/noise/water quality from works were justified in construction phase	DoW-EMU (EO) and CSC	Monthly up to 3 months after completion of construction or until air/noise, water quality meets baseline conditions
3.3	Monitoring survival of trees / shrubs and grass in bioengineered slopes (e.g. at landslides, also transplanted / compensatory planted trees)	DoW-EMU (EO) and CSC	During the first three years after installation or rehabilitation

2. Reporting

50. The EMU-DoW will be the primary entity responsible for reporting progress of Project 2 to DoW and ADB. Monitoring will include review of contractor's monthly reports which will cover progress of CEMP implementation and compliance (including general good practice). A section on safeguards activities and compliance with the CEMP for each subproject will also be included in quarterly progress reports (QPR) prepared for DoW and ADB.

51. The reporting will be as per the following schedule:

- A monthly report prepared during construction by the contractor reporting on progress of CEMP activities, issues and corrective actions;
- A report prepared every three months (the QPR) prepared by the DoW and CSC. The QPR will include a section on safeguards activities and CEMP compliance for each subproject and will summarize the monthly reports submitted by the contractor and any actions or citations made by the Resident Engineer;
- A semi-annual safeguards monitoring report (prepared every six months and disclosed on ADB's website per paragraph 42 above) by the DoW and CSC, submitted to ADB and disclosed; and
- The project completion report will include a section on safeguards implementation and make recommendations as required for modifications to the processes set out in the EARF and EMP procedures based on the review undertaken at the end of the project The safeguards section will be prepared by the DoW-EMU (EO) and CSC three months prior to the end of Project 2.

J. INSTITUTIONAL ARRANGEMENTS AND BUDGET

1. Roles and Responsibilities

52. The Program will have oversight by a steering committee. The EA of the Program will be the DoW. The DoW's PIU will be responsible for daily management and implementation of the subprojects under Project 2 and will be supported by the CSC. The DoW's EMU will be responsible for coordinating implementation of the EARF. This will include, but not be limited to ensuring that (i) the EARF procedures are strictly adhered to and that preparation of environmental assessments will be carried out in a timely and adequate manner, and (ii) environmental monitoring and institutional requirements will be fully met while meaningful public consultations are carried out satisfactorily. DoW will submit the categorization, environmental assessments, and monitoring reports to ADB for review in a timely manner. Table 2 provides the responsibilities and authorities of key organizations involved in the implementation of the EARF.

53. The existing EMU will be expanded by two staff, one of which will be the EO. During implementation the EO will be supported by the IES and receive training so as to build longer term capacity in DoW for environmental management. The primary environmental management tasks will be to provide environmental safeguards training to DoW staff and the contractor and strengthen the environmental management of the Project. The EMU will also provide support and training to the HRMG's unit based in Mt Hagen.

54. The EO (and IES) will be tasked to (i) strengthen the environmental management of the Project during contract process, construction, and implementation, (ii) provide induction training to contractors prior to preparation and submission of the CEMP for each subproject; (iii) provide assistance for review and clearance of the CEMPs; (iv) monitor compliance with the approved CEMP of each subproject; (v) prepare reports on environmental safeguards activities as required; and (vi) supervise and guide the environmental assessment process for subprojects to be implemented in the subsequent tranches as part of the PFR. Table 2 presents the institutional responsibilities for the implementation of the environmental safeguards for Project 2.

Table 2 - Institutional Responsibilities for Environmental Safeguards for Project 2

Organization	Implementation Responsibilities
DoW through the EMU-DoW EO with assistance from the IES	Prior to the commencement of civil works the EMU-DoW will: ▪ Submit any of the environmental assessments required for regulatory approval of the DEC and obtain approval, e.g., environmental clearance, environmental permit or permits from other statutory authorities as required by the Government. ▪ Ensure that all regulatory clearances for the subproject that are obtained from the relevant Government authorities are submitted promptly to ADB. ▪ Ensure that the required mitigation measures during construction, the IEE and the EMP are included in the bidding document of the subproject and that all bidding contractors have access to the environmental assessments and EMP. ▪ Ensure that the EMP and all required mitigation measures during construction, including conditions stipulated in the DEC's clearance or environmental permit, are included in all the contracts signed by the Contractor(s) with requirements to update the EMP in response to any unexpected impacts and that all selected contractors have agreed the to implement the full suite of environmental mitigation measures prescribed in the EMP. ▪ Receive environmental safeguard clearance on subproject(s). ▪ Provide training to contractor for preparation of CEMP, safeguards requirements of ADB and regulatory requirements of DEC. ▪ Review and clear the contractors CEMP for each subproject During the implementation of civil works the EMU-DoW will: ▪ Ensure that a CEMP including all proposed mitigation measures and monitoring programs and relevant provisions of the environmental assessments is updated as required, and is properly implemented by the contractors; ▪ Provide training as required to DoW and HRMG's unit in Mt Hagen; ▪ Monitor the implementation of CEMP and submit the monitoring reports to DoW and ADB. ▪ In case unpredicted environmental impacts occur during project implementation, inform ADB, review the CEMP with the contractor, and implement alternative environmental mitigation program. In case a subproject changes in scope, inform ADB and reconfirm the environmental classification, determine whether a supplementary IEE is required, and carry out the study including the requirement for information disclosure and public consultation; ▪ Submit the requisite reports on progress with social and environmental compliance and implementing the CEMP as required by the DEC/ADB; ▪ Ensure that ADB be given access to undertake environmental due diligence for all subprojects. However, the EMU-DoW will have the main responsibility for undertaking environmental due diligence and monitoring of all the subprojects. The due diligence report as well as monitoring reports on CEMP implementation, as required, will be systematically prepared and be made available to the public, if requested

Organization	Implementation Responsibilities
ADB	▪ Review and approval of subproject IEEs and EIAs. Provide technical guidance to the DoW/EMU as needed. ▪ Reviewing regular and quarterly monitoring reports and disclosing the environmental assessments and monitoring reports including uploading to the ADB website. ▪ Review environmental assessment reports as a basis for subproject approvals. Disclose assessments of category A subprojects, and category "B sensitive" subprojects for 120 days via ADB websites (as required) before a PFR is submitted to ADB. ▪ Monitor the EMP implementation, as required, and conduct due diligence as part of MFF reviews. ▪ Provide assistance to DoW/EMU, if required, in carrying out its responsibilities and for building capacity for safeguard compliance. ▪ Ensure that the DoW/EMU will conduct the required consultations with project affected groups and local NGOs, and that the DoW/EMU as project sponsor disclose relevant environment information on the project's environmental issues in an appropriate form, manner, and language(s) accessible to those being consulted. Such information disclosure with affected. people will be guided by the Public Communication Policy (2011)
Contractors	▪ Participate in training delivered by DoW and based on site specific conditions, prepare Contractor's Environmental Management Plan (CEMP) for each site ▪ Implement and report on CEMP as part of the rehabilitation and upgrading works ▪ Prepare monthly CEMP report as part of progress reports and submit to EMU-DoW. The report will also include the Monthly Accident Report and measures undertaken to address any non-compliance issues identified by the EMU-DoW or DEC. This will include any grievances made and actions taken to resolve the grievance
DEC	▪ Administration and enforcement of the Environment Act 2000 and its regulations as it pertains to the project Identify whether EPs (with or without conditions) required for any identified site ▪ Review IEE and other documentation required ▪ Administer Contractor Waste Disposal permit applications and performance
DoW through support from the Design Consultant (DC)	Prior to the <u>submission of the PFR for subsequent projects</u> the EMU-DoW, through the DC, will: ▪ Prepare the environmental assessments (IEE or EIA), including an Environmental Management Plan (EMP) for each subproject and submit to ADB and public disclosure. ▪ Ensure that adequate public consultation has been undertaken with affected groups and local stakeholders review the environmental assessments and submit the IEE/EIAs documents as required, to ADB. ▪ Ensure that adequate public consultation has been undertaken with affected groups and local stakeholders review the environmental assessments and submit the IEE/EIAs documents as required, to ADB. ▪ Submit the necessary environmental assessments to ADB in sufficient time to permit the necessary disclosure by ADB. ▪ Undertake the necessary actions to ensure environmental compliance with the GoPNG's and ADB's requirements;

55. The IES will be engaged on an intermittent capacity for 14 person months over the four-year period. The IES will provide a concentrated period of inputs in year 1 (6 months) and year

2 (5 months) in order that training to the EO and awareness raising of DoW staff and contractors on environmental safeguards gets traction. Project 2 will fund the two additional staff to the EMU for a period of 36 months each.

56. The EO will report directly to the Director of DoW-PIU while the IES will be part of the CSC team and report to the CSC team leader, ultimately the DoW is the client and CSC is responsible to the DoW. The EO and IES will also provide support and capacity building to the HRMG's unit based in Mt Hagen.

57. The Design Consultant (DC) will support DoW-PIU in detailed design and preparation of documentation required for subsequent tranches (Project 3 and Project 4). The DC will also include an IES who will be responsible for the preparation of the requisite environmental assessments and other environmental safeguards requirements. The DoW will allocate sufficient resources to work with the DC.

2. Budget

58. The budget needed for the environmental management and monitoring of Project 2 will be incorporated into the overall costs. The costs for environmental management and monitoring under Project 2 can be broken down into costs associated with obtaining permits, staffing, mitigation and management, and monitoring. There will be a cost in securing the services of the IES (as part of the CSC) and allocated staff as EO. The EO will be funded under the Project for 36 months, after which time DoW will be expected to provide annual budget for the additional EMU staff as part of the core annual DoW budget.

59. Implementation of mitigation measures and the conduct of the monitoring activities (e.g. lab activities, collection of samples, etc.) will be part of the construction costs, and will be included in the Bill of Quantities (BOQ) as a monthly line item for preparation of the CEMP and a provisional sum or monthly line item to cover costs of implementation of CEMP. Table 3 provides the estimate of costs for environmental management and monitoring during Project 2.

Table 3 - Estimated Costs for Environmental Safeguards Implementation - Project 2

Item	Provision	Estimated Cost (US$)
Permitting	Based on Environment Act and EPAR	50,000
Staff	PIU- EO - 36 months (full-time)	216,000
	CSC-IES - 14 months intermittent (incl. per diem and return trips)	254,420
Mitigation	EMP/CEMP measures (line item in Bill of Quantities)	1,600,000
Monitoring	As detailed in EMP (site visits etc and sampling as required)	870,000
TOTAL		2,990,420

APPENDIX 1: OUTLINE OF AN ENVIRONMENTAL ASSESSMENT REPORT

This outline is based on SPS Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical EIA report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment reports, although not necessarily in the order shown.

A. Executive Summary

This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework

This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project

This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project’s layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures

This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media, and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, trans-boundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives

This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

This section:

(i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders.

(ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and

(iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

(i) Mitigation: (a) identifies and summarizes anticipated significant adverse environmental impacts and risks; (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

(ii) Monitoring: (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the

need for corrective actions; and (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements: (a) specifies the implementation schedule showing phasing and coordination with overall project implementation; (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan; and (iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.