

Environmental Monitoring Report

Semi-annual Report

September 2018

Bridge Replacement for Improved Rural Access Sector Project.

Prepared by Department of Works for the Asian Development Bank.

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**INDEPENDENT STATE OF PAPUA NEW GUINEA
DEPARTMENT OF WORKS**



BRIDGE REPLACEMENT FOR IMPROVED RURAL ACCESS SECTOR PROJECT

Package 1: Hiritano and Magi Highway

Package 2: New Britain Highway

ENVIRONMENTAL SAFEGUARDS MONITORING REPORT

(January to June, 2018)

Project Implementation Unit

Department of Works

National Capital District

Papua New Guinea

September 2018

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Abbreviations

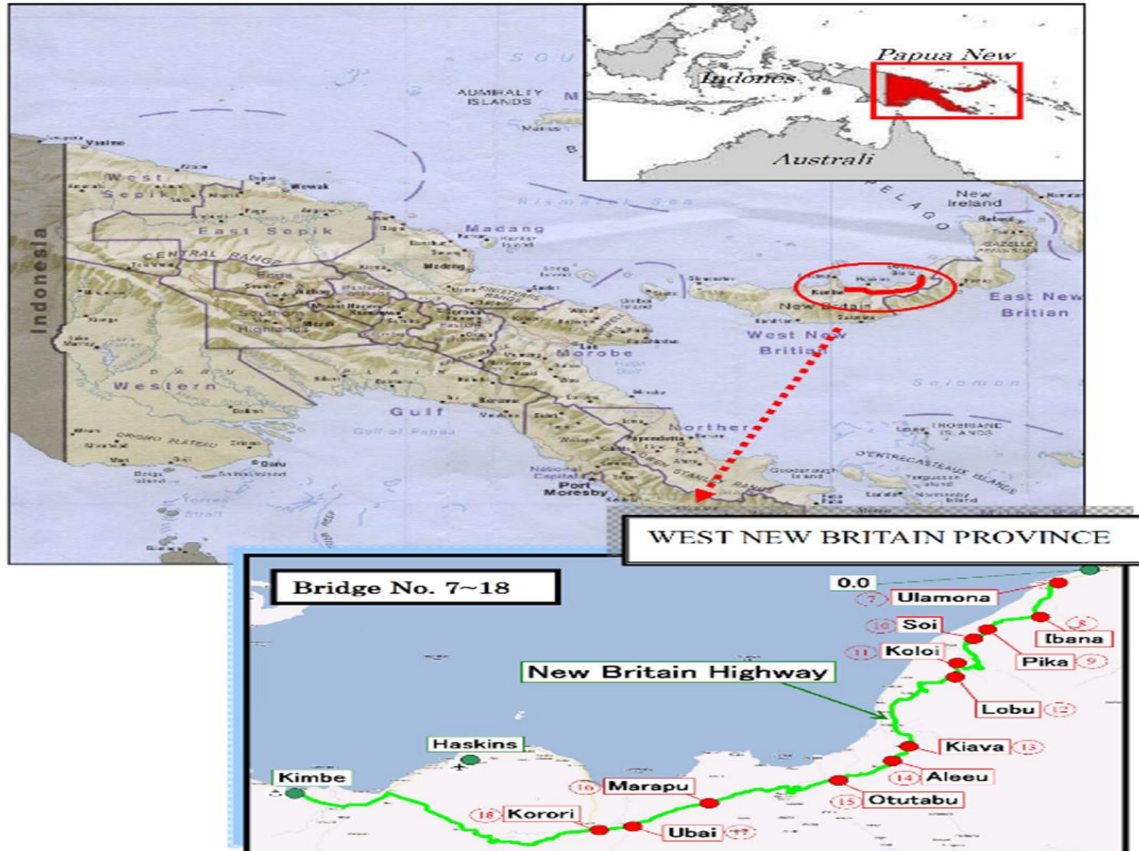
ADB	- Asian Development Bank
AP	- Affected People
BRIRAP	- Bridge Replacement for Improved Rural Access Sector Project
CEMP	- Construction Environment Management Plan
CEPA	- Conservation and Environment Protection Authority
CHEC	- China Harbour Engineering Company
CLO	- Community Liaison Officer
DBST	- Double Bitumen-layer Surface Treatment
DCSC	- Design and Construction Supervision Consultant
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	- Highland Region Core Road Network
HIV/STDs	- Human immuno Virus/ Sexually Transmitted Diseases
IA	- Implementation Agency
IEE	- Initial Environment Examination
LLG	- Local Level Government
NEC	- National Environmental Consultant
PIU	- Project Implementation Unit
POM	- Port Moresby
PWM	- Provincial Works Manager
PPE	- Personal Protective Equipment
ROW	- Right of Way
RP	- Resettlement Plan
SPS	- Safeguard Policy Statement
TOR	- Terms of Reference
WGJV	- Wildcat and Golding Joint Venture Limited

MAP 1: Package 1



CENTRAL PROVINCE (Package 1)

Map2. Package 2 New Britain Highway



1. Introduction

1.1 Background

01. The aim of Bridge Replacement Project is to replace aging and single-lane bailey bridges and other badly deteriorated bridges on the National Highways in Papua New Guinea (PNG) with double-lane permanent bridges. The Project is being implemented in the Central and West New Britain Provinces covering the replacement of 18 bridges that include: bailey bridges, steel truss bridges, and steel plate girder bridges, log bridges, coarse ways and River Bed Crossing. Twenty-two (22) of the existing bridges are reusable on the Provincial or district roads impacted by these National Highways.

02. The Government of Papua New Guinea (GoPNG) has negotiated a loan with the Asian Development Bank (ADB) to implement the Bridge Replacement for Improved Rural Access Sector Project (BRIRAP). Under the project, a total of 18 bridges are expected to be replaced. The Execution Agency (EA) for the project is Department of Works (DOW) whilst the Project Implementation Unit (PIU) is the Implementation Agency (IA).

03. The Project is implemented in 2 packages. The Package 1 has a total of six (6) bridges, three (3) along the Hiritano Highway (Laloki Bridge, Brown River Bridge and Angabanga Bridge) while the other three are along the Magi Highway (Dogona, Kokebagu and Sivitatana). The Package two (2) project involves a total of twelve (12) Bridges (Korori, Ubai, Marapu, Ototabu, Aleeu, Kiava, Lobu, Kolo, Soi, Pika, Ibana and Ulamona) along the New Britain Highway in the West New Britain Province and the Contractor is a joint venture between Wildcat and Golding (WGJV).

04. The contract for replacement of bridges in Package 1 has been awarded to the China Harbour Engineering Company (CHEC). The construction period for Package 1 is 24 months which began on 24th February 2015 and was planned for completion on 23rd February 2017. A further extension to complete remaining work was granted that expires on 22nd August 2017. The overall construction progress for the Package 1 during the review period is xxx %. The design and construction supervision has been assigned to Chodai Company Limited for both packages.

05. The construction works under Package 2 began on 24th February 2015 which was originally planned for completion on 23rd February 2017. As the progress of work has been admirably low (overall xxx % completed as at 30 June 2017), the DOW is currently working on an extension arrangement. The contractor for package 2 is executed by WGJV which has been on full suspension since 26th January this year.

1.2 Project Description

06. The Hiritano Highway that begins from Port Moresby has a total of 256 km. It is the main link road of Kerema in the Gulf Province with Port Moresby (POM) in the National Capital District (NCD). This highway has 29 bridges of which 3 are under the BRIRAP. The highway has been rehabilitated recently but the aging bridges were not replaced. All three bridges are a significant bottleneck for the fast movement of traffic in this recently rehabilitated highway.

07. The Magi Highway has a distance of 225 km that passes across 25 bridges. This highway too has been rehabilitated recently. As in the case of the Hiritano Highway, the bridges in this highway were not rehabilitated causing significant traffic delays and posing safety risks to pedestrians and traffic. Some of the bridges pose a safety risk to moving traffic and pedestrians as they are over 25 years old.

08. The New Britain Highway covers a distance of 229 km. It is the main transport corridor that links West and East New Britain provinces. The highway is the main route to transport commodities such as palm oil, sea food, timber, etc. produced in the New Britain Island to the sea ports at Kimbe and Bialla. The New Britain Highway has been rehabilitated in early 2000s but none of the bridges were included in the program due mainly to lack of funding at that time. The BRIRAP is replacing 12 out of a total of 39 bridges in this highway.

09. Table 1 provides information about the bridges that is the focus of this project.

Table 1: Basic Information about Project Bridges

Serial No.	Bridge Name	Starting Chainage	Span (M)	Construction Progress as at 30 June, 2018 (% completed)
Package 1				
1	Dogona	62.7	25	100
2	Kokebagu	77.6	25	100
3	Sivitatana	80.7	25	100
4	Laloki	0+0	80	100
5	Brown River	22.5	80	100
6	Angabanga	141.1	160	100
1	Ulamona	8.4	20	15.27
2	Ibana	20.0	40	27.36
3	Pika	30.7	40	31.91
4	Soi	35.3	30	24.77
5	Koloi	49.0	40	36.26
6	Lobu	52.5	40	62.36
7	Kiava	88.2	25	86.73
8	Aleeu	94.1	15.2	76.32
9	Obutabu	107.1	40	57.80

10	Marapu	135.1	30	58.23
11	Ubai	150.1	30	49.00
12	Korori	157.1	25	67.25

1.3 Project Description

10. The environmental impacts assessed at the time of preliminary design categorised bridge sites under Package 1 and 2 as Category B for environment. The same category was confirmed by the in-depth environmental analysis conducted at the time of detailed design. The Initial Environment Examination (IEE) for the two packages have already been disclosed in the ADB web site. The IEE confirmed that the corridor in which the bridges will be replaced is already highly disturbed primarily by extensive palm oil plantations in New Britain Island and mixed plantations and bushes in Hiritano and Magi Highway. There will be no significant loss of vegetation, primary forest and no conservation areas will be affected. No cultural or heritage site will be affected. Accordingly, environmental impacts of the rehabilitation of all bridge replacement works 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 (EMP). 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 and are confined to local area.

11. The key-issues of the IEEs for two packages are summarised in the following Table.

Table 2: Key-information on Initial Environment Examinations

Package	IEE Submission (Date)	CEMP Approval (Date)	CEMP Commenced Implementation (Date)
1 – Hiritano and Magi Highway	Sep 2013	13 th May 2015	May 2015
2- New Britain Highway	Nov 2013	24 th Oct 2015	Oct 2015

12. Based on the EMP presented in the IEE, a construction environment management plan (CEMP) was prepared by the contractor. The CEMP was reviewed by the National Environmental Consultant¹ (NEC). Prior to preparation of CEMP, training was provided to contractor staff. The unavailability of the EO of the contractor until recently created a problem with regard to the environment management of bridge sites under Package 1. The package 2 had similar problem when the EO was finally recruited in June 2015. The environment management in BRIRAP saw a substantial improvement after the recruitment of EO.

13. The IEE consisted of the establishment of institutional arrangements for implementation of CEMP, grievance redress mechanism and consultations with the communities during the program of construction and environmental monitoring including the establishment of environmental baseline.

14. Internal monitoring has been conducted by PIU because EOs for Contractors were no longer available after completion of Package 1 and closure of Package 2. This document (EMR- Jan-June 2018) on semi-annual environmental monitoring report is presented by DOW to ADB for disclosure.

1.4 Purpose

15. This report presents the status of environment including the compliance with approved CEMP in respect of the two packages under BRIRAP covering January to June 2018. Semi-annual environment safeguards monitoring reports is a requirement under the SPS (2009). This report provides a clear picture with regard to the implementation of CEMP activities as well as the environmental outcome. The report serves the client, ADB and other organisations to understand the environmental management process, its outcome, the corrective actions that are required and the impact of such actions on the environment.

1.5 Methodology

16. The six-monthly report is written using data gathered from site inspection, interview with locals and project. Data from Contractors were not available as Package 1 Construction was completed in August 2017 and Package 2 was suspended during the reporting period.

17. The list of reports reviewed is in Appendix 1. The names of people interviewed in Package 1 and 2 is presented in Appendix 2.

1.6 Report Organisation

18. The report consists of the foregoing introduction and 2 other sections as follows:

- Introduction
- Monitoring results and findings
- Conclusions and recommendations

19. The above sequence is followed in respect of both packages and is presented in two separate sections of the report. The section 1 describes the management of the environment in Hiritano and Magi Highway bridge sites whilst section 2 discusses similar issues in respect of the New Britain Highway bridge sites.

Section 1: Package 1 - Hiritano and Magi Highway

2. Monitoring results and findings

20. The main findings of monitoring including the assessment of environmental impacts during the review period are presented in this section. The construction activities completed during the reporting period are given as a backdrop.

21. Civil works were completed in Package 1. The three camps that were established in 2015 were used for staff housing; offices, storage of equipment and stockpile, fuel and other materials have since been demolished and removed. The quarry at Hiritano Highway (Sabosa Quarry) is being used to extract gravel for base and sub-base of access road sections and building of embankments are no longer used for bridge program.

22. The basis for environmental monitoring is the parameters listed in the CEMP of which there are 17 as follows:

- Contractor's camp and yard
- Erosion and sedimentation
- Water quality
- Air quality
- Noise
- Waste management
- Hazardous material management
- Aggregates extraction, haulage and storage
- Tree removal and vegetation management
- Socio-economic issues (workers)
- Socio-economic issues (community)
- Public safety
- Health and safety issues
- Invasion of exotic weeds
- Chance discovery of archaeological find
- Traffic management
- Prevention of HIV/AIDS and STDs

23. The report presents progress of all above aspects and has also included a section of institutional arrangements for the review period.

24. Discussed below is the status of performance of each of the above 17 parameters as well as community consultations and environmental grievances during the reporting period.

2.1 Contractor's camp and yard

These camps have been removed as a result of project completion and therefore there is nothing to report on camp and yards.

2.2 Erosion and sedimentation control

25. The soil erosion from sites and its sedimentation in rivers reported in the previous EMR are protected by vegetation growth. Re-vegetation of slopes and cut surfaces has been undertaken and the growth of grass cover is highly favourable to design expectations. There is no more soil erosion as vegetation grow back stabilized the embankments.



Photo 1& 2 Erosion is well protected by gabion baskets and re-vegetation on all bridge sites

2.3 Water quality

26. The visual monitoring of water quality on all the 6 bridge sites both downstream and upstream of the rivers confirms that, they remain original natural quality. There were no complaints from the people living near the main river and other streams regarding the deterioration of water quality. The water quality in three rivers along Magi Highway is not an issue as water is available only during the rainy season. The two rivers, Sivitatana and Kokebagu had stagnant water during the review period mainly due to flat region. (Photos 3 and 4).



Photo 3 & 4 Stagnant Water at Sivitatana Site and Kokebagu

27. The natural river courses never changed its direction after construction activities. It remained intact.

2.4 Air quality

28. Construction was completed and therefore air quality was not monitored last 6 months.

2.5 Noise

29. Construction was completed and no monitoring took place.

2.6 Waste management

30. Waste management was not monitored as construction was completed and Camps at the bridge sites have been removed.

2.7 Hazardous materials management

31. Nothing to report as no monitoring took place over the last 6 months due to completion of project.

2.8 Aggregate extraction

32. During the reporting period there were no crushing and haulage of these materials to bridge sites due to projection completion.

2.9 Trees removal and vegetation management

33. The trees and vegetation that have been removed during construction are now growing back naturally and stabilizing the embankments.

2.10 Socio-economic issues (workers)

34. No socio-economic issues to report as all workers demobilized due to project completion.

2.10.1 Public Relations Department

35. Due to project completion there is nothing to report on Public Relations matters.

2.10.2 HIV/AIDS and STDs

36. No training and awareness took place during the reporting period because of the project completion.

2.11 Traffic management

37. There is free flow of Traffic on the bridge sites as the construction was already completed. Workers are no longer on site to manage the traffic flow.

2.12 Consultations

38. Two trips were made during the reporting period and noted 2 complaints from Kokebagu and Sivatana alleging crop damage caused by flood water due to poor drainage during construction. DOW met with APs and confirmed that the drainage was well constructed and the water flow was much better than before the bridge construction. APs agreed with DOW's explanation.

2.13 Environment-related grievances

39. A few isolated grievances were expressed by one AP from Laloki regarding environment pollution caused by tyre burning and diesel spill especially from the Laloki Camp. Inspection by PIU noted that camp was already removed and complaints lodged later. The matter was referred to the contractor. Angabanga APs complained about sewage overflow. The matter was also referred to Contractor for inspection. Kokebagu and Sivatana complained of crops damaged by flood waters but on inspection could not justify their claims. They were advised accordingly.

2.14 Chance Discovery Archaeological Items

40. Nothing to report regarding this matter.

2.15 Introduction of Invasive Species

41. There is no introduction of invasive species in all bridge sites.

3 Conclusions and Recommendations

3.1 Conclusions

42. The main conclusions arising from environmental monitoring activities during the review period are:

- There are no issues or impacts on the environment resulting from construction works during and after the construction completion. This review has no environment issues to report.
- All staff and workers have demobilised to the place of origin after the project completion in 2017.
- The water and air quality monitoring remained natural as before construction;
- Very isolated or minor grievances received after the project completion and the issues have been dealt with by DOW.
- The locals are now enjoying the use of the improved and high quality bridges.

43. Based on the above conclusions, it is to be concluded that construction activities in general, complied with the CEMP and therefore during the last 6 months there have been no issues on environment management.

3.2 Recommended actions

The routine management of the completed bridges will be handled by Bridge Assets Management (BAMS), Provincial Works Management (DOW) and Lands and Survey Branch of DOW.

Section 2: Package 2, New Britain Highway

44. Discussed in this section is the status of the environment impact management of CEMP in respect of bridge sites along the New Britain Highway.

4. Monitoring results and findings

45. The main findings of monitoring including the assessment of environmental impacts during the review period are presented in this section. The construction activities completed during the reporting period are given as a backdrop.

46. Work stoppage was reported during several times in the review period. The first one was in September and the second was in November 2017. The work stoppages have had a significant impact on the progress of work where the overall progress as at 30 June 2017 stands at 58 %. The construction program was terminated in 2017. No works has happen to date.

47. The project was operational only up to 26th January 2017. A full suspension of work began after this date where all were demobilised to their respective countries of and provinces. During the review period there was no construction.

48. The basis for environmental monitoring is the parameters listed in the CEMP of which there are 17 as follows:

- Contractor's camp and yard
- Erosion and sedimentation
- Water quality
- Air quality
- Noise
- Waste management
- Hazardous material management
- Aggregates extraction, haulage and storage
- Tree removal and vegetation management
- Socio-economic issues (workers)
- Socio-economic issues (community)
- Public safety
- Health and safety issues
- Invasion of exotic weeds
- Chance discovery of archaeological find
- Traffic management
- Prevention of HIV/AIDS and STDs

49. In addition to above activities, the contractor conducted public consultations, managed grievances relating to environment and provided employment for people, both local and from other provinces. In the meantime, PIU conducted compliance monitoring. However, there is no progress to report as work was not pursued during the review period. Photograph 10 shows a closed down bridge site in the project area.



Photo 5 & 6



Photo 7 & 8: A Site Remains Closed and Secured during Work Suspension

50. Discussed below is the status of performance of each of the above 17 parameters as well as community consultations and environmental grievances during the reporting period.

4.1 Contractor's camp and yard

51. The two camps built by the contractor remained closed during the review period.

4.2 Erosion and sedimentation control

52. There was no new work that generated soil erosion and sedimentation in rivers due to work stoppage.

4.3 Water quality

53. Water quality monitoring has not been undertaken due to work stoppage. The EO has already left the site in January 2017.

4.4 Air quality

54. There was no further impact on air quality as construction works did not proceed in the review period.

4.5 Noise

55. There was no construction-related noise generated as there was no work during the review period.

4.6 Waste management

56. Waste not generated due to full suspension of work.

4.7 Hazardous materials management

57. There was no hazardous waste generated as work did not continue.

4.8 Aggregate extraction

58. No aggregate extraction practised during the review period.

4.9 Trees removal and vegetation management

59. No impact on trees during the period under review.

4.10 Socio-economic issues (workers)

60. No issues to report as work stopped.

4.11 Socio-economic issues of community

61. No progress to report as there was complete work stoppage.

4.12 Traffic management

62. The traffic management plan has not been implemented as work did not take place.

4.13 Consultations

63. There were no public consultations conducted during the review period.

4.14 Environment-related grievances

64. No such grievances were reported due to work stoppage

4.15 Chance Discovery Archaeological Items

65. There was no such discovery during the review period.

4.16 Introduction of Invasive Species

66. Nothing to report due to work stoppage.

5. Conclusions and Recommendations

5.1 Conclusions

67. The main conclusions arising from environmental monitoring activities during the review period are:

- The construction works did not take place during the review period due to the full suspension of work.

5.2 Recommended actions

Full monitoring report will be submitted during the second half of 2018 as work as recommenced under a new contract package known as Package 2 B. The Contractor is China Jiangsu International.