

Semi-annual Report

August 2020

PNG: HIGHLANDS ROADS IMPROVEMENT INVESTMENT PROGRAM (HRRIIP) – TRANCHE 3

NIPA-MUNIHU ROAD SUB-PROJECT

Prepared by Highlands Road Management Group (HRMG), Department of Works for the Asian Development Bank

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Semi-Annual Report (January-June 2020)

**PNG: HIGHLANDS REGION ROAD IMPROVEMENT
INVESTMENT PROGRAM (TRANCHE 3)
Nipa-Munihu Road Subproject**



Prepared by Highlands Road Management Group (HRMG) of the
Department of Works for the Asian Development Bank

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Abbreviations

ADB	-	Asian Development Bank
AIDS	-	Acquired Immune Deficiency Syndrome
AP	-	Affected People
CEMP	-	Construction Environment Management Plan
CRO	-	Community Relations Officer
PSC	-	Project Supervision Consultant
DBST	-	Double Bitumen-layer Surface Treatment
DC	-	Design Consultant
DOW	-	Department of Work
EA	-	Executive Agency
EMP	-	Environmental Management Plan
EO	-	Environmental Officer
ESSU	-	Environment and Social Safeguards Unit
GoPNG	-	Government of Papua New Guinea
GRC	-	Grievance Redress Committee
HCRN	-	Highlands Region Core Road Network
HIV	-	Human Immunodeficiency Virus
HRMG	-	Highlands Road Management Group
HRRIIP	-	Highlands Region Road Improvement Investment Program
IA	-	Implementation Agency
IEE	-	Initial Environment Examination
ISS	-	International Safeguards Specialist
LLG	-	Local Level Government
MFF	-	Multi-tranche Financial Facility
MOA	-	Memorandum of Agreement
NRA	-	National Road Authority
NTU	-	Nephelometric Turbidity Unit
pH	-	Hydrogen Ion
PNG	-	Papua New Guinea
PRO	-	Public Relations Officer
PWM	-	Provincial Works Manager
ROW	-	Right of Way
RP	-	Resettlement Plan
SHP	-	Southern Highland Province
SIS	-	Socio-economic Impact Study
SPS	-	Safeguard Policy Statement
STDs	-	Sexual Transmitted Diseases
TOR	-	Terms of Reference

FACT SHEET:

Loan	ADB Loan: 3404/3408 and Grant 0485 PNG
Project Number	CSTB 3531
Subproject	Nipa-Munihu Road Subproject
Executing Agency	The Department of Works (DOW) is the executing agency for the Highlands Region Road Improvement Investment Program (HRRIP). It has overall responsibility to manage the planning, implementation and monitoring for all road improvement works including environmental management and environmental compliance monitoring. It also includes the acquisition of use rights for additional land to implement HRRIP subprojects, as well as compensation for damages on project-affected land DOW is also responsible for reporting to ADB and the recruitment of the organization to conduct independent monitoring
Implementing Agency/Unit	<p>The DOW will also be the Implementing Agency for the road improvement works. The DOW has delegated to the Highlands Road Management Group (HRMG), the responsibility to carry out the planning, implementation and monitoring for environmental management and environmental compliance monitoring, land acquisition and/or resettlement activities, as required. The more relevant delegated responsibilities include the following;</p> <p>Prior to the commencement of civil works:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Submit and indorse environmental assessments required for regulatory approval of the CEPA and require the Contractor to obtain approval, e.g., environmental clearance, environmental permit or permits from other statutory authorities as required by the Government. <input type="checkbox"/> Ensure that all regulatory clearances for the subproject are obtained from the relevant government authorities and are submitted promptly to ADB. <input type="checkbox"/> Ensure that the EMP is updated based on detailed design and included in the bidding document of the subproject and that all bidding Contractors have access to the environmental assessments and EMP. <input type="checkbox"/> Ensure that the EMP and all required mitigation measures during construction, including conditions stipulated in the CEPA's clearance or environmental permit, are included in BCD with requirements to update the EMP in response to any unexpected impacts and <input type="checkbox"/> That all selected Contractors have agreed to implement in full the requirements of environmental mitigation measures prescribed in the EMP <input type="checkbox"/> Provide training as required to HRMG in Mt Hagen and Contractor; <input type="checkbox"/> Receive environmental safeguard clearance on subproject(s). <input type="checkbox"/> Provide training to Contractor prior to preparation of CEMP, safeguards requirements of ADB and regulatory

	<p>requirements of CEPA.</p> <p><input type="checkbox"/> Approve CEMP for the subproject, after being cleared by PSC.</p> <p>During the implementation of civil works:</p> <p><input type="checkbox"/> Ensure that the CEMP including all proposed mitigation measures and monitoring and relevant provisions of the environmental assessments is updated as required,</p> <p><input type="checkbox"/> Conduct environmental management and compliance monitoring on a monthly basis in cooperation with the PSC.</p> <p><input type="checkbox"/> Review and assess the Contractor's monthly environmental monitoring report and compliances as contained in the CEMP.</p> <p><input type="checkbox"/> Assist the Engineer in the compliance of the submitted CEMP.</p> <p><input type="checkbox"/> Prepare the quarterly and semi-annual reports in cooperation with the PSC for submission to DOW and ADB.</p>
Coverage of the Semi-Annual Environmental Monitoring Report	January to June 2020

1.0 EXECUTIVE SUMMARY

1. This semi-annual environmental monitoring report covered the period from January to June 2020. This report was carried out by the DOW through the Highlands Road Management Group (HRMG) with the support from the Project Supervision Consultants and the monitoring results will be communicated to ADB through this report.
2. The Nipa-Munihi sub-project road is one of the 4 sub-projects of Tranche 3 of the Highlands Region Roads Improvement Investment Program, an ADB assisted road program. The sub-project is covered by CSTB contract # 3531 entered into by the Independent State of Papua New Guinea represented by the Department of Works and China Overseas Engineering Company LTD (COVEC China).
3. The project has commenced in December 11, 2017 with the mobilization of the Contractor. The construction period of the project is 24 months. The Long Term Performance Based Maintenance Services is 60 months from the issuance of the Performance Certificate for the Improvement Work.
4. The contractor's revised HIV/AIDS and STD Plans, Hazardous Waste Management, Sewerage Waste Management and Solid Waste Management Plans have been approved by DOW-ESSU.
5. The CEMP, Occupational Health and Safety, and Traffic Management Plans were submitted and approved by DoW-ESSU. The other plans have also been approved. These plans will be the guide for the contractor to follow and implement the road project. Failure to comply with these plans may result in the issuing of the notice of violation (NOV). The application of Notices of Violation should be an option that needs PSC and HRMG vigilance to implement best practices in environmental management. The implementation of the CEMP and the associated plans should be done and a checklist of the monthly monitoring requirements needs to be accomplished and adhere to these plans.
6. Earthworks such as clearing, grubbing, excavation and other associated works continue on both sides (Nipa & Munhiu) and for culvert installation, headwall building, stone pitching, rock walling, etc.
7. Clearing, grubbing, excavation and embankment works at both sides from Nipa to Munihi have already been completed.
8. All the environmental related grievance has been handled except for the church at Ch:6+760 which recommendations were made for payments if the section will be affected. However, any grievances outside the construction limit will be the responsibility of the contractor.
9. The contractor has purchased its in-situ monitoring equipment, but due to their 2 damaged and non-functional in-situ equipment for air quality and noise level testing, the contractor failed to conduct and comply with the the 2 parameters which is unacceptable.
10. PSC and HRMG should continue the issuance of Notices of Violation to implement best practices in environmental management.
11. It has been observed that the contractor's environmental officer failed to monitor and comply with some of the environmental monitoring parameters despite the constant reminders as these are paramount in monthly monitoring in accordance with the approved CEMP. It is the contractor's responsibility to ensure its environmental officer is physically present onsite to implement its CEMP and sub-plans.

12. Project work has progressed by laying of sub-base at CH 8+00-Ch 9+000; 19mm sealing at CH 20+100- Ch 20+400; gabions work at Ch 8+660-Ch 8+740; installing of headwall at Ch 10+361L, catch basin work at Ch 10+456R and rock wall at Ch 11+981L.
13. However, the contractor has not conducted some and most important monitoring parameters for the past successive months namely: training, mentoring and meeting which includes toolbox meeting, workers' health and safety, traffic management and other monitoring parameters applicable for monthly monitoring.
14. The contractor's needs to provide all necessary and complete quarry data to the PSC for monthly reporting as well as the quantitative data for the air quality test and noise management. Failure to do so will be recorded as non-compliance in coming monthly monitoring reports.
15. The PSC and HRMG has provided close monitoring on environmental issues including unwarranted disposition of spoils, better leaking sewages, employment of women and worker's privileges and rights were raised with the contractors. Public consultations were conduction from time to time ensuing that affected people were properly informed regarding the benefits of the road project.
16. The review by PSC and HRMG of the Quarry Management Plans should be prioritized considering the environmental impact of these activities. The use of maps to ensure that environmental best practices in soil erosion and sedimentation management are recommended. Few solid rock quarries need quarry permit from the office of Conservation Environment Protection Authority (CEPA) to operate. The contractor has yet to secure the quarry permit as they have exceeded the volume that requires quarry permit

2.0 INTRODUCTION

2.1 Background

17. The Highlands Region of Papua New Guinea (PNG), comprising the Provinces of Western Highlands, Jiwaka, Southern Highlands, Hela, Eastern Highlands, Enga and Chimbu, is a major contributor to the PNG economy through its agricultural production and mineral resources. A well-maintained road network is essential to facilitate the movement of people, goods and services. The Government of PNG (GoPNG) has made significant investments in improving the road network but a lack of maintenance has resulted in the deterioration of the roads such that the Highlands Core Road Network (HCRN) is now in poor condition.
18. In order to address the deterioration of the HCRN, there is a clear need to: (i) implement a program of regular maintenance on all HCRN roads that are in good condition; and (ii) improve those roads that are in poor condition and (iii) ensure that maintenance begins on those roads as soon as the improvement works are completed.
19. The GoPNG has negotiated a Multi-Tranche Financing Facility (MFF) loan with the Asian Development Bank (ADB) to implement the Highlands Region Road Improvement Investment Program (HRRIP) in tranches. The HRRIP includes projects to improve the HCRN, the preparation of long-term maintenance contracts for the HCRN, and the capacity development of road agencies. In total, 13 road sections are expected to be funded under the program.
20. Tranches 1 has included the improvement of two road sections and Tranches 2 is currently being implemented to upgrade three road sections while Tranches 3 is rehabilitating four

road sections including Nipa – Munihi road project. The Execution Agency (EA) for the program is the Department of Works (DOW) whilst the Highlands Region Management Group (HRMG) is the Implementation Agency (IA).

21. Tranche 3 (ADB 3043/3408 and EU Grant 0485) include the upgrading, rehabilitation and maintenance of four road sections namely, Henganofi-Napuru, Gewa-Gembogl, Pangia-Wiru Loop, and Nipa-Munihi in the Eastern Highlands Province (EHP), Chimbu Province and Southern Highlands Provinces (SHP) respectively.
22. The rehabilitation of the Nipa to Munihi road in the Southern Highlands province has a length of 27.73km. The works proposed for the upgrading and rehabilitation of the Nipa to Munihi Road such as earthworks, establishment and operation of quarry sites and extraction of materials, minor civil works and discharge of wastewater are Level 2 activities under the EPAR and requires an EP depending on the duration and scale of those activities.
23. The CEMP was approved in February 5, 2018 and the project commencement date was February 23, 2018 with the mobilization of the Contractor. The construction period of the project is 24 months. The Long Term Performance Based Maintenance Services is 60 months from the issuance of the Performance Certificate for the Improvement Work.
24. The Nipa-Munihi Road Section is covered by CSTB contract # 3531 entered into by the Independent State of Papua New Guinea represented by the Department of Works and China Overseas Engineering Group Co. Ltd (COVEC LTD).

2.2 Nipa – Munihi Sub-Project Road Description

25. The Nipa to Munihi road, located in the Southern Highlands Province, commences at the junction with the Highlands Highway in Nipa and extends to Peane junction on the Mendi – Kandep road, a distance of 27.73 km. The road connects the two electorates of Nipa-Kutubu and Mendi-Munihi with the border located Tagil Bridge at km 18+850. The road traverses hilly terrain from the commencement at Nipa to around Km 4 and again from Komal Bridge at Km 17+350 to the end of the road at Peane. The central portion of the road runs through mountainous terrain as the route crosses the Tondon Range. Within this central portion of the road the elevation rises to a maximum of 2,300 meters from the average mean sea level (amsl) to 1,950 meters at the end of the hilly sections.
26. The existing road comprises mainly of a silt clay subgrade covered with a gravel layer consisting of poorly graded limestone material which results in a rough running surface. There are also several sections where the subgrade has been exposed with no gravel layer. The road width varies from 3m to 4m in the mountainous section and 6 to 8 m in the hilly sections. Where widening of the road bench is necessary, the design is based on cutting existing slopes rather than widening embankments.



Figure 1: Location Map of Nipa Munihu Road

- 27.
28. When completed, the improved road will facilitate the delivery of services to the population and stimulate economic growth through the reduction in travel times and costs of transporting goods to markets. The impacts of the improvements in what is already a highly disturbed environment will be minimal. Improvements will generally be restricted to a maximum 3 metre wide strip each side of the existing formation and implementation of the EMP will minimize the environmental impacts during construction. Restoration of quarry and dump sites upon completion and the planting of trees are an integral part of the works.
29. The route crosses two rivers, the Nembi and the Lai River, both on Bailey bridges which are in good condition. There are 8 creeks crossing the alignment, all of which have log/timber bridges which will need to be replaced with Bailey bridges with steel deck. All of the creeks have well defined incised channels which are sufficient to contain flood flows
30. The environmental impacts assessed at the time of preliminary design categorised the subproject as Category B for environment. The same category was confirmed by the in-depth environmental analysis conducted at the time of project preparation. The Initial Environment Examination (IEE) dated April 2016 has already been disclosed in the ADB web site. The IEE confirmed that environmental impacts of the rehabilitation of the Nipa - Muni hu subproject road are limited to the road corridor, are of minor scale and can be mitigated through the thorough implementation of the measures contained in the environment management plan. The impacts such as dust, noise, materials sourcing, storage, haulage, soil erosion, sedimentation and run-off are likely to occur mainly during the construction phase.

2.3 Proposed Scope of Works

31. The project intends to improve the existing Nipa to Munihu Road through the provision of a 5.5 meter wide pavement, sealed with DBST and 0.25 meter gravel shoulders which will be sealed where necessary to prevent erosion. Earthworks will be required to provide an adequate bench for construction of the pavement and associated drainage and will also be required where improvements are required in the vertical alignment to ensure adequate stopping sight distance. An average additional width of 2.5 m on each side of the existing cleared width will be required to accommodate the improvement works. The estimated volume of excavation is 196,000 cu.m. of which 86,000 cu.m. will be reused for

embankments and the remainder is expected to be partly surplus and partly unsuitable and therefore to be disposed off. Approximately 40,000 cu.m. of borrow will be required for the balance of embankment construction.

32. Approximately 850 linear meters of retaining wall will be required at various locations throughout the road length to provide adequate formation width and avoid extensive embankment construction. The improvements will include the provision of road safety features including signs, pavement markings and guardrails.
33. A total of 55 additional culverts are proposed in addition to the replacement of 56 existing culverts which are of inadequate capacity (typically 450mm diameter) while 65 existing culverts are redundant and will be removed. Approximately 28,000 meters of lined roadside drain will be provided to cater for surface water runoff from the road and adjacent slopes. The rehabilitation and upgrading would approximately take 24 months.
34. The rehabilitation and upgrading would involve the following activities:
 - (i) Transport, handling and storage of construction materials, fuel and lubricants and, machinery to site;
 - (ii) Preparation of Contractor's camp and work sites;
 - (iii) Establishment of ancillary facilities, i.e. identification and establishment of suitable material sources/quarries, batching, crushing and asphalt plants;
 - (iv) Clearing and grubbing (shoulders and drainage);
 - (v) Excavate defective sections and improve side drains as required;
 - (vi) Excavation and/or filling to widen the existing road bench;
 - (vii) Culvert removal, installation, extension and/ or replacement;
 - (viii) Construct masonry retaining walls;
 - (ix) Construction of gabion protection works;
 - (x) Rehabilitate bridges which may include installation of new steel decks if necessary, removing rust and repainting and, construct a new bridge;
 - (xi) Backfill and compact as required;
 - (xii) Layout sub-base and base materials and compaction;
 - (xiii) Install road furniture required (guardrails, pavement markings, etc.); and
 - (xiv) Pave roadway with DBST.
35. The upgrading and rehabilitation works for the Nipa to Munihi Road would require approximately 231 people of which 120 unskilled workers will be sourced from the local communities in the area. Various machinery and heavy equipment will be required in the rehabilitation and upgrading works. This would range from 4WD vehicles to bulldozers and represents the manpower complement and machinery and equipment required for the works.
36. The works require materials including fuel, lubricants, paint, bitumen, cement, aggregates, cement, sand, timber, geotextile, drainage pipes and culverts. All materials will be sourced from approved suppliers. Workers, including local women, will make gabions using local materials for embankment and bridge pier protection:

2.4 Purpose

37. This report is written to present the status of the environment including compliance with the approved CEMP in respect of the Nipa - Munihi road section covering January

to June 2020 Semi-Annual environment safeguards monitoring reports is a requirement under the SPS. In addition, the report provides a clear picture with regard to the future implementation of CEMP activities as well as the environmental outcome.

38. Since the project has just commenced, the compliance monitoring requirements enumerated in the monitoring findings are prospective and will be evaluated with the approved CEMP.
39. Furthermore, the report serves the client, ADB, other organisations and the public to understand the environmental management process, its outcome, the corrective actions that are required and the impact of such actions on the environment.

2.5 Methodology

40. This six-month consolidated report is written using data gathered from several sources. These include (i) Contractor's interviews and monthly reports; (ii) Monthly monitoring report of the Project Supervision Consultant's Environment Specialist and (iii). Monthly HRMG-PIU verification of site and observations.
41. This report is reviewed and prepared by the Project Supervision Consultant and HRMG-PIU prior to its submission to DoW. It also follows the format prescribed by ADB and a checklist for monitoring environmental compliance.
42. The list of reports reviewed is in Appendix 1 whilst names of people interviewed are in Appendix 2.

2.6 Institutional Arrangements

43. The Department of Works, as the executing agency, has the overall responsibility to manage the planning, implementation and monitoring related to acquiring use rights for additional land to implement HRRIP subprojects, as well as compensation for damages on project-affected land.
44. DOW established a Project Management Office (PMO) headed by a Project Director which manages the day to day activities of the program. Within the PMO, there are two units, the Project Management Unit (PMU) which is based in Port Moresby. The other is the Highlands Road Management Group (HRMG), the DOW's Project Implementation Unit (PIU) for HRRIP subprojects to carry out the planning, implementation, monitoring and reports preparation for land activities, as required and is based in Mt. Hagen City.
45. In the revitalized organizational chart (as of February 2017), the HRMG is headed by the Field Project Manager (FPM). Under the FPM are two sub-units, the construction unit headed by the "Engineer" and the social and environmental safeguards unit headed by the Senior Field Project Coordinator (SFPC).

2.7 Report Organization

46. The report consists of the foregoing introduction and 2 other sections as follows:
 - i) Section 1 – Executive Summary
 - ii) Section 2 - Introduction,
 - iii) Section 3 – Monitoring results and finding
 - iv) Section 4 – Conclusions and recommendations and appendices

3.0 MONITORING RESULTS AND FINDINGS

47. The main findings of monitoring shall include the assessment of environmental impacts during the review period and proscriptive requirements are presented in this section.
48. The bases for monitoring are the parameters that would be considered in the CEMP of which there are 20 as follows:
- Contractor's camp and yard
 - Erosion and sedimentation
 - Earthworks
 - Water quality
 - Air quality
 - Noise and Vibration Management
 - Waste management
 - Hazardous material management
 - Ancillary Facilities Management
 - Aggregates extraction
 - Tree removal and vegetation management
 - Socio-economic issues (workers)
 - Socio-economic issues (community)
 - Public safety
 - Health and safety issues
 - Traffic management
 - Prevention of HIV/AIDS and STDs
 - Existing Infrastructure Issues
 - Environment Related Grievances
 - Training and Mentoring
49. The summary of non-compliance from the monthly reports prepared jointly by HRMG and PSC is provided in Table 1. Environment Officers from HRMG with PSC should prepare the Notices of Violation if warranted based on the standards set during a meeting for this purpose.

Table 1: Summary of Compliance & Non-Compliance for January to June 2020

Monitoring Parameters x=non-compliance, √=compliance, N/A = Not Applicable		Monitoring Months					
		JAN	FEB	MAR	APR	MAY	JUN
1	Training, Mentoring and Meetings	x	√	x	x	x	x
2	Health and Safety Issues	x	x	x	x	x	x
3	Contractor's camp and Yard	√	√	√	√	√	√
4	Earth Works	√	√	√	√	√	√
5	Erosion and Sedimentation	√	√	√	√	√	√
6	Water Quality	√	√	√	√	√	√
7	Air Quality	x	x	x	x	x	x
8	Noise Management	x	x	x	x	x	x
9	Waste Management	√	√	√	√	√	√
10	Hazardous Waste Management	√	√	√	√	√	√

11	Aggregates Extraction	✓	✓	x	✓	✓	✓
12	Ancillary Facilities Management	✓	✓	✓	✓	✓	✓
13	Tree Removal & Vegetation Mgmt.	✓	✓	✓	✓	✓	✓
14	Socio-economic Issues of Workers	✓	✓	✓	✓	✓	✓
15	Socio-Economic impacts – Comm.	✓	✓	✓	✓	✓	✓
16	Public Safety	x	✓	✓	✓	✓	✓
17	Traffic Management	✓	✓	✓	✓	✓	✓
18	Prevention of HIV/AIDS and STIs	✓	✓	✓	✓	✓	✓
19	Existing Infrastructure issues	N/A	N/A	N/A	N/A	N/A	N/A
20	Environmental Related Grievances	N/A	N/A	✓	N/A	N/A	✓

Note: Air and Noise Management were being monitored w/o the use of in-situ equipment

3.1 Contractor's Camp and Yard

3.1.1 Campsite Facilities Management

50. There Inspection was only done for Mt. Wiri campsite and yard. All facilities at the campsite were well maintained and properly cleaned.
51. The contractor operates two main camps and one sleeping quarters for fulltime local employees. Mt. Wiri Campsite is the contractor's main project management facility, while the River Nembi campsite hosts the project operations at the Nipa end of the project. The local employees' accommodation quarters is located 20m down the road from Mt. Wiri Campsite.
52. All office, accommodation, kitchen and entertainment facilities at Mt. Wiri and River Nembi Campsites were generally well maintained.



Photograph 1-2: Aerial view of Mt. Wiri Camp Site in Munihu

3.1.2 Drainage System Management

53. The drainage was well maintained with good clearance for water to flow out from then campsite and yard.

3.1.3 Workshop/Yard Management

54. The workshop facilities/ yard in Mendi and Nipa are well maintained and fully functional with good updated modern operational mechanical tools for mechanic use. The workshops are used for the following activities: servicing of heavy equipment and machines; tyre fittings; electrical and auto-electrical servicing and welding and metal fabrications.



Photograph 3-4: Workshop at Mt. Wiri Camp Site in Munihu.

3.2 Waste Management

3.2.1 Campsite and Workshop Wastes

55. Generally, the campsite wastes such as plastics, papers, timber off-cuts, cut boards and other degradable foreign substances were placed in a chronological order. The camp site both in Nipa and Munihu have been built wastes or general rubbish drum and a pit dug to collect any wastes found in the camp sites. Thus, a good indication of sanitation and general wastes management techniques application. Otherwise, there were no changes occurring to the status of the environment and there was no sign of waste found within the camp site.



Photograph 5-6: General waste collected and dumped at Mt. Wiri Camp Site

3.2.2 Liquid Wastes

56. Liquid wastes produced from the kitchen and sewage flows directly into the concrete constructed septic system. Liquid like oils from the workshop were properly deposited to temporary cut drums to be stored before being deposited to the proper disposal or deposited site.



Photograph 7-8: Indicates used oils from the workshop been stored

3.2.3 Construction Wastes

57. Construction spoils and other inert wastes from all earthworks and other construction activities produced both in Nipa and Munihu, some have no proper allocated location dump site or disposal area. All the spoilage and unused rocks or ground mud were dumped along the roadside purposely to develop new structures and for field development. Therefore, no specific dumping site was identified.



Photograph 9-10: Indication of the Public Dump site at Tende along the Mendi Kandep Road.

3.3 Earthworks

58. Earthworks such as clearing, grubbing, excavation and other associated works continue on both sides (Nipa & Munihu) and for culvert installation, headwall building, stone pitching, rock walling, etc.

59. Currently all the clearing and grubbing at both sides from Nipa-Munihu has already been completed.
60. Earthworks such as clearing, grubbing, excavation and other associated works continue on both sides (Nipa & Munihu) and for culvert installation, headwall building, stone pitching, rock walling, etc.

Sub-bases and Base Course.

61. The Sub-base stops at CH 9+460 and the base course from Munihu side is at CH 13+400 and Nipa Side is at CH 6+250.



Photograph 11-12: indicating Sub-Base at Ch 8+000-Ch 9+000

Prime coat and Sealing

62. For the month of June, there were several sealing and that has been done to the road project and also Prime Coat Sealing. The table below shows the Prime Cost and the First Coat Sealing done in June 2020.



Photograph 13-14: Showing 19mm sealing at CH 20+100-20+400

Table 2: Indicates the Prime coat and First Coat Sealing for the month of JUNE.

DATE OF THE SEALING	CHAINAGE (CH)	PRIME/CHIPS	PRIME/SEALING
02/06/20	19 + 840-20+100 20+100-20+400	19mm sealing chips	First Coat Sealing
04/06/20	19+840-19+700	19mm sealing chips	Frist Coat Sealing
08/06/20	22+040-21+560	MC-70 Bitumen	Prime Coat Sealing
09/06/20	23+250-23+140	MC-70 Bitumen	Prime Coat Sealing
11/06/20	21+560-22+040	19mm sealing chips	First Coat Sealing
15/06/20	23+140-23+500	19mm sealing chips	First Coat Sealing

3.4 Erosion and Sedimentation Control

63. There was a major erosion causing a big landslide at CH 21 +770 which the contractor has now maintained it already by building gabion baskets to uphold the unstable soil. Some other few small landslides inspected on the site during construction period are at 12+ 340 and 12+ 220 due to rainy season from the past month of April, but now the company extended the gabion baskets to minimise the erosion and landslide. The most of drainage systems and headwalls or culverts are installed; the erosion on the site would be minimized. Creeks, Streams and waterways were found near the construction site but fewer damages done.
64. Sedimentation was only expected during rainy season in both sides (Nipa & Munihu) because it always accompanies with landslide and deposition of debris and mud due to heavy floods.



Photograph 15-16: Showing Gabion Work at CH 8+660- CH 8+740

3.5 Hazardous Materials Management

65. Some of the common hazardous materials used in this project operations include fuel (diesel and petrol), lubricants, LPG and gas cylinders, used oil and other chemicals. Lubricants are like grease, hydraulic oil, engine oil, transmission gear oil. Fuel or hydrocarbon like diesel, petrol and kerosene are irritating to health thus they have to be properly managed and stored in their respective areas

3.5.1 Bulk Fuel (Diesel or Petrol) Storage and Distribution

66. All fuel for the project operations are stored in bulk fuel tanks. The contractor has a 20,000-liter capacity main reservoir diesel for both camps. An electrical fuel pump is attached to it for all fuel transfer and distributions.



Photograph 17: Main fuel storage at Mt. Wiri Camp Site

3.5.2 Oils and Lubricants Storage Supply

67. The common lubricants used on site including hydraulic oil, brake fluid and grease. All hydraulic oils and transmission gear oils are purchased in drums and stored in a cargo container.



Photograph 18: Indicating how hazardous materials are stored at Mt. Wiri Camp

68. All used and unwanted lubricants containers were collected and disposed at the landfill at the back of the campsite.

3.5.3 Chemicals Use and Storage

69. Some of the chemicals used in the camp include washing and laundry detergents, toilet-cleaners, herbicide (glycophosphate) and battery acids used in the workshop.

3.6 Ancillary Facilities Management

3.6.1 Construction Materials Storage Areas

70. The construction materials purchased at stored in Mt. Wiri Camp and later been distributed, supplied and transported to the construction site as required.



Photograph 19-20: Showing the construction materials stored at Mt. Wiri

71. The Contractor has not permanently constructed a batching plant for all concrete mixing thus, mobile cement mixers are being used for all cement and fine sand mixing for concrete production throughout the project site. The mobile cement mixers are being transported to the required project sites when needed to carry out the required cement mixing.



Photograph 21: Showing mobile cement mixers used for concrete production at road sites.

3.7 Water Quality

72. The water quality along the project road is pristine before the road is constructed. Hence, to monitor the quality of the rivers along the project site. The parameters assessed include temperature, dissolve oxygen, pH, and turbidity. However, all of the mentioned parameters were not consistently monitored for the entire monitoring months as shown in the table below. Thus, the contractor is advised to strictly implement monitor in compliance with their CEMP.

73. There were four (4) sections of the creeks and streams that have been inspected and testing has been carried out. The water quality meets the basic index. There were four (4) sections that had been tested; two (2) from Munihi side and two (2) from Nipa are listed below with their results.

Table 3: Water Quality Test Monitoring Results from January to June 2020

Monitoring Sections	Monitoring Parameters	January	February	March	April	May	June
Section 1 CH 2+500 River Nembi (Nipa)	Temperature (°C)					25.4	76.6
	pH					8.35	8.12
	Dissolved Oxygen					8.70	8.59
	Turbidity (NTU)					45.12	24.93
Section 2 CH 5+700 River Boldom Bridge #2 (Nipa)	Temperature (°C)						72.3
	pH						8.20
	Dissolved Oxygen						8.85
	Turbidity (NTU)						23.85
Section 3 CH 13 + 500 Takilipa Top @Nimb Quarry	Temperature (°C)		73.4		22.4	23.7	
	pH		8.58		8.58	9.45	
	Dissolved Oxygen		8.2		8.55	8.32	
	Turbidity (NTU)		39.9		40.9	42.2	
Section 4 CH 17+400 River Takilipa Bridge #7 (Munihi)	Temperature (°C)		73.2		23.2	25.4	71.4
	pH		7.72		8.95	8.35	7.87
	Dissolved Oxygen		8.7		8.80	8.70	8.05
	Turbidity (NTU)		43.13		43.13	45.12	26.44
Section 5 CH 21+600 River Lai Bridge #9 (Munihi)	Temperature (°C)		73.5		25.5	24.6	72.6
	pH		8.05		9.05	9.12	7.83
	Dissolved Oxygen		9.25		8.25	8.02	7.67
	Turbidity (NTU)		39.59		34.59	36.23	25.75

3.8 Air Quality

74. Dust particles are produced by moving trucks along the Nipa - Munihi road project during dry seasons. Fumes are also created by big truck when transporting quarry materials but no major air quality related health issues were reported. By reducing air pollution levels, community can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma. The lower the levels of air pollution, the better the cardiovascular and respiratory health of the population will be, both long- and short-term.
75. No experimental data has been collected due to unavailability of in-situ equipment for measuring carbon monoxide (CO), NO and SO level. The contractor in-situ equipment for testing air quality has been damaged. Without that no reliable information will be obtained. During dry season alone there will be few dusts on the road construction site and the emission from truck exhaust pipe.
76. Hence, it is important that mitigation measures must be taken by the contractor to address the issue. At the moment, the contractor is using water truck to sprinkle water on the road surface to reduce dust emission. The contractor also does routine maintenances on its truck and machines to reduce fume emission.

77. The contractor therefore is being advised to purchase their in-situ equipment to measure the quality of air and dust particles.

3.9 Noise Management

78. Activities brought about by the environmental impacts are: quarry and crushing activities, civil and earthworks at road sites and public traffic movements wherein noise level needs to be tested by the in-situ monitoring equipment in which the contractor failed to comply because of unavailability of the in-situ equipment. Therefore, PSC suggested that the contractor must purchase and EO should undergo training on the usage of in-situ equipment to obtain quality test results and apply corrective mitigation measures.
79. The other sounds produced at the quarry sites are quite loud. However, the crushers are located away from the villages and not much disturbances to the people in the villages.

3.10 Aggregates Extraction

80. The Quarry Management Plan for all quarries has to be prepared individually. In cases where the quarry exceeds set by PNG, a separate CEPA permit needs to be obtained. A permit is required from CEPA if the quarry volume required is greater than 10 000m³ there are 5 quarries currently operating for the Nipa Muni road project and the total volume required for the road project is distributed evenly among these quarries to avoid accruing permit from CEPA.

Table 4. Quarry volume extraction and royalty payment from January- June 2020

Month	Wapun Su-Oro Quarry (M ³)	Saphar am Quarry (M ³)	Harren Quarry (M ³)	Huremi Quarry (M ³)	Suru Quarry (M ³)	Total (M ³)	Total Amount (K)
January							
February	17,543			12,657	8,764	38,964	66,238.8
March							
April	11,457			14,523.1	8,443	34,423	58,519.10
May	10,470			18,846	7,640	36,956	62,825.20
June	9,894		1024	8,154	5,548	15,710	26,707.00
Total	40,454		1024	54,180.1	30,395	126,053	214,290.1
Average	6,742.33		170.67	90,030.02	5,065.83	21,008.83	35,715.02

3.11 Trees Removal and Vegetation Management

81. Clearing and grubbing in the project site was inspected and the contractor has completed the activity only within the construction areas without damaging the surrounding vegetation.

3.12 Socio-economic Issues of Workers

82. For the covered period from January to June 2020, the contractor has hired a total of 42 foreign skilled personnel to work in various construction activities. The estimated wages paid to the Chinese employees are not reflected in this report because their wages were paid based on their skills and work experiences.

83. The contractor has also hired Local skilled personnel to work in various construction activities. The estimated wages paid to the employees were based on the Minimum average monthly Wages of Kina 500.00.
84. From January to June 2020, the subproject has hired a total of skilled personnel of 3,023 workers consisting of 2,557 men (85.1%) and 449 women (14.9%). There were 1,530 DPs that were employed in the sub-project. This represents 50.6% of total persons hired. The breakdown is shown in the following **Error! Reference source not found..**

Table 5. Summary of Employment by Gender from January to June 2020.

Months	Male	Female	Total	DPs Employed	Estimated Female Wages	Estimated Total Wages
January	398	83	481	350	41,500.00	250,000.00
February	463	83	543	350	41,500.00	271,500.00
March	362	79	441	350	39,500.00	220,500.00
April	472	83	555	210	41,500.00	393,291.00
May	451	62	513	180	31,000.00	362,671.00
June	411	79	490	90	39,500.00	245,000.00
Total	2,557	449	3,023	1,530	234,000.00	1,471,462.00
Average	426.17	78.16	503.83	255	39,083.00	245,243.67
Percentage	85.1%	14.9%	100%	50.6%	15.9%	100%

Note: This table on the summary of monthly employment excludes foreign workers.

85. For the covered period, it is estimated that the contractor paid the 3,023 workers and personnel a total of Kina 1,471,462 or an average of Kina 245,243.67 per month. Out of this total, Kina 234,000.00 was paid to female workers or an average of Kina 39,083.00 per month from January to June 2020.
86. In addition, the contractor also farmed out certain construction activities to women along the road subproject areas. The contractor pays them upon completion of the assigned tasks. There were four activities paid on piece-work basis namely, gabion baskets, line drains, rip-raps and head-walls.
87. For the covered period, there were a total of 103 women who worked and were paid for these 4 construction activities. There were 15 women who were involved in gabion works. Women sorted out stones that are specified in for the gabion baskets. There were 38 women who were involved in the construction of headwalls and 26 women involved in Rip Raps works. The details are shown in **Error! Reference source not found..**

Table 6. Women involvement in Non – Payroll Activities from January to June 2020.

Month	Gabions	Line Drains	Head Walls	Rip Raps	Total
January		8	7	2	17
February		8	7	2	17
March	4	3	8	4	19
April	4	3	8	4	19
May	3	3	5	7	18
June	4	2	3	4	13
Total	15	27	38	26	103
Average	2.5	4.5	6.3	4.33	17.17
Percentage	14.6	26.2	36.9	25.24	100%

88. The minimum wage in the Highlands Region is around Kina 500 a month. This is the basis for estimating the wages paid to women for the covered period. This amount is multiplied by the number of women for the covered period.
89. For the covered period, the 103 women working in the project for non-payroll activities were able to earn an estimated kina 51,500.00 from January to June 2020. The details are shown in the following **Error! Reference source not found..**

Table 7: Estimated Monthly Income of Women in non-Payroll Activities

Month	Total Number of Women	Estimated Wages (Kina)
January	17	8,500.00
February	17	8,500.00
March	19	9,500.00
April	19	9,500.00
May	18	9,000.00
June	13	6,500.00
Total	103	51,500.00

90. The project area occupies 2 LLGs known as Nipa Basin LLG located in Nipa Kutubu District and Lai Valley LLG located in Mendi Munihu District. The workers from local areas long the project employed by the contractor come from these 2 LLGs and some from outside of the project area. For the covering period 12.9% were foreigners, 46.43% Lai Valley LLG, 35.4% Nipa Basin LLG and the remaining 33.50% come from other LLGs within the province or others. The employment data by origin of workers is presented in Table 7. Summary of Employment by origin for the month of January to June 2020.

Table 8: Summary of Employment by Origin

Month	Foreigners	Lai Valley LLG	Nipa Basin LLG	Other LLGs	Total
January	42	114	78	14	248
February	45	175	152	152	524
March	42	220	170	48	480
April	45	173	159	180	557
May	45	152	147	169	513
June	42	134	147	169	492
Total	261	968	853	732	2,814
Average	43.5	75.83	54.67	122	163.33
Percentage	9.3%	34.4%	30.31%	26.01%	100.00%

91. Based on employment data presented above, it is possible to estimate the distribution of wages by LLG area. The workers in 2 project area LLGs namely, Lai Valley and Nipa Basin have received a total of Kina 1,407,000.00 during the covered period from January to June 2020. The details are shown in Table 9: Estimated Wages Paid to Workers from Affected LLGs.

Table 9: Estimated Wages Paid to Workers from Affected LLGs

Month	Lai Valley LLG	Estimated Wages (K)	Nipa Basin LLG	Estimated Wages (K)	Total (K)
January	114	57,000.00	78	39,000.00	96,000.00
February	175	87,500.00	152	76,000.00	163,500.00
March	220	110,000.00	170	85,000.00	195,000.00

April	173	86,500.00	159	79,500.00	166,000.00
May	152	76,000.00	147	73,500.00	149,500.00
June	134	67,000.00	147	73,500.00	140,500.00
Total	968	484,000.00	853	426,500.00	910,500.00

3.13 Socio-Economic Issues of Community

92. There are two construction camps of the contractor which have purchased locally various construction materials, food, water, and miscellaneous items. For the covered period, these two camps spent Kina 3,909,080.22. The details are shown in the following **Error! Reference source not found..**
93. This amount of Kina 3,056,680.11 has been received by affected communities by way of purchases and other services during the review period. Part of these expenses has been received by women who are likely to be impacted positively.

Table 10. Monthly Expenditures for local purchases from January – June 2020.

Month	Food purchase (Kina)	Construction Materials Purchase (Kina)	Other Purchases (Kina)	Other Local Expenses (Kina)	Total (Kina)
January					
February	28,254.1	358,762.40	352,603.30	10,251.00	749,870.80
March					
April	30,285.21	283,359.55	412,350.00	11,523.07	786,219.22
May	29,376.15	357,621.55	371,428.30	11,000.00	769,426.00
June	30,656.36	342,509.23	367,998.50	10,000.00	751,164.09
Total	118,571.82	1,342,252.73	1,504,380.10	42,774.07	3,056,680.11
Average	19,761.83	223,708.78	250,730.00	7,129.011	509,446.69

94. The owners of the lands where the quarries are located are usually the tribes and clans who own the customary lands. However, there are tribe members who are assigned portions of customary lands where the quarries are located. These tribal occupants suffer direct disturbances and are entitled to a bigger share than ordinary tribal members. The royalties received each month are divided based on internal agreements within the tribes.
95. For the month of January to June 2020, there were four (4) operating quarry sites and these are known as Wapu Su-Oro quarry located in Munihi side (approximately 3km from the sub-project road, end of km 27.73), Harren Quarry, Sapharam Quarry, Huremi Quarry, and Suru quarry located along the subproject road.
96. The materials extracted from these four (4) operating quarry sites at an agreed cost of K1.70 per bucket or K13.00 per cubic meter. The total volume of materials extracted for the month of January to June 2020 was approximately 126,053 tons. The total royalty payments received by customary land owners from the 5 operating quarry sites was estimated at around Kina 214,290.1. The details are shown in the following **Error! Reference source not found..**

Table 11. Royalty payments for quarry activities covering January – June 2020.

Month	Wapun Su-Oro Quarry (M ³)	Saphar am Quarry (M ³)	Harren Quarry (M ³)	Huremi Quarry (M ³)	Suru Quarry (M ³)	Total (M ³)	Total Amount (K)
January							
February	17,543			12,657	8,764	38,964	66,238.8
March							
April	11,457			14,523.1	8,443	34,423	58,519.10
May	10,470			18,846	7,640	36,956	62,825.20
June	9,894		1024	8,154	5,548	15,710	26,707.00
Total	40,454		1024	54,180.1	30,395	126,053	214,290.1
Average	6,742.33		170.67	90,030.02	5,065.83	21,008.83	35,715.02

Agreed amount of K1.70 per bucket / K13.00 per cubic meter.

97. The contractor for the subproject road has made use of customary land where camps are built and disposal of spoils at selected stable areas. All such cases have been agreed with the customary land owner for the payment of the agreed fees or in-kind assistance. From January to June, 2020 the total amount received by customary landowners on this account is Kina 43,800.00 as per the signed land agreements for the usage of campsite at Mt. Wiri and Nembi Campsite as well as local workers accommodation next to Mt. Wira campsite. The details are shown in the following **Error! Reference source not found..**
98. For the payments for the use of disposal sites, selected stable areas have been agreed by landowners for backfilling to create communal areas. Payments and/or other benefits will be reported in the next quarter or semi-annual social safeguards report.

Table 12. Summary of Lease Rentals Paid to Customary Land Owners.

Month	Mt. Wiri Campsite	Nembi Campsite	Local Worker Accommodation	Total
January	3,000.00	3,000.00	1,300.00	7,300.00
February	3,000.00	3,000.00	1,300.00	7,300.00
March	3,000.00	3,000.00	1,300.00	7,300.00
April	3,000.00	3,000.00	1,300.00	7,300.00
May	3,000.00	3,000.00	1,300.00	7,300.00
June	3,000.00	3,000.00	1,300.00	7,300.00
Total	18,000.00	18,000.00	7,800.00	43,800.00
Average	3,000.00	3,000.00	1,300.00	7,300.00

99. A number of public consultations were held with roadside communities along the road subproject during the covered period from January to June 2020. The consultations were conducted independently by HRMG (Environmental, Social and Gender Consultants), CSC (National Resettlement and Environmental Specialist) Contractor and CRO for HRMG and PRO for the Contractor.
100. The purpose of the consultations and awareness was to inform the community members along the Nipa-Munihi road subproject about the importance of good road network and also briefing them about the difference between Resettlement related issues and Environmental claims to minimize grievances and to place them in a better position anytime their outstanding compensation payments are ready for payout given the reason that as soon as the road sealing begins there would be no hiccups.

101. A focus group discussion was also conducted with locals during the covered period from January to June 2020 to discover factors hindering the progress of civil works and to ensure that possible mitigation measures were recommended to rectify issues relating to the subproject road.
102. Though compensation payments for grievances have been recently paid, some issues and concerns expressed by locals along the roadside communities are relating to grievances pertaining resettlement or environmental issues whilst some were dealing with missed-out or underpaid DPs. Consultations were also undertaken to explain about the process of handling grievances, construction limits, and resolve construction damage on property, the procedure of payment for damages and in the matter of employment in civil works.
103. During the reporting period from January to June,2020, there were a total of 11 consultations conducted. A total of 125 participants were involved in various consultation activities, out of these 123 males (78.34%) and 32 females (21.7%) whilst 64 (40.8%) persons who belong to DP households participated.
104. Most of the concerns raised and discussed during the consultations were resettlement and construction related issues. Other issues were resolved on site by the civil contractor and some were handled by HRMG through the grievance redress committees. These are summarized in the following

Table 13: Summary of Public Consultations

Month	# of Consultations	Male Participants	Female Participants	Total Participants	DPs Who Participated
January	3	15	5	20	5
February	1	8	3	11	5
March	2	20	6	26	8
April	2	25	5	30	15
May	1	25	5	30	15
June	2	30	8	38	16
Total	11	123	32	157	64
Percentage		78.34	21.7	100	40.8

3.14 Public Safety

105. The risks to public safety in terms of accidents tragically resulted in death in the previous reporting period. The risks from erosion and sedimentation of water bodies and home gardens should also be assessed. In some cases even the road construction project is at risk from landslides
106. Environmental mitigation measures carrying out and implemented to safe guard the environment and other protected areas on site. Spotters placement was on both sides with” **GO**” “**STOP**” and “**WORK AHEAD SLOWDOWN**” traffic signage. Likewise mixing of cement was carried out away from some meters apart. While carrying out some of these activities, no incident was recorded and thus there is no notification included

3.15 Health and Safety

107. Despite repeated instructions, most of the workers in the site are not provided with PPEs. It is recommended that precautions should be taken by the Contractor to ensure the safety and protection against accidents of all staff and labour engaged in the works
108. The Contractor should follow the approved Health and Safety Plan (HSP) which was approved by DOW-ESSU with operational details addressing health and safety concerns during his Works.

3.16 Traffic Management

109. The Contractor has provided traffic signs or traffic aides for its project implementation in line with the requirements of the approved Traffic Management Plan.
110. The contractor has been advised to provide the required traffic management resources including standard traffic signage based on its stated TMP.



Photograph 22-23. Spotters with signage regulating the traffic.

3.17 Prevention of HIV/AIDS and STDs

111. The Contractor has submitted an HIV/AIDS and STDs plan to DOW-ESSU. Currently, their service provider is Walpu Memin VCCT Centre of the United Church in Mendi who has been working with the communities along the road project corridor.
112. The contractor has prepared their HIV/AIDS & STI Awareness and Training Programs for the entire year of 2020. The objective of this awareness is to educate the local communities living along the project areas regarding the negative impacts (HIV/AIDS, and STI) during and after the Nipa-Munhiu road project.
113. The contractor's HIV/AIDS activities delivered by Walpumemin VCCT Centre as the service provider are summarized in Table 13 & resource materials provided are shown in Table 14.

Table 14: January to June 2020 HIV/AIDS Prevention Awareness Activities.

Month	HIV – AIDS Activity Location	No. of Participants		Treatment Referrals	
		Company Employees	General Population	HIV/AIDS	STI

		Male	Female	Male	Female	Male	Female	Male	Female
January	Sumbi Village Sumbi Primary	10	0	15	7	1	1	2	1
February	Sumbi Olmapte	15	0	15	7	1	1	2	1
March	Sumbi 3 Village	6	0	35	10	0	0	2	0
April	Kms 8, 9, 10, 11 & 12	6	0	20	8	0	0	1	1
May	07 Kms areas Mulis & Eganda	6	0	15	7	0	0	0	0
June	06 km areas and Egenda Primary school	0	0	36	6	0	0	0	0
Total		43	0	136	45	2	2	7	3

Table 15: Resource Materials Distributed from January to June 2020

Month	Condoms (pack)		Posters	Pamphlets	Booklets
	Male	Female			
January	55	5	0	2	10
February	40	5	0	0	5
March	20	10	0	15	0
April	14	10	1	10	0
May	11	21	0	11	1
June	1	15	1	15	10
Total	141	66	2	53	26

114. Activities undertaken include dissemination of basic HIV/AIDS, STI information, stigma in the community, laws protecting victims, counselling services, questions and feedback, distribution of pamphlets and male/female condoms, free testing and counselling.
115. Many positive remarks from the local community about the awareness and thank the major contractor for the free service provided at the camp site and the community as a whole. They urged that the program will help them to be faithful and abstain from sex partners and be mindful to the negative activities along the road corridor linking Munhiu-Nipa. The attendees are advised to visit Munhiu Health Centre or Mendi General Hospital (NINA CLINIC) if they need further information and testing.

3.18 Environment Related Grievances

116. During the covered period, HRMG together with the contractor have adopted mitigation measures to address issues relating to further environmental damages by construction works and natural phenomenon. There were three (3) mitigation measures adopted by HRMG/PSC in rectifying the issues relating to further environmental damages outside of the construction limits and these are;
- Issues regarding further environmental damages outside of construction limits arising out of a natural phenomenon were referred to the provincial disaster office

for further assistance; Grievances relating to damages done by landslips in specific zones were referred to the provincial disaster office in Mendi;

- ii) Issues regarding damages occurred outside of the construction limits due to contractor's negligence in adopting best environmental management techniques was referred to the contractor to settle them;
- iii) Issues regarding environmental damages done within the construction limits were referred to the HRMG and was fully settled alongside other grievances recommended by GRCs as of December 19, 2018. A letter dated December 9, 2018 by the Contractor containing a listing of 11 environmental-related grievances was fully settled by HRMG.

Table 16. Recorded Environmental Grievances from January– June 2020.

Month	Environmental Grievance	Person / Organization	Resolution
Jan	-	-	
Feb	-	-	
Mar	3	persons	Environmental damages yet to be verified by HRMG
Apr	-	-	
May	-	-	
Jun	-	-	
Total	3	3	

3.19 Training, Mentoring and Meetings

- 117. The International Environmental & Social Safeguard Specialist along with the National Resettlement Specialist have facilitated in - house training and meetings to conduct socio - economic survey from the 19th – 22nd February, 2020, at HRMG conference room, DoW Mt. Hagen. The in-house training and meeting was attended by Environmental and Social Safeguards Officers of HRMG since they were nominated to conduct socio-economic survey for tranche 3 sub-projects.
- 118. The coaching focused on comparing socio – economic data established for each sub-project road as per the Resettlement Plan (RP). The results of this survey will be the baseline information of the socio-economic characteristics wherein which primary data to be generated will be compared with, to measure quantitatively and qualitatively the impacts of the road project to the affected households within the road project.
- 119. Data collection for socio-economic benefits were successfully carried-out together with the HRMG Community Relations Officer nominated at the project.



Photograph 24-25: Socio Economic Survey Coordination meeting facilitated by International Social Safeguards & Environmental Specialist of Renardet S.A Engineering.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

120. The contractor has not complied with some of the monthly environmental monitoring parameters following the approved CEMP. The other related plans also need to be implemented.
121. The PSC needs to closely monitor the implementation of the plans and provide corrective actions and best practices when needed.
122. The contractor has to regularly conduct toolbox meeting and training to ensure local workers comply with the work safety standards as this is part of the monitoring requirements.
123. There is a need to conduct monthly monitoring using in-situ equipment for the identified environmental parameters. However, the contractor has to purchase the required equipment since the air and noise level in-situ equipments are both damaged to ensure proper and quality tests are being performed every monitoring month.
124. The contractor needs to ensure health and safety standards by providing the appropriate PPEs to its workers.

4.2 Recommendations for Implementation and Corrective Actions

125. The importance of identifying environmental harm and mitigating or remediating these harmful activities need corrective action. The procedure followed by the project is the identification of environmental non-compliance by PSC and HRMG. The repeated infractions or severity of the environmental harm will be the basis for the issuance of a Notice of Violation of PSC and or HRMG. This NOV becomes the basis for the preparation by the contractor of a Corrective Action Plan to address the violations.
126. In this case, corrective action could be categorized into two; corrections mean that there is immediate relief or action to an environmental problem. Corrective action refers to actions that would ensure that these environmental problems are not repeated either through policy or application of environmental management best practices (Table 18).

Table 17. Recommended Seminars and Trainings for Capacity Building

Activity Number	Item and Recommended Action	Responsibility	Completion Date
1	Training on the use of environmental In-situ equipment for monitoring.	HRMG-PSC-CONTRACTOR	July – Dec. 2020
2	Weekly Toolbox Meeting/ Training on Health and Safety & Traffic Safety.	CONTRACTOR	July – Dec. 2020
3	Echo Seminar-Workshop on First Aid Procedures	HRMG-PSC-CONTRACTOR	July – Dec. 2020
4	Echo Seminar-Workshop on Environment Health and Safety Best Practices.	HRMG-PSC-CONTRACTOR	July – Dec. 2020
5	Seminar Workshop on Status, Issues and Concerns in the Implementation of the CEMP and other plans.	HRMG-PSC-CONTRACTOR	July – Dec. 2020

Table 18: Main Issues and Recommended Corrective Measures.

Main Issues	Corrective Measures	In-Charge	Date of Implementation
Inconsistent in monitoring for identified environmental parameters.	Advise the contractor to conduct environmental monitoring using in-situ equipment.	PSC HRMG	July – Dec. 2020
Traffic Management and Health and Safety must be monitored regularly	Provision of PPEs, spotters and signage at the work site Issue appropriate Notices of Violation for repeated offenses if needed.	PSC HRMG CONTRACTOR	July – Dec. 2020
Absence of PPEs for majority of the workers.	Contractor to prioritize and provide appropriate PPEs to the workers. Issue Notices of Violation for repeated non-compliances.	CONTRACTOR	July – Dec. 2020
Soil Erosion. Recurring issues of improper waste disposal of materials from clearing and grubbing that leads to hillside dumping and soil erosion.	HRMG and PSC to closely monitor and supervise the contractor to ensure adherence to approved CEMP PSC to issue a notice to the contractor for corrective actions to be undertaken to mitigate the issues and identify proper disposal areas	PSC HRMG CONTRACTOR	July – Dec. 2020
Quarry operation should have an EMP prepared and approved and Contractor or Land Owner to obtain permit from CEPA if > 10,000 cubic meters of rock materials are extracted from the quarry site.	DOW/HRMG to ensure Contractor's abide by the PNG Environmental Laws & Regulations (Environmental Act & CEPA Act) and obtain quarry permits for volumes extracted above 10,000 cubic meters. PSC to ensure Contractor's extracted materials in compliance to approved quarry and environmental plans (QMP). HRMG to ensure that any agreements with quarry landowners are in place and parties abide by these agreements during quarry operations and any conditions agreed upon should be accounted for by both parties.	PSC DOW/HRMG CONTRACTOR	July – Dec. 2020

Appendices

Appendix 1: List of References

1. Initial Environmental Examination for Nipa - Munihu Road section (2016).
2. Department of Works Specification for Road and Bridge Works 1995
3. Department of Works Specification for Road and Bridge Works 2015 Edition
4. Back to Office Report of HRMG Environmental Officer
5. Conformed Documents for the Improvement Works and Long Term Performance Based Maintenance Service (LTPBM) for Nipa - Munihu Road. Contract Number CSTB 3533.

Appendix 2: List of People Interviewed

1. Mr. Bienvenido Mirang – Resident Engineer PSC
2. Alphonse Niggins, Senior Field Coordinator, HRMG
3. Paul Nombri, Manager, Technical Services, HRMG
4. Andrew Noria – Senior Environment Officer, HRMG