

SEMI-ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

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JANUARY 2018 TO JUNE 2018

ROAD NETWORK DEVELOPMENT SECTOR PROJECT (RNDSP): GRANT 0180 TIM

ROAD NETWORK UPGRADING PROJECT (RNUP): LOAN 2857/2858 TIM

ROAD NETWORK UPGRADING PROJECT (RNUP-AF): LOAN 3181 TIM

ROAD NETWORK UPGRADING PROJECT (RNUP-AF): GRANT 0504 TIM

ROAD NETWORK UPGRADING SECTOR PROJECT (RNUSP): LOAN 3020/3021 TIM

ROAD NETWORK UPGRADING SECTOR PROJECT (RNUSP-AF): LOAN 3341/3342 TIM

NATIONAL ROAD #1 UPGRADING PROJECT (NR1UP): LOAN 3456 TIM

JULY 2018

This environmental management report is a document of the Proponent. The views expressed herein may be preliminary in nature.

In preparing the environmental management report and making reference to a particular territory or geographic area in this document, the Proponent does not intend to make any judgments as to the legal or other status of any territory or area.

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Abbreviations and Acronyms

ADB	-	Asian Development Bank
ANPM		National Authority for Petroleum and Mineral
CAFI	-	Conselho de Administração do Fundo Infraestrutura
CEMP	-	Contractors environmental management plan (submitted preconstruction for approval by PMU & ADB)
CITES	-	Convention on the International Trade in Endangered Species of Wild Fauna and Flora
DMMR	-	Directorate of Mines and Mineral Resources
DNCPIA		National Directorate for Pollution Control and Environmental Impact (NDPCEI)
DPW		Directorate General of Public Works
DRBFC	-	Directorate of Roads, Bridges and Flood Control
EHSG	-	Environmental Health and Safety Guidelines (of World Bank Group)
EIS	-	Environmental impact statement
EL	-	Environmental License
ELL	-	Environmental Licensing Law (Decree No. 5/11)
EMP	-	Environmental management plan (as submitted for approval to obtain EL)
mEMR	-	Monthly environmental monitoring report (as submitted by PISC for approval by PMU)
ESO	-	Environment and safety officer (of the civil works contractor)
ESU	-	Environment and Social Unit (within the DPW's PMU)
GRC	-	Grievance redress committee
GRM	-	Grievance redress mechanism
GOTL	-	Government of Democratic Republic of Timor-Leste
IEC	-	International Environmental Consultant (PISC)
IES	-	International Environmental Specialist (ET - PMU)
JICA	-	Japan International Cooperation Agency
MAF	-	Ministry of Agriculture and Fisheries
MEC		Minsitry of Economic Coordination
MOF	-	Ministry of Finance
MPW	-	Ministry of Public Work, Transport and Communications
NDLPCS	-	National Directorate of Land and Property and Cadastral Services (within MOJ)
NEC	-	National Environmental Consultant (PISC)
NES	-	National Environmental Specialist (PMU)
NET	-	National Environmental Assistant (PMU)
NGO	-	Non – government organization
NR1UP	-	National Road No. 1 Upgrading Project
PISC	-	Project implementation and supervision consultant (supporting the PMU)
PMU	-	Project Management Unit within DPW
ROW	-	Right-of-way
RP	-	Resettlement plan
SAEMR	-	Semi Annual Environmental Monitoring Report (this report)
SPS	-	Safeguard Policy Statement 2009 (of the ADB)
SEIS	-	Simplified environmental impact statement (as submitted for approval to obtain EL)
TA	-	Technical assistance

1. Introduction

A. Background

1. Roads are the primary mode of transport Timor-Leste. The core network of national roads connects the capital Dili, 13 districts, and 900 km of district roads that link major population centers to the national roads. About 80% (1,800 km) of core roads are (or used to be) paved.

2. The road network deteriorated in the period that preceded independence in 2002 due to a lack of investment in maintenance and rehabilitation; deteriorating further during 2002–2011 due to inadequate reinvestment in the road network. Frequent landslides and road closures caused by intense rainfall and geotechnical instability in mountainous areas make the situation worse.

3. Timor-Leste's development partners have responded to the challenge in a substantial and coordinated way. The Government of the Democratic Republic of Timor Leste, Directorate General of Public Works (DPW) with ADB assistance, has developed the Medium-Term Road Network Development Program, the implementation of which started in 2010. ADB support is closely coordinated with the World Bank (WB) the Japan International Cooperation Agency (JICA) the Government of Australia, and the European Union (EU). With the support of ADB, JICA and the WB, the government will have advanced the upgrading about 515km or 36% of the national road network by the end of 2018.

4. ADB has been the lead development agency in the road sector and the ADB-financed road project portfolio that includes six TA projects, three project grants, one sector grant, and two loans for the sector. In this reporting period ADB has supported the Road Network Upgrading Project (RNUP), the Road Network Upgrading Sector Project (RNUSP) and the National Road No.1 Upgrading Project (RNUP). RNUP and RNUSP have received additional funding and the projects that are financed are included in this SAEMR. The Road Network Development Sector Project (RNDSP) was completed in 2016. Details of the road projects are summarized in Table 1. The location of the projects is shown in Figure 1.1. ADB's projects are on track to upgrade about 365km of national roads by 2019.

Table 1.1: Summary of ADB Financed Road Projects

Project	Approval date	Length (km)	Subprojects	Status
RNDSP	20-Nov-09	(i) 37 (R1-R2); (ii) 33 (RMC 1-4)	(i) A03-03/04 Liquica-Atabae (R1-R2); (ii) Balibo – Maliana (RMC 1-4)	(i) R1 completed 2013 R2 Completed 2015- DNP 2016. (ii) RMC 2 completed 2014.
RNUP	30-Mar-12	52	(i) Tibar - Liquica (R3); (ii) Tibar - Gleno (R4)	(i) R3 completed 2016. (ii) R4 completed 2016.
RNUP-AF	Oct. 2014	6.8	Tacitolu - Tibar (dual carriageway)	TTNPR Progress 13.5%
RNUP-AF	June 2016	43.8	(i) C13 Ermera - Fatubessi; (ii) C17 Aipelo-Bazertete	Contractor to mobilize July 2018 Contractor mobilized April 2018
			(iii) C17-C16 Bazertete-Lorema-Tokolui	Project Preparation
RNUSP	19-Sep-13	81	(i) Manatuto – Laclubar Junction (ii) Laclubar Junction – Natabora	(i) Construction Progress 85% (ii) Construction Progress 58%
RNUSP-AF	03-Dec-15	99	(i) Baucau – Lautem;	Contractor mobilized Oct 2017 Construction Progress 0.9%
			(ii) Maubare – Karimbala; (iii) Atabae – Mota Ain	Contractor mobilized Oct 2017 Construction Progress 1.2%
BVHP	In Prep.	58.3	A03 Baucau - Viqueque	Project Preparation
NR1UP	31-Mar-16	46.7	A01-01 Dili - Manatuto (TLS-P1)	Contractor mobilized Jul 2016 Construction Progress 24.7%
		57.7	A01-02 Manatuto – Baucau (TLS-P2)	Contractor mobilized Aug. 2016 Construction Progress 31.6%

AF = additional funding

B. Description of Projects

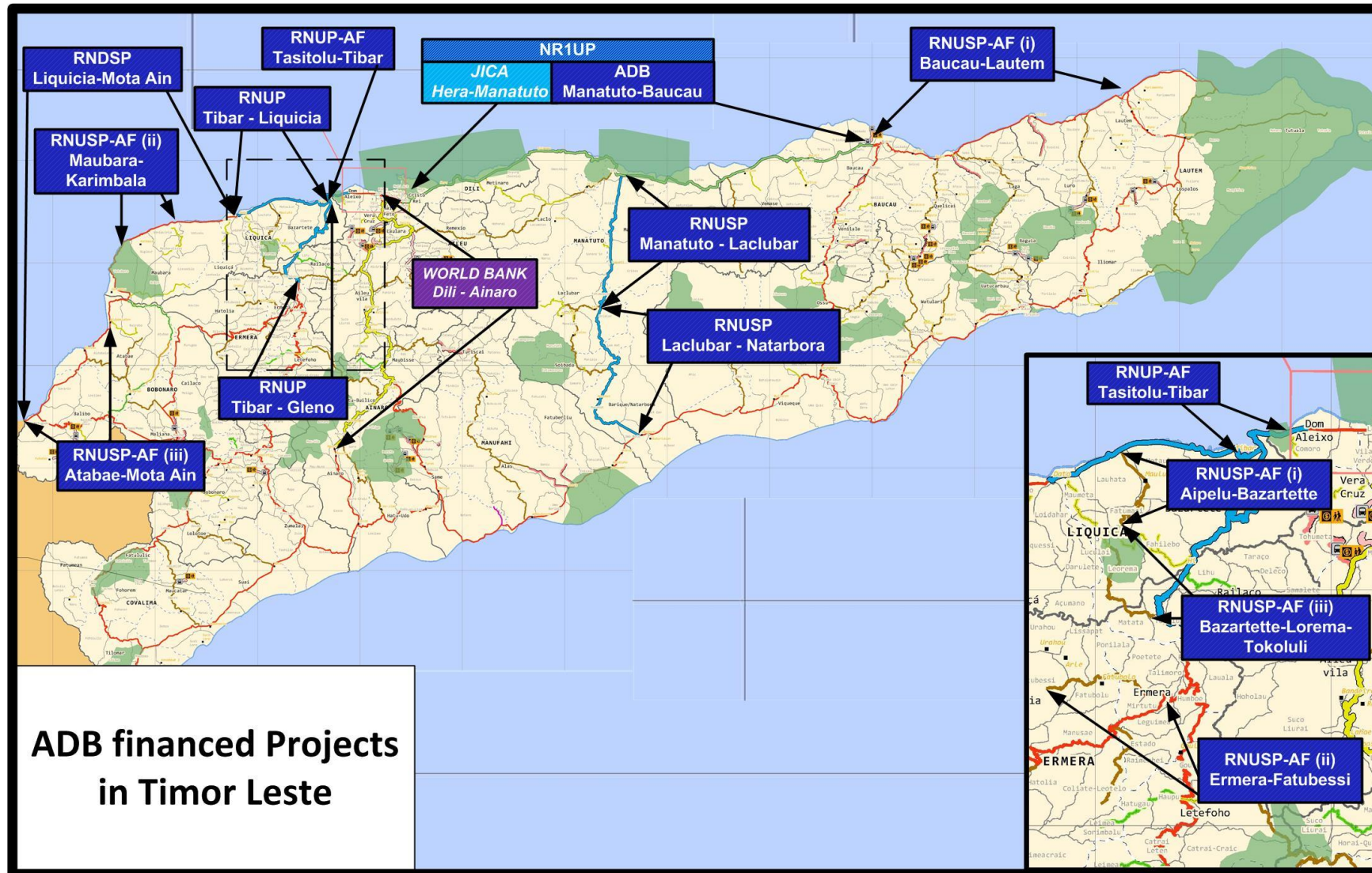
5. **Road Network Development Sector Project.** The RNDSP was physically completed in September 2015 and the project closed in May 2016. The project targeted improving routine maintenance practices on existing national roads, and upgraded continuous road lengths incorporating climate-resilient designs. The RNDSP has completed upgrading for 37km of the 78km length of A03-03/04 from Liquica - Mota Ain (R1-R2) and 33Km in the Batugade-Balibo-Maliana sections (RMC 1, 2, 3 & 4). RNDSP was concluded in the reporting period July to December 2016. Environmental specialists are keeping a watching brief on the Liquicia to Atabae sections during travel to the west for inspections of RNUSP-AF.

6. **Road Network Upgrading Project.** The RNUP complements the RNDSP by financing the upgrading the roads from Dili to Liquica and from Tibar to Gleno and results in substantial improvement in access to Dili from the west. The completed components of this project comprise upgrading roads from (i) Dili to Liquica (21km), (ii) Tibar to Gleno (31km), (iii) feasibility study and detailed design of the Manatuto to Natarbora road, and (iv) supervision of construction of the Dili - Liquica and Tibar - Gleno roads. Additional financing was approved in March 2014 to allow construction of a 6.8km section of the Dili - Liquicia road to be constructed to a significantly higher standard than originally envisaged and realignment of another section (Tacitolu to Tibar) to provide for traffic associated with the proposed Tibar Bay port development. Additional financing is also approved to administer three district feeder roads financed by the EU; (i) C17-C16 Part 1 Aipelo – Bazertete; (ii) C13 Ermera – Fatubessi and (iii) C17-C16 Part 2 Bazertete – Lorema - Tokolui (43.8 km). In this reporting period, under RNUP-AF, the active construction contracts are Tasitolu to Tibar and C17-C16 Part 1 Aipelo – Bazertete;. The project implementation and supervision consultants and contractors for district feeder roads (i) C17-C16 Part 1 Aipelo – Bazertete and (ii) C13 Ermera – Fatubessi mobilised and preparatory works have commenced for Aipelo to Bazartette. Ermera Fatubessi will also commence in the next reporting period.

7. **Road Network Upgrading Sector Project.** The RNUSP focuses on the roads servicing the north coast in the western and eastern regions of Timor-Leste (i) Maubara – Karimbala : Atabae – Mota Ain and (ii) Baucau – Lautem (iii) the north-south links from Manatuto to Natarbora, from Baucau to Viqueque, and inland from Lautem to Lospalos. The project will: (i) upgrade and climate-proof national roads of about 117 km of roads to a climate-resilient standard including 81km of priority roads from Manatuto to Natarbora. Two construction contracts have been active since 2015: namely (i) Manatuto to Laclubar Junction and (ii) Laclubar Junction to Natarbora. This project also includes preparation of detailed designs for future priority road links including detailed engineering design and social and environmental due diligence; prepared for about 169km of national roads (Baucau –Lospalos – Lautem – Com and Baucau – Viqueque). In addition community-based road safety awareness and HIV/AIDS awareness are included and project management support through further strengthening of the project management unit (PMU). Two more construction contracts have been active since October 2017 under additional financing: (i) Baucau – Lautem (ii) Maubara – Karimbala : Atabae – Mota Ain. In this reporting period the section from Baucau to Viqueque is being prepared as the Baucau to Viqueque Highway Project.

8. **National Road No.1 Upgrading Project.** The NR1UP project road is 105 kilometers long and is the primary national road near the the north coast which connects the Capital city (Dili) with the second largest town Baucau and municipalities and agricultural areas further to the east. The NR1UP has two packages A01-01 (Dili to Manatuto 46.7km) and A01-02 (57.7km Manatuto to Baucau). ADB is cofinancing the project on a parallel basis with the Japan International Cooperation Agency (JICA). JICA is supporting upgrading Dili to Manatuto and ADB is supporting upgrading Manatuto to Baucau. Construction of both sections commenced in early 2016. The Manatuto to Baucau section was taken up for financing by ADB in the June to December 2017 reporting period.

Figure 1.1 Location of ADB financed projects



C. Status of Projects

9. Environmental assessments have been conducted for all projects and environmental management plans (EMP) have been prepared.

10. The Environmental License for RNUSP (Manatuto –Laclubar – Natarbora) was renewed in December 2016 with validity until March 2019. The environmental licenses for A01-02 (Manatuto-Baucau) and RNUP-AF (Tasitolu-Tibar) were issued in January 2017 and both valid until April 2019.

11. The environmental assessments and EMPs for the two new contracts under RNUP-AF (EU – Apielu-Bazartete and Ermera Fatubessi) were submitted in July 2017 and approved by ADB. The licenses have been subject to a protracted process of negotiation between which has been resolved in this reporting period and the licenses will be issued early (July 2018) in the next reporting period with validity until July 2020.

12. The environmental assessments and EMPs for the two other contracts under RNUP AF (i) Maubara – Karimbala : Atabae – Mota Ain and (ii) Baucau – Lautem were submitted by January 2017 and approved by ADB. The licenses have been subject to a protracted process of negotiation between the proponent and National Directorate for Pollution Control and Environmental Impact (DNCPIA) and will be issued in the next reporting period with validity until 2020. The PMU has been actively driving the issue of these environmental licenses.

13. The application for environmental license for the third district feeder road (Bazartete to Tokoluli) will be made during the next reporting period. The draft environmental assessments and EMP will be submitted following categorization by DNCPIA during the next reporting period. The status of the projects' documents is shown in Table 1.2 (at the end of this section).

D. Institutional Arrangements

14. The executing agency for the upgrading and improvements projects is the Conselho de Administração do Fundo Infraestrutura (CAFI) and the implementing agency is the DPW. The agency for implementation within DPW is the Project Management Unit (PMU) established to manage and implement projects financed wholly or partially by GOTL's development partners.

15. The PMU is embedded in the DPW and is responsible for managing programs with financing from GoTL development partners, e.g. ADB, JICA, EU and WB etc. The PMU is responsible for day to day management of the programs, including implementation of requisite safeguards measures on all projects.

16. Through program support, the PMU has developed environmental and social safeguards teams each of which comprises international and national specialists who are financed jointly by ADB and WB. The environmental specialists in PMU are responsible for monitoring and compliance of safeguard requirements, environmental management and monitoring and capacity development for environmental safeguards for contractors across all projects and more broadly within DPW. In practice PMU has accumulated considerable experience in dealing with the safeguard requirements of development partners and other government agencies.

17. The implementation of each subproject is supervised by a team of consulting engineers known as the Project Implementation and Supervision Consultants (PISC). Within each project there are one or more contract packages or components which are undertaken by contractors. Each Contractor is required to have an officer to oversee environmental, health, safety and traffic matters; responsible to supervise the workforce in the implementation of mitigation measures for environment management, health, safety and traffic control as required in the EMP. This staff in the Contractor team is generally referred to as the Environmental and Safety Officer (ESO) or in some cases the contractors have an Environmental Officer (EO) and a Safety Officer (SO).

18. The need for construction materials (gravel and sand) to support the project has led the contractors to establish numerous mountain and river quarries in the vicinity of the project corridors. Under the Ministerial Diploma 64/2016 on Specific Rules for the Licensing of the Mining Activity the contractor is required to apply for a mineral license before setting up a quarry or other source for mineral extraction. The National Authority of Petroleum and Minerals (ANPM) within the Ministry for Mineral Resources is the authority responsible to control the mining activity around the country. A good coordination has been achieved by the environmental specialists in PMU by regular liaison with ANPM to address the concerns on mineral licenses requirements and to facilitate road projects.

19. In December 2016 the MINISTRY OF COMMERCE, INDUSTRY AND ENVIRONMENT (MCIE) the MINISTRY OF PETROLEUM AND MINERAL RESOURCES (MPMR) and the MINISTRY OF PUBLIC WORKS, TRANSPORT and COMMUNICATIONS (DPW) reached an agreement to establish cooperative arrangements in the process of securing environmental and mineral licenses for the extraction of construction materials in order to accomplish the desire of the Government to complete the major investments being utilized for the rehabilitation of roads. The cooperative arrangements are called the memorandum of understanding (MOU). The environmental authority is the Secretary for Environment, now under the Ministry of Economic Coordination (MEC).

20. In the MOU the three ministerial authorities agreed to recognize the Environmental License, including the Environmental Management Plan (EMP) and Simplified Environmental Impact Statement (SEIS) used to secure the Environmental License for the Project as evidence of satisfactory compliance with the environmental requirements of DNCPIA for purpose of securing mineral licenses. The Environmental License obtained by DPW from MCIE for the road construction being evidence of compliance to the requirement of mitigating the environmental impact due to the construction of the road project including the ancillary facilities of quarrying; borrow pits; installation of asphalt plant, crushing plant, batching plant, fabrication plant and other facilities necessary for the road project. The arrangements made under the previous government are under consideration at the end of this reporting period.

21. When construction companies identify a potential source, Location Approval must first be sought from ANPM. Each location is approved individually by ANPM in principal at this stage. Construction companies must then complete the requirements of the Ministerial Diploma 64/2016 as agreed in the MOU including Mining Plan including a Site Specific Environmental Management Plan (SSEMP) and other requirements for each location to obtain the Mineral License. Construction companies will not be fully authorized to extract construction materials without subsequently obtaining the Mineral License.

22. In practice the Mineral License will be issued subject to documents required under MD64/2016 above being completed and that ANPM and DNCPIA gives their endorsement of the mineral extraction activities and associated facilities.

E. Arrangements for monitoring

23. The environmental specialists in PMU currently comprise an international environment specialist (IES) and one national environment specialist (NES) responsible for the coordination of environmental management, environmental monitoring and capacity development across all ADB, JICA, EU and WB projects. A national environment technical officer recently renamed national environment assistant (NEA) joined the environmental specialists in 2016 and remains in post. The IES (intermittent) and NES and NEA (full time) each have a 12 month contracts; renewable each year. IES and NES liaise directly with the Project Implementation and Supervision Consultant's (PISC). NES keeps a site diary for each contract. NEA supports the NES and IES as required in reporting and field operations as necessary.

24. The Project Implementation and Supervision Consultants (PISC) for each project have one international environment consultant (IEC-intermittent) and one national environment consultant (NEC-full time) responsible for environmental management and monitoring for the project component contracts under their control.

25. In practice there are one or more contractors under each project. Each contractor is required to have officers covering environmental and safety that are sometimes combined in one position of Environmental and Safety Officer (ESO); also overseeing traffic management. The ESO liaises directly with and receives instructions from NEC and IEC through the PISC.

26. NEC liaises directly with the contractors ESO on a daily basis. NECs keep a site diary for each contract that they are responsible. The IEC provides intermittent (usually about 3 weeks to one month every quarter) mentoring for the NEC and training for the contractor staff. The IES and NES mentor the PISC's NEC environmental officers when the IEC is not working on the project.

Table 1.2: ADB Road Projects Status, Categorization and Documents

Project	Subprojects	Category	Documents	Environmental License(Original)	Environmental License(Renewal)
RNDSP	(i) A03-03/04 Liquica-Mota Ain-Batugade (R1-R2); (ii) Balibo – Maliana (RCM 1-4)	B	(i) SEIS 2012 (ii) Maintenance only but followed EMP for R1 & R2.	(i) 21 Sep 2011	(i) 13 Jan 2014
RNUP	(i) Tibar – Liquicia(R3); (ii) Tibar – Gleno(R4)	B	SEIS & EMP June 2016	(i) 31 May 2012 (ii) 161 Aug 2012	(i) 19 Sep 2014 (ii) 02 Oct 2014
RNUP-AF	Tacitolu– Tibar(4 lane - dual carriageway)	B	SEIS & EMP June 2016	18Jan 2017	Due 17Apr 2019
NR1UP	A01-01 Dili - Manatuto	B	SEIS & EMP May 2014	13 Jul 2015	Due 17Apr 2019
NR1UP	A01-02 Manatuto – Baucau	B	SEIS & EMP Jun 2016	18 Jan 2017	Due 17Apr 2019
RNUSP	Manatuto – Laclubar – Natabora	B	SEIS & EMP June 2014	02 Jul 2014	Due 16 Mar 2019
RNUP-AF	(i) C13 Ermera - Fatubessi	B	(i) C13 Ermera - Fatubessi; SEIS & EMP Submitted 14 th June 2017	13Jul 2018	Due 13Jul 2020
	(ii) C17 Aipelo-Bazertete Part 1	B	(ii) C17-C16 Part 1 Aipelo-Bazertete SEIS & EMP Submitted 14 th June 2017	13Jul 2018	Due 13Jul 2020
	(ii) C17-C16 Bazertete-Leorema-Tokolui Part 2	TBC	(iii) C17-C16 Part 2 Bazertete-Lorema-Tokolui Draft SEISs(i) & (ii) submitted to ADB Apr. 2016 Additional study required for ecology.	(iii) C17-C16 Part 2 Bazertete-Lorema-Tokolui Project Document in preparation & draft SEIS (awaiting input from detailed avifauna study Aug Sep 2017). EMP in press.	N/A
RNUSP-AF	(i) Baucau – Lautem;	B	(i) SEIS & EMP being updated June 2018	SEIS & EMP Comment issued DNCPIA 6 th Jun 2018 DNCPIA comments addressed after high level meetings Jun 2018	N/A
	(ii) Maubara – Karimbala	B	(i) SEIS & EMP being updated June 2018	SEIS & EMP Comment issued DNCPIA 6 th Jun 2018 DNCPIA comments addressed after high level meetings Jun 2018	N/A
	(iii) Atabae – Mota Ain	B	(i) SEIS & EMP being updated June 2018	SEIS & EMP Comment issued DNCPIA 6 th Jun 2018 DNCPIA comments addressed after high level meetings Jun 2018	N/A
BVHP	Baucau – Viqueque	B	SEIS & EMP drafted to ADB May 2017	Comment ADB July 2017. SEIS and EMP to be amended.	N/A

N.B. Environmental License validity minimum 2 years. NYR = not yet received.

2. Monitoring Activities

27. **Methodology.** In order to achieve consistency and harmonisation, monitoring is conducted in a similar way for all projects, by following the approved environmental management plan (EMP). Monitoring is conducted by visual observation to check if the project activities are mitigated in line with the EMP; checking that mitigation measures are being implemented. The EMPs for some early projects (e.g. RNDSP and RNUP) were less developed but the implementation of later projects has led to more comprehensive EMP with a more extensive suite of core mitigation measures; that can generally be applied to many road projects. The core mitigation measures have been promulgated in the past four years and will continue to be applied to all new projects going forward. The EMP is designed to be updated by the contractors, ideally by the ESO, in the pre-construction stage. In practice the contractors environmental awareness at the beginning of project implementation is very low and capability is limited although this has improved in many cases after training. The first stage of interaction is to provide environmental compliance and awareness training (ECAT). However, even when training is completed, experience shows that ESOs require very significant support from both PMU and PISC staff to update the Contractors EMP (CEMP) and to complete weekly inspections and monthly environmental reports. Project specific issues such as location of ancillary and associated facilities (quarries, crushers, batching plant and asphalt mixing plant etc.) are also included in each CEMP.

28. Checklists have been prepared for all the main project activities. The general checklist designed to be completed on each monitoring occasion to identify the location and type of impacts that are not being controlled sufficiently well. Other checklists are designed to provide guidelines for specific construction activities and the required mitigation measures in the EMP (e.g. contractor camp, spoil disposal, quarry and manufacturing areas health and safety etc.). The IEC and NEC conduct joint inspections with the ESOs and instruct the ESOs as necessary to complete the checklists or NECs complete the checklists if the contractor does not. Stand alone monthly environmental monitoring reports (mEMR) are submitted each month. If mitigation measures are not implemented, in practice, the first case is to request action verbally. If there is no response this is followed by written instructions and Corrective and Preventative Action Requests (CPARs). Checklists are appended to the mEMR and instructions for the month are summarised in the mEMR.

29. The coverage of the checklists is presented in Table 2.1. Checklists were updated in September 2016 in English with corresponding translation to Chinese (simplified) as currently all contractors are Chinese or Philipino and this covers the working languages on all the projects. After group discussions with all NECs from ADB, WB and JICA projects (ECAT 6 December 2017) the checklists are seen as adequate, although there may be some changing to the wording were necessary.

Table 2.1: Environmental Checklists

NUMBER	TITLE	FREQUENCY OF COMPLETING
CL 01	GENERAL MONITORING PROGRESS & ACTION	At least weekly
CL 02	CONSTRUCTION YARD/CONTRACTOR BASE CAMP / OFFICE	At least monthly
CL 03	SPOIL DISPOSAL – SETUP & CLOSE OUT (includes macadam)	At least monthly
CL 04	SPOIL DISPOSAL OPERATION (Monitoring includes macadam)	At least monthly
CL 05	BORROW PIT/QUARRY – SETUP & CLOSE OUT	At least monthly
CL 06	BORROW PIT / QUARRY OPERATION	At least monthly
CL 07	MANUFACTURING AREAS (Crusher & Asphalt Mixing Plant AMP, Batching Plant, Casting Yard etc.)	At least monthly
CL 08	CONTRACTOR WORKER ACCOMODATION	At least monthly
CL 09	HEALTH AND SAFETY	At least monthly

30. Translation into local languages can be provided by the NES and NEA as necessary. At the round of capability development training (ECAT 6 December 2017) it was agreed that further refinement of the checklists would be made in 2018/2019 as necessary. based on project experience. The checklists may be updated in the next reporting period based on discussion during joint inspections. Checklists are common to all projects. The effectiveness of checklists and any emerging problems with contractors will be reviewed again at an

ECAT workshop in the next reporting period. Although the contractors' environmental awareness is generally very low, the core mitigation measures have been promulgated since the IES was engaged in October 2013 and will continue to be applied to all aspects of the subprojects until they are completed.

31. The IEC, NEC refer to the EMP, CEMP and checklists and instruct the ESOs as necessary. In practice the first case is to request action verbally. If this does not illicit an acceptable improvement, written instructions to the contractor are usually by letter from the PISC to the contractor. If verbal and written instructions from PISC, IEC and NEC to the contractor have not achieved the necessary action then the IES and/or NES will revisit the site and issue a letter listing contraventions of the EMP and/or a corrective and preventative action request (CPAR) to the PISC to enforce on the contractor. In unusual circumstances (safety or danger) an instruction from the PISC may be issued to stop work. The intermittent monitoring undertaken by the PMU is presented in Appendix 1A. The summary of monitoring from monthly environmental monitoring progress reports undertaken by the PISC is presented in Appendix 1B. Letters listing any non-compliances with EMPs are issued after periodic site inspections for all projects.

32. **Participants in the monitoring.** The IES, NES, NEA, IECs, NECs and ESOs all participate in environmental monitoring. Other staff in PMU and PISC will also report back problems if they are observed. The ESOs and the NECs work with each other on a daily basis. The IECs are present intermittently; generally during the pre-construction stage for setting up associated facilities and just before and after submission of license renewals and the quarterly environmental reports. IES, NES and NET participate intermittently during any given month and respond to specific issues or problems and keep a watching brief on all projects. In addition the IES and NES mentor the NECs when the IECs are out of country. IES and NES have also conducted group training and workshop activities (ECAT 1 - November 2015, ECAT 2 – May 2016, ECAT 3 Contractors only June 2016, ECAT 4 - September 2016, ECAT 5 - June 2017 and ECAT 6 - December 2017) for the NECs and additional on site training sessions for monitoring with the NECs, to mentor the NECs when the IECs are out of country. Project specific ECATs have taken place with all Contractors and PISC staff either individually or in groups as contractors have mobilised. The ECAT 7 originally planned for this reporting period was delayed due to the absence of the IES in March (study leave) and April (car accident and medical treatment). The ECAT 7 or meetings after joint inspections will be conducted in the next reporting period to follow up on the amended reporting format, checklists in the updated format and to provide more training on aspects of the EMP, site clean up and rehabilitation procedures and report writing. In the past IES and NES have also conducted occasional training presentations on specialist subjects such as environmental management which includes reference to monitoring procedures. In the meantime IECs on NR1UP and RNUSP-AF have conducted more training on all aspects of the EMP, monitoring, safety and traffic issues which may also be covered more formally in the next round of joint inspections, as requested by NECs and ESOs. The IEC on RNUSP-AF resigned during this reporting period and will be replaced in the next reporting period. There is no third party monitoring for environment. The dates for the site monitoring undertaken by the PMU and PISC and participants are presented in Appendices 1A and 1B, respectively.

33. **Frequency of monitoring.** The ESOs and the NECs work together daily and the NEC keeps the site diary up to date. The NES / NEA will visit each project / site for a joint inspection with the NEC and ESO targeting at least twice per quarter (or more frequently if special needs arise). The IES will usually attend the twice quarterly joint inspection with NEC and ESO. Unannounced spot inspections can be carried out at any time by the NES and IES, such as after heavy rain or earth tremors or if there is a complaint or serious accident. Under normal operations the IEC and/or NEC will be instructed by the NES and IES to get the contractor to improve any EMP matters that need attention and improve mitigation as necessary, with follow up letters to the resident engineers in the PISCs, accordingly. In practice interaction between the PMU and each project takes place several times per quarter.

34. **The checklists** are designed for use on a regular basis each month by Contractor ESOs and the NECs in the PISC and reported in the monthly environmental monitoring reports (mEMR).

35. The general checklist (CL01) is expected to be completed on each monitoring occasion during and after field visits by ESOs and NECs. The checklist is used to identify any locations where there is a non-compliance with the mitigation measures specified in the EMP and the type of impacts giving rise to the non-compliance at that location. This can provide an overview of the locations visited and the types of impacts that are occurring which require mitigation. The locations can be identified and necessary action noted for follow up.

36. Checklists CL02, CL07, CL08, CL09 are designed to provide a guide to focus on the key mitigation measures for certain key construction activities and are recommended to be completed at least once a month. CL02 is for contractor base camp – maintenance yard. CL07 covers manufacturing areas such as crushers batching plant, casting yard and asphalt mixing plant. CL08 focusses on the mitigation measures needed at the contractors accommodation. In some cases the accommodation is located within the base camp, in others the accommodation is separate. These four checklists may need to be completed more frequently if there are many non-compliances with the EMP requirements and more inspections are necessary such as when activities that create environmental impacts are very intense or are changing or if the Contractor does not respond to request to improve compliance with the EMP.

37. The Checklists CL03 and CL05 focus, respectively, on the activities and potential impacts during the setting up of designated spoil disposal areas and borrow pits/quarries. The Checklists CL03 and CL05 should be followed once during preparation of the sites, while the necessary permissions and approvals are being put in place. CL04 and CL06 focus, respectively, on the operation and decommissioning of spoil disposal areas and borrow pits/quarries and the procedures and potential impacts that need to be controlled. Decommission and rehabilitation of spoil disposal areas and borrow pits/quarries is covered in the approved EMP. The checklists can also be used by any interested parties to identify the key impacts for the main construction activities.

38. Consultants have generally supported the PMU well in the completion of checklists, and have issued site instructions to Contractors in respect of matters raised by PMU in various Corrective and Preventative Action Requests (CPARs). Whereas Contractors have in many cases generally been responding to the requests made for improvements, response time has become too long in this reporting period. There have been exceptions where there have been several incidences where it has been necessary to repeat CPARs. This matter has received particular emphasis at the end of this reporting period and it will continue to be emphasised in the next. Some improvements have been noted but continued vigilance is required from all the PISCs to make sure the contractors respond to the CPARs and apply all the EMP requirements on every project.

39. **Main activities.** The main activities during monitoring are direct observations on site of the status of the implementation of the mitigation measures in the SEIS, EMP and Environmental License for each project. In addition there are weekly and monthly progress meetings held with the PISC during which environmental and safety matters can be raised. The monthly progress meetings are attended by the IES and / or NES during which environmental issues and priorities are raised. For reporting issues such as preparation of CEMP, preparation of monthly environmental reports, applications to extract construction minerals and for quarry and batching plant etc., and other reports. *Ad hoc* meetings are arranged in PMU, on site or PISC and contractors offices as necessary.

Table 2.2: Summary of Monitoring ADB Road Projects for monitoring period

Project	Location	Monitoring Inspections PMU	Monitoring Monthly Report PISC
RNDSP	(i) A03-03/04 Karimbala – Atabae (R2)	Completed	Completed
RNUP	(i) Tibar – Liquicia(R3)	Completed	Completed
	(ii) Tibar – Gleno(R4)	Completed	Completed
RNUSP	(i) Manatuto – Laclubar Junction (P1)	3	55
	(ii) Laclubar Junction – Natabora (P2)	3	60
RNUP-AF	Tacitolu– Tibar (dual carriageway)	5	30
NR1UP	A01-02 Manatuto – Baucau	4	32
RNUSP-AF	(i) Bacau - Lautem (East)	2	53
	(ii) Maubara Karimbala & Atabae Mota Ain (West)	5	98
RNUP-AF (EU)	Aipelu-Bazartete & Ermera-Fatubessi	3	No construction yet

3. Works in Progress

40. **Road Network Development Sector Project.** The RNDSP was physically completed in September 2015 and closed in May 2016. Environmental compliance and awareness training was conducted at the commencement of the project and repeated in November 2013 and June 2014. Regular monitoring of RNDSP was concluded in September 2015. However, several areas of bioengineering were completed by the Contractor by September 2015. The PMU environmental specialists have observed the progress of these bioengineering sites informally in order to collect empirical information on the success of these measures as a basis for future guidance on bioengineering installations. A checklist was also prepared to cover bioengineering on RNDSP. The bioengineering using live stakes on fill slopes has been successful and many trees are now fully mature at over 3m with crowns of 1m to 2m diameter. These installations provide a good example for future bioengineering installations on fill slopes. The bioengineering has been established for three years by the end of this reporting period.

41. **Road Network Upgrading Project.** The RNUP was physically completed in August 2016. The Tibar – Gleno road (R4) was completed and inaugurated in June 2016. The Tibar – Liquica (R3) was completed in August 2016. The defects notification period expired in 2017 and two years performance based maintenance is following on each contract. Regular monitoring of RNUP was concluded in September 2015. However, by September 2016, several areas of bioengineering were completed by the contractors. The environmental specialists have been observing the progress of the bioengineering sites occasionally in order to collect empirical information on the success of these measures as a basis for future guidance on bioengineering installations. The bioengineering using various techniques such as palisades, mixtures of grasses, brush layers, live stakes on both cut slopes and fill slopes. This has been successful and large stands of vegetation are well established in over 20 locations with many trees and shrubs fully mature at over 3m height, with fully developed crowns. By the end of this reporting period secondary self seeding vegetation is also established and mixed with the original bioengineering; which adds diversity and stability to the slopes. These installations also provide a good example for future bioengineering installations on cut and fill slopes and have been established for two years by the end of this reporting period.

42. **Road Network Upgrading Project – Additional Financing.** The Contractor for RNUP-AF for **Tacitolu to Tibar** New Port Road mobilized in February 2017. Environmental compliance and awareness training was conducted both before mobilization in December 2016, again in February 2017 and repeated in June 2017. Further training was carried out in December 2017. The Contractor's environmental officer (EO) resigned in January 2018 and was replaced in March 2018. Major works in this period have included completion and consolidation of cut slopes and further work on construction of the embankment and sub-base layers in all sections. Clearing and grubbing is completed. Earthworks and construction of line drains and retaining walls is approaching completion in most sections. The construction of the Tibar Bridge is proceeding again after set back due to flooding in the last reporting period. The construction of the seawall at Km10+100 to Km10+300 commenced in May and is scheduled to be completed in September. The operation of the spoil disposal sites is acceptable. About 38% of the project works have been completed, mostly on earthworks, embankment and construction of line drains and retaining walls. The crushers and sand washing have been active at the Contractor's compound. The asphalt mixing plant will be installed in the next reporting period.

43. The **RNUP-AF (Tacitolu to Tibar)** Contractor has applied for mineral licenses for both a mountain quarry and river borrow pit in Tibar in February 2017. The documentation has been completed and is subject to technical comments and the issue of mineral licenses is now under review by the ANPM. The Contractor has also identified other commercial third party sources of sand and gravel materials in the vicinity which already have location approval from ANPM. The alternative commercial sources of sand and gravel materials at the nearby Ai-Pelu River may also be used for the project. The operator of that third party location has applied for mineral license from ANPM in the previous reporting period.

44. The District Feeder Roads (EU) contract was activated by June 2018 and the same Contractor will complete both Aipelu-Bazartete and Ermera-Fatubessi sections. By June 2018 the Contractor has mobilised for the C17-C16 Pt1 Aipelo-Bazertete and was completing the surveys and placing station markers. The construction camp location was negotiated, cleared, levelled and drainage constructed for the prefabricated buildings. An area opposite has been cleared for screening sub-base materials. Laboratory tests are being made on sand and gravel materials from the nearby Ai-Pelu River and application for location approval from ANPM and mineral license will be made in the next reporting period. The Contractor has not mobilised fully on C13 Ermera-Fatubessi because of issues concerning limited access over two old baley bridges which require strengthening for safe passage of heavy equipment. Enabling work to repair the bridges will commence in the next reporting period.

45. **Road Network Upgrading Sector Project.** The RNUSP from Manatuto via Laclubar Junction to Natarbora has been under construction since 2015. The section from Manatuto to Laclubar Junction (Package 1) commenced in February 2015. The section from Laclubar Junction to Natarbora (Package 2) commenced in July 2015. Since the last reporting period both projects have progressed significantly as the weather has been more favourable. The works for Manatuto to Laclubar Junction have proceeded well but progress on Laclubar Junction to Natarbora is still at a moderate pace.

46. Package 1 (Manatuto to Laclubar Junction) completed the reconstruction and pavement surfacing through Km85 to Km95 in Cribas and in all areas up to Km98. The remaining 3km in the mountain sections require base course and laying the asphalt wearing course; to be completed in the next reporting period. Road signs, road markings and other road safety measures are being installed. Overall completion is about 85%. Environmental compliance and awareness training was conducted for the Contractor 2015 at the commencement of the project and there has been further interaction on an intermittent basis by the PISCs IEC with the Contractor's ESO and senior management since that time. Environmental compliance and awareness training was conducted for the PISC in 2015 and the most recent ECAT was in December 2017. On the job training has continued in 2018 during joint inspections for the PISC and NES as the different aspects of works have been carried out.

47. Mineral licenses were successfully obtained at two river borrow pit locations. The contractor, as the proponent of the borrow pits, with the assistance of the PISC and the PMU applied for and secured the mineral licenses in reasonable time. The Contractor in this section so far has had a good record, based on feedback from ANPM and PMU observations, concerning how they have addressed the minning license requirements. One mineral license for sand and one for gravel are in effect for Laclor River (Cribas – both valid until April 2019). The mineral license secured earlier for Sumasse River is no longer required.

48. Package 2 (Laclubar Junction to Natarbora) has completed over 85% of earthworks, 60% sub-base and base course and 71% drainage a slope protection works. Laying of asphalt is 43% complete. Sections are in various stages of completion. Overall completion is about 58%. Environmental compliance and awareness training was conducted for the Contractor 2015 at the commencement of the project however the further interaction with the Contractor's ESO has been limited to site visits. Environmental compliance and awareness training was conducted for the PISC in 2015 and on the job training has continued in 2016, 2017 and 2018 for the PISC and NES as the different aspects of works are carried out.

49. RNDSP Package 2 Contractor worked in 2015 to secure one mineral license for two stone quarries (Barique Km105 and Km115) and Lamara river (Km140). The renewal application for the quarries has been submitted to ANPM and after several iterations of the various supporting documents payment arrangements have been agreed. After initial exploration, the Contractor has not yet pursued the river quarry in Mahehat River (Km134 right). The capability of the contractor staff to process the supporting documents for mineral licenses was the main obstacle and cause of delay of securing the mineral licenses, however there is now a delay with the agreed payments. PMU environmental specialists supported the Contractor early in this reporting period and PISC had joint meetings with ANPM / Contractor / PMU in March 2018. PISC went through the applications in detail with the Contractor. The

inputs from the PISC IEC have had some positive effect and CNI22 they have completed the necessary documents, but these will not be progressed technically until the problem with payments is resolved. The support from PMU and ANPM and intervention by the PISC has eventually caused the the Contractor to engage to the point where they have complied with the requisite documentation. This Contractor has a very poor record on how they have addressed the mining license requirements based on feedback from ANPM and PMU observations but the current hiatus is attributed to problems with payments.

50. Road Network Upgrading Sector Project – Additional Financing. The RNUSP-AF has two sections being constructed by two separate teams from the same Contractor. The sections are from Baucau to Lautem (Bau-Lau-east) and Maubara to Karinbala and Atabae to MotaAin (MKAM-west). Both commenced in September 2017 but mobilization was delayed until 2018 due to slow delivery of equipment from China. However both projects have subsequently progressed in this reporting period.

51. Baucau to Lautem Contractor has completed the setting out by mid March and by June 4% of earthworks were complete. Overall completion is about 8%. Environmental compliance and awareness training was conducted for the Contractor in February after commencement once the relevant staff were in post. The PISC IEC provided further training during the first tour of duty in February and March 2018. There has been further interaction and on the job training on an intermittent basis with PISC NES and the Contractor's ESO and senior management since that time; especially during joint site inspections. Further environmental training will be conducted in the next reporting period for NES and ESO.

52. Location approvals were obtained for three river quarry locations in Bau-Lau-east in the last reporting period. In March, April and June 2018 the documentation to support applications for one mineral licenses for each river quarry have been submitted. The application for environmental license for the crushers, batching plant and asphalt mixing plant at Laga and all three river quarry location will be submitted in the next reporting period (July 2018).

53. Maubara to Karinbala and Atabae to Mota-Ain The Contractor completed the setting out by mid March and by June 3% of earthworks were complete. Overall completion is about 6%. Environmental compliance and awareness training was conducted for the Contractor in February at the commencement of the project and the PISC IEC provided further training during the first tour of duty in February and March 2018. There has been further interaction and on the job training on an intermittent basis with PISC ESO and the Contractor's ESO and senior management during site inspections. Further environmental training will be conducted in the next reporting period for NES and ESO.

54. Location approvals were obtained for three locations in MKAM-west in this reporting period. In February and March 2018 documentation to support applications for mineral licenses for all three locations were submitted. The application for environmental license for the crushers, batching plant and asphalt mixing plant at Manduki was submitted in October 2017. No comments have been received from DNCPIA in this reporting period and there is as yet no Categorization.

55. The Contractor for Bau-Lau-east and MKAM-west has so far established a good rapport with ANPM in respect of a proactive attitude to addressing the mining license requirements.

56. National Road No.1 Upgrading Project; Part 2 Manatuto to Baucau. The commencement date of A01-02 (Manatuto to Baucau) was on 18 August 2016. The project based on the schedule should be completed within 1,000 Calendar days (May 2019). Works in this period in various sections have included earthworks, maintenance of engineer's facility, preparation for embankment, bridges and culverts construction, drainage and slope protection works. Sections of the road are in various stages of completion. Slope cutting is mostly complete. Line drains and crossing drains are about 70% completed in some sections. In other sections the embankment and sub-base layers, drains and slope protection works are being completed. Overall completion is about 35%. Environmental compliance and awareness training was conducted for the Contractor 2016 at the commencement of the project and there has been further interaction with the Contractor's ESO and senior management at joint inspections since commencement. The Contractor's National ESO resigned in March 2017,

leaving no staff in post to continue the progress that was initially achieved on the environmental and mineral licenses in 2016/2017. The PISC instructed the Contractor to immediately replace the National ESO. The National ESO was replaced and was in post by June 2017. Environmental compliance and awareness training was followed up for the new ESO in June 2017 and on the job training for the PISC and NES continued in 2017 as the different aspects of works are carried out. The Contractor's EO was absent during part of June 2018 and duties were partially taken up by the Contractor's project manager. The PISC NES resigned and completed service in June 2018 and will be replaced in the next reporting period. The PISC IES (intermittent) was in post during part of June 2018 and continued into the next reporting period. Environmental compliance and awareness training for the replacement PISC NES will be followed up with frequent interactions and on the job training in the next reporting period as the different aspects of works are carried out.

57. The contractor has applied for five mineral licenses to allow provision of construction materials. There are four locations in river borrow pits (Sumassi, Laleia, Vemasse and Manlede (Kairabela) rivers) and a mountain quarry adjacent to the river at Vemasse. The applications have been submitted to ANPM in 2016 and location approvals for all five were granted by 2017. As of June 2018 the Contractor has been through several iterations of comments and responses with ANPM and as yet no mineral licenses have been issued for these quarries. However the contractor has progressed the documentation and has been allowed to extract and pay for the material extracted earlier. Capability of the contractor staff on processing the mineral license is the main obstacle showing on the delay of securing the mineral license. However this should be improved in the next reporting period with efficient support from the PISC's NEC.

58. Photographs of the works in progress on each project are presented in Appendix 2.

4. Monitoring Results and Actions

60. **Road Network Upgrading Project – Additional Financing - Tacitolu to Tibar New Port Road.** The Contractor for RNUP-AF:Tas-Tib has been issued with several letters regarding environmental issues. The PISC issued 9 letters in January-February, 11 letters in March-April and 9 letters in May- June 2018. In addition PMU have issued 3 CPAR letters for environmental and safety issues in this reporting period. The CPAR letters have been followed up by the PISC NEC. The main issues were (i) submission of a CEMP covering minimum requirements from ADB (ii) detailed method for construction of the sea wall at Km10 (iii) correct procedures for spoil disposal (iv) secondary containment (bund) for fuel storage (v) electrical hazards (vi) health and safety reporting (vii) traffic management and warning signs (viii) environmental reports and (ix) mineral licenses. Some improvements were noted within the reporting period. Five joint inspections were carried out by PMU, PISC and Contractor in January, early February, March and June and a further joint inspection and follow up is planned for early in the next reporting period.

61. In June 2018 the attention of PMU was drawn to information received that in April / May there was silty inundation of the coral near Dili Rock (Km10+000 to Km10+300) and other places not in this project. At that time work in that area of sea wall had only commenced with construction of a rubble access road on the land side of the beach with no work on the sea wall itself. Therefore in order to gauge and establish the extent of the locations and scale of the alleged inundation of the coral initial approaches were made to the scuba diving masters from local dive shops and some other locally experienced scuba divers. These parties have provided some first hand information of the conditions in the area. It was assumed that these persons would have the most up to date information on the situation as it developed and might also have historical information, to shed light on the natural phenomena and any allochthonous effects that influence the condition of the coral in the area. In addition the shoreside areas were re-inspected and a start was made to gathering other information on the affected areas. Contacts were also made to try and gather any recent videos and photos from divers. At this stage the information is still being gathered and will be collated and presented in the next reporting period.

62. **The District Feeder Roads (EU) Aipelu-Bazartete (C17).** Work started in earnest in May 2018. The Contractor for RNUP-AF:Aip-Baz has been issued with one letter from the PISC regarding waste management in June 2018. The PMU has expressed concerns and made verbal requests for improvements during site inspections in March and June and will issue a CPAR letter for environmental and safety issues in the next reporting period if there is not a timely response. The requests have been followed up so far by the PISC NEC. The main issue is re-submission of an updated CEMP covering location approvals for mineral extraction sites (which rely on laboratory results expected in July) and location of contractor camps and facilities. The PISC IEC worked with the Contractor in March 2018 to make an acceptable working draft of the CEMP which covers mitigation measures in the EMP and minimum requirements from ADB but the site specific details were not available at that time and must be included. The Contractor has also been requested to identify a safe method of accommodating / diverting passing traffic, as there will be no widening of the road and in general traffic management will be more difficult than on a wider road, even though there is infrequent traffic. Procedures for disposal of the old macadam pavement once removed need to be included in the CEMP and provisions made for correct fuel storage, health and safety reporting and follow up on mineral licensing procedures. The same Contractor will complete both Aipelu-Bazartete and Ermera-Fatubessi but has not yet started any significant construction work on the Ermera-Fatubessi section.

63. **Road Network Upgrading Sector Project.** Package 1 (Manatuto - Laclubar) was issued with two CPAR from January to June 2017. The last CPAR in the form of a letter in March 2016. Package 2 (Laclubar - Natarbora) was issued with one letter CPAR in March 2017 following observation of 41 matters in the EMP that were not complied with in a reasonable timeframe up to March 2017.

64. **RNUSP Package 1 (Manatuto - Laclubar)** The PISC has completed monitoring on 55 days in this reporting period. The Contractor for RNUSP was well prepared in the pre-construction stage and the CEMP was prepared in a timely manner. The requirements for spoil disposal and dust suppression have generally been complied with and by now most of the alignment and all built up areas have been paved and dust from the road surface is no longer an issue. Pack1 CPAR009 issued in March 2018 covered general housekeeping, health and safety matters, drinking water and spoil disposal and safety marking deep excavations. The secondary containment provided for the fuel storage tanks at the contractor base camp was damaged and requires repair. There has been no repetition of the incident of burning general waste (cardboard etc.) identified in 2016 and there is an improvement in waste disposal. Waste items such as plastic bottles and cans are being targeted to be recycled to local recyclers. The main issue for the next reporting period will be the site clean up and rehabilitation of the contractor camp and acceptable disposal of all waste materials and scrap throughout the project.

65. **RNUSP Package 2 (Laclubar - Natarbora)** The PISC has completed monitoring on 60 days in this reporting period. The Contractor responded by February 2018 with partial or full compliance to almost all matters raised in the last reporting period (CPAR008 Dec 2017). Dust control has not been an issue for much of this reporting period due to frequent unseasonal heavy rain however the high levels of dust seen in March indicate continued attention to dust control is required and will be required in the next reporting period as drier weather will be expected. Watering the road according to a fixed schedule three times a day was requested in the letter (Pack2 CPAR005) issued in March 2017. The issue of bunding to fuel storage areas was partially responded to (as requested by the letter Pack2 CPAR003) requires further improvement. Existing line drains and newly constructed drains have generally been kept clear. Spoil materials are now being disposed of to the designated waste disposal areas. The incident of burning general waste (cardboard etc. at the camp) in 2016 has not been repeated and waste disposal was adequate at the last inspection. Most recently the key issues drawn to the contractors attention have again been to do with routine safety procedures. Some improvements have been made but signage, segregation and barriers need to be installed or improved to many working areas especially those with deep excavation. Workers are frequently found without proper PPE and this was again drawn to the attention of the PISC and Contractor through CPAR009 March 2018. Protective coverings have been replaced on the flywheel pinchpoints on the crusher machinery.

66. The PISC and the contractor have been informed on several occasions that the mineral licenses must be kept up to date and renewals must be dealt with efficiently in a timely manner. A joint meeting with ANPM, Contractor, PISC and PMU is expected early in the next reporting period.

67. **Road Network Upgrading Sector Project – Additional Financing.** The PISCs and Contractor teams on both sections of RNUSP-AF have been responsive to the ECAT training provided earlier in this reporting period (February) there has been one CPAR letter issued to each team from Baucau to Lautem (Bau-Lau-east) and Maubara to Karinbala and Atabae to MotaAin (MKAM-west).

68. **Baucau to Lautem** The PISC has completed monitoring on 53 days in this reporting period. The Contractor for RNUSP-AF in this section was well prepared in the pre-construction stage and the draft CEMP was prepared in a timely manner. The requirements for spoil disposal and dust suppression have generally been complied with however the sufficiency of water trucks is under review. The contractor is concentrating on the areas from Laga to Lautem which are less built up, nevertheless dust from the road surface is an issue but this is ameliorated somewhat because the existing macadam has been left in place on half of the road for much of the length. No CPAR have been issued in this reporting period. Signage, barriers and safe marking of deep excavations and secondary containment provided for the fuel storage tanks at the contractor base camp have been raised as significant matters for follow up in the next reporting period. Disposal locations for general waste and local recycling options need to be identified.

69. **Maubara to Karinbala and Atabae to Mota-Ain** The PISC has completed monitoring on 98 days in this reporting period. The Contractor group for RNUSP-AF in this section seems to be less well prepared in the pre-construction stage although the draft CEMP was prepared in a timely manner. The requirements for safe stockpiling have been raised as much of this section is very near the coast. The sufficiency of water trucks is under review and will be raised in the next reporting period. No CPAR have been issued in this reporting period. Signage, barriers and safe marking of deep excavations and secondary containment provided for the fuel storage tanks at the contractor base camp have been raised as significant matters for follow up in the next reporting period. Disposal locations for general waste and local recycling options need to be identified.

70. **National Road No.1 Upgrading Project; Part 2 Manatuto to Baucau.** The PISC has completed monitoring on 32 days in this reporting period. However the monthly mEMR for June was not prepared yet for NR1UP Package 2 - Man-Bau). The June mEMR for document will be presented in the next reporting period. The Contractor group for NR1UP Part 2 having secured services from well qualified environmental officer in the pre-construction stage, that officer soon resigned and they have not been able to sustain the good start and have not paid enough attention to environmental and safety issues in the latter part of this reporting period; possibly due to changes of staff (EO & SO) and other non-environmental officers reporting to take over environmental duties. The draft CEMP will need to be updated when the mineral licenses are obtained in the next reporting period. The replacement EO has reported difficulties in getting access to meet with PISC and PMU in the field. Previous NES of PISC was not able to conduct the general inspection or to fill out the Environmental checklists and no individual EO or joint EO/NES inspections were conducted in June. Contractor's EO did not have car service during that time and he could not do regular inspection and had to share the service with the NES of PISC. This situation must be alleviated. The requirements for safe spoil disposal have partially been addressed in some areas. The sufficiency of water trucks for dust control is under review and will be detailed early in the next reporting period. CPAR004 (February) that was issued early in this reporting period was not addressed fully leading to several serious non-compliances which have only begun to be addressed at the end of this reporting period. Signage, barriers and safe marking of deep excavations poor waste management and disposal procedures and poor housekeeping at the contractor camp must be resolved rapidly in the next reporting period. Disposal locations for general waste and local recycling options need to be identified. However, a series of several large trees (Km90 to Km103) identified for preservation have so far been retained.

71. The CPARs for each project are tabulated in Appendix 4.

Table 4.1: Summary of Key Issues in CPARs for ADB Road Projects to end of this monitoring period^{###}.

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER MAN	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
CPAR 001	Clearing Lined Drains. 22 January 2016	Dust Control. 2 December 2016	Spoil Disposal. 16 September 2016	H&S, PPE, SPOIL & Waste DISPOSAL, RIVER PROTECTION, Dust Control, (CEMP reminder). 30 March 2017	CEMP (minimum content to include seawall) Fuel Tank BUND, tMP, Spoil Disposal, SO to attend joint inspection, Fuel Tank BUNDS, H&S sanitation, cleaning and housekeeping, PPE, NURSES ROOM. . 28 August 2017	CEMP UPDATE, reminder mineral & environmental LicEnses & Fuel tank bund, borrow pits, tMP, Spoil & WASTE DISPOSAL, H&S, cleaning and housekeeping, PPE, NURSES ROOM. PROTECT, Historical FORT. 30 July 2018.	CEMP UPDATE, reminder mineral & environmental LicEnses & Fuel tank bund, borrow pits, tMP, TRUCK OVERLOADED, Spoil & WASTE DISPOSAL, H&S, cleaning and housekeeping, PPE, NURSES ROOM. PROTECT. 23 July 2018.	Work area markers & stationING, TMP INCLUSIVE passing bays, minimal tree cutting, spoil disposal plan, contractor camp fencing & waste management & disposal . 23 July 2018
CPAR 002	No Burning of Waste. Garbage Disposal & Oily Waste. 22 January 2016	NO BURNING OF WASTE IS ALLOWED. 2 December 2016	NO BURNING OF WASTE IS ALLOWED 16 September 2016	FLOODING, Dust Control, SPOIL & Waste DISPOSAL, first aider, tMP, H&S, PPE, TREE CUTTING HIV/AIDS, 5 June 2017	CEMP, Health and Safety Plan & Traffic Management Plan 29 September 2017			
CPAR 003	Fuel Tanks Secondary Containment (BUND). 22 January 2016	Fuel Tanks Secondary Containment (BUND). 2 December 2016	Top Soil Conservation. 16 September 2016	DRINKING WATER, Dust Control, MACADAM SPOIL & Waste DISPOSAL, first aider, tMP, H&S, PPE 28 August 2017	tMP, Drinking water, Fuel Tank BUNDS, H&S sanitation, cleaning and housekeeping, PPE, Spoil Disposal Sites, 29 September 2017			
CPAR 004	Clearing Lined Drains Km 93 to Km 99. H&S, PPE, tRAFFIC MANAGEMENT, Fuel Tanks BUND. 30 March 2017	Spoil Disposal. 2 December 2016	H&S, PPE, tMP, stockpile near beach, OILY waste storage, SPOIL & Waste DISPOSAL, water ponding, Dust nuisance & Dust Control, 30 MARCH 2017	DRINKING WATER, Dust Control, MACADAM SPOIL & Waste DISPOSAL, tMP, H&S, PPE, TREE CUTTING 28 February 2018	temporary Portable batching Plant. 24 October 2017			
CPAR 005	Dust nuisance, H&S, PPE, SPOIL DISPOSAL, TMP 30 March 2017	No PPE Fuel Tank BUNDS. H&S, tMP. SPOIL DISPOSAL, Waste Disposal 30 March 2017	H&S, PPE, tMP, Km 20-Km 28. Culverts & detour roads, stockpile near beach 28 July 2017	CEMP update, EO & SO responsiveness, H&S, PPE, tMP, MACADAM SPOIL & Waste DISPOSAL, Dust Control, TREE CUTTING 2 August 2018	INCOMPLETE CEMP. tMP, Drinking water, Fuel Tank BUNDS, sanitation, cleaning and housekeeping, H&S unsafe practices, ELECTRICAL WIRING, PPE 1 March 2018			
CPAR 006	Dust Nuisance, H&S, PPE, tMP, Dust nuisance, NO BURNING WASTE	H&S, PPE, Fuel Tank BUNDS, SPOIL DISPOSAL, tMP, Waste Disposal 28 July 2017	H&S, PPE, tMP, Drinking water, Dust nuisance & Dust Control,. OILY		GRM & ADB letter of 11 April and 7 of June & 13 June 2018			

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER MAN	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
	28 July 2017		waste storage, SPOIL & Waste DISPOSAL 27 September 2017					
CPAR 007	H&S, PPE, Drinking water, SPOIL DISPOSAL, tMP, Dust Nuisance, Waste Disposal 27 September 2017	H&S, PPE, Fuel Tank BUNDS, Dust Nuisance, SPOIL & Waste DISPOSAL, tMP, worker ACCOMODATION, Drinking water. 28 September 2017	Fuel Tanks Secondary Containment and storage hazardous substances. 27 September 2017		PUBLIC ACCESS TO SITE & RUNOFF, SEA WALL CONSTRUCTION, INCOMPLETE CEMP. tMP, Fuel Tank BUNDS, NURSES ROOM, Waste DISPOSAL, Drinking water, sanitation, cleaning and housekeeping, H&S unsafe practices, ELECTRICAL WIRING, PPE & incorrect welding equipment . 13 June 2018			
CPAR 008	H&S, PPE, tMP, SPOIL DISPOSAL, Dust Nuisance, Waste Disposal REMINDER LICENSES. 6 December 2017	Km 105 Quarry Operation; H&S, PPE, Fuel Tank BUNDS, Dust Nuisance, SPOIL & Waste DISPOSAL, tMP, REMINDER LICENSES. 6 December 2017	CEMP update, REMINDER LICENSES, Drinking water, H&S, PPE, tMP, Dust nuisance & Dust Control, Fuel Tank BUNDS, BORROW PITS, OILY waste storage, SPOIL & Waste DISPOSAL, TEMPorary DRAINAGE 28 February 2018		Sea Wall construction. Silt Fence. 10 July 2018 NOT SENT			
CPAR 009	H&S, PPE, tMP, Drinking WATER, ACCIDENT BOOK, SPOIL & WASTE DISPOSAL, Dust Nuisance. 12 March 2018	Km 105 Quarry Operation; H&S, PPE, Drinking water. Fuel Tank BUNDS, Dust Nuisance, SPOIL & Waste DISPOSAL, tMP, REMINDER LICENSES. 2 March 2017	Dust Control. 17 May 2018					
CPAR 010	H&S, PPE, tMP, Drinking WATER, ACCIDENT BOOK, SPOIL & WASTE DISPOSAL, BUND REPAIRS. 6 August 2018	CEMP update, EO & SO responsiveness, H&S, PPE, tMP, TRUCK OVERLOADING, worker ACCOMODATION SPOIL & Waste DISPOSAL, Fuel Tank BUNDS, REMINDER LICENSES, Dust Control / watering schedule. 6 August 2018						

PPE = Personal Protective Equipment, H&S = Health and Safety, TMP = Traffic management planning, Bund = Secondary containment for hazardous & flammable substances, EO & SO Environmental & Safety Officer.

Full details of CPARs are presented in Appendix 4

5. Summary and Conclusion

72. **Summary.** The monitoring and capacity development programmes are generally proceeding in a satisfactory manner. However, despite several non-conformances with the EMP having been brought to the attention of the PISCs and contractors, in many cases these have not been rectified in a timely manner. Whereas some minor non-conformances and lapses in performance may be expected in any environmental monitoring programme the recurring non-conformances are not acceptable and PISCs and contractors require continual reminders that these issues are significant and must be addressed immediately; for checking in the next reporting period.

73. The contractors and PISCs on all projects have been given awareness training on the policy, legal, and administrative framework. The requirements for mitigation measures and environmental monitoring and procedures are clearly set out in the contracts. Contractors and PISCs have been consulted on the checklists and the recommended procedures for environmental monitoring have been worked out following consensus; during various ECAT and other training sessions.

74. The checklists are designed to remove the need for extensive narrative in report writing and they can be completed at least weekly for general monitoring and at least monthly for specific sites such as contractor camp, spoil disposal and quarry operation and manufacturing areas as described in the monitoring section above. One copy of the checklists for the month is sufficient to be submitted to PMU in the monthly environmental monitoring report and it is sufficient for this to be on CD Rom in order to conserve paper resources.

75. Some difficulties have emerged in this reporting period where some NECs in the PISCs and the ESOs of the Contractors have not been able to travel to site as frequently as they would like due to lack of available transportation. This has hampered thorough and timely monitoring and in some cases no monitoring has been completed for consecutive weeks. This situation has been responded to where necessary by PMU requesting immediate action and issuing CPARs that specifically instruct PISCs and Contractors to make sure that NECs and ESOs have ready access to vehicles and can travel to all parts of each project and the ancillary facilities at least weekly to conduct the necessary monitoring of the EMP.

76. For most contractors' whereas ESOs did not have the general capability to compile substantial reports in English and have required much help in compiling the CEMP the situation has improved somewhat as expected in the last monitoring period as most recently recruited NECs have better language skills and the translators have been more involved in the capacity building. CEMPs are now in place for all projects but will require updating (as expected) in the next reporting period to respond to recent developments with mineral licenses as the projects proceed. These will be reviewed in the next monitoring period.

77. PISC consultants have generally supported the contractors and PMU well in the completion of checklists, monthly monitoring reports and other documents required from the contractors (*caveat* mEMR June NR1UP P2 - Man-Bau will be presented early in the next reporting period). The amendments to the mEMR format for harmonization were introduced early in 2018 following ECAT in December 2017. However some further effort is required from all the PISCs to help complement the documentation to create a more informative report in all projects. Improvements can be seen so far as the contractors (assisted by PISCs) are by now presenting clearer and more effective documentation. Ready flow of information needs to be improved on outstanding mineral license and environmental license applications and all the EMP requirements and mitigation measures on every project at all times.

78. Environmental monitoring, capacity building and follow up have been intensively incorporated in the joint site inspections, on-the-job training for NES, NEA, NECs and ESOs, CPARs and letters have been issued to PISCs following site inspections where non-compliance with the EMPs have been identified. Further ECAT training will take place on a project by project basis in the next reporting period.

79. **Environmental Monitoring Staff.** The IEC and NEC positions in all but one project are filled. The exception is the IEC on RNUSP-AF who will be in post by October 2018.

80. In the PISCs the vacated post of IEC on RNUSP Packages 1 & 2 was replaced in January 2018, undertook duties in February and May and will be present again mid way through the next reporting period. The vacated post of IEC on RNUSP-AF (Bau-Lau and MKAM) will be replaced mid way through the next reporting period and will be present in the next reporting period. The IECs on NR1UP and RNUP-AF are in post and have visited the projects in this reporting period and will visit the projects again in the next reporting period. In PMU the NES and NEA are in post full time. The IES contract is intermittent but was more or less full time during this reporting period apart from the absence in March (study leave) and April (car accident injury and treatment).

81. The continuation of the National Environmental Assistant (NEA) in 2018 has been of great assistance with both administrative tasks and general environmental monitoring. The NEA has developed a keen eye for accurate observation in the field and has already reached a point where they can conduct general environmental monitoring and specialist audits such as spoil disposal and site clean up without direct supervision (albeit after detailed planning with the IES and NES and with use of checklists). These tasks have been well supported by other environmental specialists. In particular the experience in assisting with the avifauna surveys for RNUP-AF in August 2017 has consolidated NEAs flare for fieldwork. The other environmental specialists will continue to be supported by the NEA as further monitoring for the existing and additional projects is rolled out in the next reporting period.

82. The National Environmental Specialist (NES) assists the IES, has continued to fulfil the expected TOR in a coordinated way. The NES has also made good progress with a proactive approach to all aspects of environmental monitoring and liaison. The NES has been especially active in this period with updating reports and following up on environmental licenses. The NES also continues to provide guidance to the NEA as directed by the IES. The NES has been able to amalgamate all aspects of the environmental work, often under a heavy work load. The IES will continue support and facilitate capacity development for the NES as additional projects are rolled out in the next reporting period.

83. **Limitations.** Lack of ability of some contractors to allot the necessary resources to complete applications for mineral licenses (often due to their lack of ability to work in the English language) is still a concern for the report writing and prompt implementation and reinforcement of the mitigation measures. The NEC officer on RNUSP that was covering Package 1 and Package 2 (maternity leave) has been replaced with two NECs. Although these two NECs have limited experience they have made a good start and in order to gain more experience quickly it has been suggested that both work together on at least two days per month as Package 1 is now more than 85% complete and Package 2 more than 58% complete and both NES can focus more on Package 2 and the site clean up and rehabilitation for Package 1. The ESO on RNUSP Package 1 speaks English and attended ECAT 6 training in December 2017. The ESO on RNUSP Package 2 does not speak English and did not attend ECAT 6. The former ESO officer on RNUP-AF Tasitolu-Tibar (resigned December 2017) was replaced in March 2018. The replacement ESO, despite limited environmental and safety experience, has responded very well to training and speaks very good English and although having other responsibilities was performing to an acceptable level by the end of this reporting period. The ESO on NR1UP Package 2 speaks good English and has liaised well with his health and safety counterpart; who although having limited English is coordinating well and both were performing to an acceptable level before the difficulties with transportation to site emerged, towards the end of this reporting period. The ESOs on RNUSP-AF Bau-Lau and Mau-Mot both speak adequate English and are liaising well with their health and safety counterparts; who although having limited English are also aware of the environmental requirements and all are performing to an acceptable level.

84. In previous reporting periods it was observed that the IECs in the PISCs had continued focussed more on monitoring and not mineral license applications; which put an additional burden on the IES and NES in the PMU to follow up on renewal of licenses. However, in this reporting period the IECs in the PISCs have responded further to earlier encouragement to

assist and support the Contractor to complete mineral license applications in a timely manner. This has improved the situation somewhat but further improvements must be followed through. The Contractors are at least now showing initiative and applying for mineral license renewals at least a month before they are due. As the technical experience of some contractors has developed. Hold ups with mineral licenses now seem to be more due to administrative and payment issues rather than technical difficulties with document submissions. Having said this some contractors are still having difficulties completing SSEMP to the satisfaction of the ANPM. Notwithstanding the bottleneck with DNCPIA on requirement for site specific environmental licenses as well as SSEMP for mineral licenses.

85. In this reporting period the time allotted for the intermittent IECs in the PISCs has been better used to effectively assist the contractors with the completion of necessary documentation. More emphasis will be applied by the PMU environmental specialists in the next reporting period to encourage the PISC's IECs to follow up strictly with (i) all measures requested in previous CPARs (ii) focusing more on assisting the contractors on outstanding administrative issues such as updating CEMP (iii) updateing mineral license applications and supoporting documentation as well as (iv) more emphasis on applying all the mitigation measures in the EMP.

86. The work load has doubled from four to eight contracts in this reporting period under ADB projects. In addition there are three contracts under the WB and one contract under Jica from January to June 2018. The contracts under ADB have all mobilized by June 2018. The frequency of monitoring has remained more or less as for the previous reporting period for PMU with a slight increase in monitoring by some PISCs and a slight reuction for others. In total there have been site inspections on more than 350 days spread across eight projects for the the six months in this reporting period. In parallel there has been emphasis on other development partner projects and upcoming projects requiring follow up on applications for Environmental Licenses. Another projects is expected to be under construction under WB requirements in the next reporting period (making a total of 13 in the next reporting period). The current projects are further afield than the previous suite of projects. However three of the new projects will be within an hours travel by car from the PMU base in Dili. Other new projects are much further and will take much longer to travel to and from. Increasing travel requirements can result in grater travel stress, however this can be reduced and greater value will be derived from the joint inspections by careful attention to to pre-travel issues and planning such as making travel arrangements, securing overnight accomodation and developing the itinerary with the PISCs in advance.

87. **Outstanding Issues.** At the end of this reporting period there were some outstanding environmental issues on RNUSP Package 1 (Manatuto-Laclubar Junct.) as highlighted in CPAR009 however monthly progress meetings during the period have highlighted issues where necessary. RNUSP Package 2 Contractor has still had difficulty to provide the information to complete the requirement for renewal of Mineral License for three quarry sites but significant progress has been made. IEC in PISC has tried to assist the contractor to comple the requirements as requested by PMU. This will be reiterated to the IEC for RNUSP in July 2018. On both RNUP-AF and NR1UP P2 the mineral licenses need to be concluded efficiently. On NR1UP P2 there are several outstanding matters (CPAR004) requiring urgent action early in the next reporting period. RNUP-AF contractor is required to submit an acceptable updated CEMP in the next reporting period including sea-wall constructon method. RNUP-AF and RNUSP-AF and all other projects received more environmental compliance awareness training on a project by project basis in February 2018 which was further developed in June and will be advanced as necessary in the next few months as consultants and contractors are involved in additional activities as the projects are rolled out.

88. In addition the environmental specialists in PMU will continue to monitor and inspect all other projects as they are coming on stream. For the main construction works, a close watch was kept on all packages. In this reporting period close follow up has been made on renewal of all environmental licenses, applications for mineral licanses and following up on application for the Environmental License for all projects.

89. **Recommendations.** The current strategy, systems and procedures for environmental management and monitoring has, up to the latter part of this reporting period, generally been acceptably in with ADB requirements. However there are a number of burgeoning issues on several projects that will need intensified attention to prevent serious non-compliance in the next reporting period. In order to keep an acceptable level of compliance in the forthcoming reporting period, sufficient attendance in the field and observation and interaction with consultants and contractors must be maintained. The environmental specialists in PMU must remain focussed on all aspects of the portfolio, in particular joint field inspections, on the job training for Contractor's and productive interaction with the PISCs and Contractors. This is once more especially relevant at this time as there are potentially five new project road contracts that will reach the construction stage in the next reporting period. In addition the new projects must be covered. The strategy has been to try and make a joint inspection on each project at least every six weeks (twice per quarter). However PISCs must drive the Contractor's to respond with constructive action before the next inspection period. The present strategy for monitoring and environmental awareness training programme will be continued for new contractors and consultants; with refresher training, updated as necessary to take account of recent trends and developments.

90. In the past it has been emphasised that when on assignment in Timor Leste, IECs in the PISCs need to balance time equally between monitoring, report writing, renewal of mineral licenses and assisting the contractor to deal with location approvals and mineral license requirements. Mobilization and demobilization in Timor Leste for IECs is now required to be agreed in advance between PISC and PMU and deliverables for the mobilisation period need to be agreed face to face at the outset of the mobilisation period with the environmental specialists in PMU. The programme for each IEC should be agreed at least three months in advance with each IEC and informed to the environmental specialists in PMU; at least by the point of demobilization from the previous tour of duty. However some degree of flexibility should be included to allow for any unforeseeable impacts and changes. Whereas IEC time in Timor Leste should be more focused on report writing, it is also important to address outstanding issues in CPARs and renewal of licenses. Mentoring the NEC and making sure contractors are in compliance with the EMP are still key functions of the IEC.

91. Communications on the projects are improving and the PISC consultants are being able to use the Contractor's translator. Generally these translators can speak the home language of the contractor (e.g. Chinese) as well as English and in some cases Tetum; and with some technical / engineering training can function adequately. The intermediary language is English. The communications have been facilitated both on-site and in progress meetings by the Contractor's translators.

92. Contractors have been recommended to engage a sufficiently qualified and properly resourced Environmental Officer and Health and Safety Officer (or combined Health Safety and Environmental Officer) full time on site capable in compiling the required environmental documents for the project (CEMP, SSEMP, Health and Safety and Traffic Management plans) as well as being capable to follow up in a timely manner on the necessary completion of requirements for mineral license applications and complete the necessary monitoring and reporting on mineral extraction for ANPM.

93. Considering that in the past the turnover of staff in the PISCs for IEC and NEC has been high it is very important that staff for both IEC and NEC positions in the PISC are replaced promptly; if they have to be replaced. It is recommended that the replacement of the staff should be provided immediately but no later than one month after resignation of the previous staff. This will be essential to back up the existing PMU environmental specialists efforts to ensure implementation of the EMPs in the field. Sufficient resources and support from the PISCs is required so that the PMU can sustain the level of input to support the operational procedures that allowed compliance with ADB requirements in the past. In the meantime environmental management and monitoring on all PMU projects must proceed with the available resources to achieve an acceptable level of compliance.

6. APPENDICES

- Appendix 1A – Monitoring conducted by PMU (IES and NES) during monitoring period
- Appendix 1B – Monitoring conducted by PISC (IEC and NEC) during monitoring period
- Appendix 2 – Sample Photographs of Projects during the reporting period
- Appendix 3 – Compliance with Environmental Management Plan
- Appendix 4 – Corrective and Preventative Action Requests
- Appendix 5 – Responsibilities for Environmental Management

Appendix 1A – Monitoring conducted by PMU (IES, NES & NEA) during reporting period

DATE OF MONITORING	SINOTECH		NIPPONKOEI		KATAHIRA	Dongsung			KCI	
	RDIJ	CNI22	Sinohydro	SCG	China Wu Yi	CBMI	CBMI	CBMI	SCG	SCG
	Man-Lac	Lac-Nat	Dil-Man	Man-Bau	TTNPR (4 La.s)	Bau-Lau	Mau-Kar	Ata-Mota	Aip-Baz	Erm-Fat
24/01/2018	JPP+JB	JPP+JB	JPP+JB							
19/01/2018				JPP						
16/01/2018					JPP		JPP	JPP		
1/2/2018			DWG+JPP	DWG+JPP		DWG+JPP				
2/2/2018	DWG+JPP	DWG+JPP		DWG+JPP						
3/2/2018					DWG+JPP		DWG+JPP	DWG+JPP		
7/3/2018										JP
8/3/2018									JP	
13/3/2018					JPP+JB		JPP+JB	JPP+JB		
21/3/2018					JPP+JB		JPP+JB	JPP+JB		
10/5/2018			JPP	JPP						
14/5/2018	JPP	JPP	JPP							
7/6/2018					DGW+JP+JB					
8/6/2018							DWG+JB	DWG+JB		
13/6/2018						DWG+JB				
25/6/2018									DWG+JB	

ABREVIATION			
KATAHIRA	Katahira and Engineers International	DWG	Dr. David W. Green (PMU International Environmental Specialist)
SINOTECH	Sinotech Engineering Consultants Limited	JPP	Jose Paulo Pinto (PMU National Environmental Specialist)
NIPPONKOEI	Nippon Koei - Phil Koei	JB	Joven Baretto (PMU National Environmental Assistant)
Dongshung	Dongshung Engineering Co Ltd		
KCI	Korean Consultants International		
RDIJ	R. D. Interior Junior Construction		
CNI22	China Nuclear Industry 22nd Construction Co., Lda.		
SINOHYDRO	Sinohydro		
SCG	Shanghai Construction Group		
CWY	China Wu Yi &		
CBMI	Chonqing		

Appendix 1B –Monitoring conducted by PISC (IEC and NEC) during reporting period

Monthly Monitoring Report	SINOTECH		NIPPON KOEI CO., LTD		KATAHIRA	Dongsung		
	RDJ	CNI22	Sinohydro	SCG	CWY	CBMI	CBMI	CBMI
	Pack 1 (Manatuto-Laclubar)	Pack 2 (Laclubar-Natarbora)	Part 1 (Dili-Manatuto)	Part 2 (Manatuto-Baucau)	4 Lanes Tasitolu New Port Road	Baucau-Lautem	Maubara-Karimbala	Atabae-Mota ain
January	6,8,9,10,11,12,17,24,25,27,	3,4,5,6,12,15,16,17,18,19,24,26,27,29	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31	8,10,12,15,16,18,22	26,29	25,30	6,23,29,30,31	6,23,29,30,31
February	5,8,19,21,24,26,	1,2,5,9,25,26,27,	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,	2,6,13,20	03,13,24,	5,6,7,8,9,10,11,12,17,18,19,20,21,22,23,24,25,26,27	2,7,8,13,14,19,20,22,23,24,26,27,28	2,7,8,13,14,19,20,22,23,24,26,27,28
March	2,5,6,10,12,13,14,15,25,26,27	2,5,9,15,20,25,26,28,	1,4,5,7,8,10,11,13,14,15,16,18,19,20,22,23,25,27,28,31	2,5,6,7,8,12	27,30,	10,15,16,17,18,19,20,21,22,27	5,6,,7,8,9,12,14,16,17,19,20,21,23,24,26,27,28,	5,6,,7,8,9,12,14,16,17,19,20,21,23,24,26,27,28,
April	2,4,11,13,17,24,25,26,27,	2,6,9,12,16,20,25,26,27,28,	2,3,6,9,10,12,14,16,20,21,23,25,	4,7,8,9,10,13,17,23,	01,11,17,24,27,28,30,31	5,6,12,15,16,17,18,19,20,21,22,23,24,26,27,28,29	2,3,4,5,6,7,9,10,11,12,13,14,16,17,18,19,20,21,23,24,25,26,27,28,30	2,3,4,5,6,7,9,10,11,12,13,14,16,17,18,19,20,21,23,24,25,26,27,28,30
May	4,15,17,19,25,26,28	2,3,8,9,17,18,22,24,25,29,30,31,	2,4,7,8,10,14,16,18,21,22,	5,10,14,15,22,	4,10,14,15,17,24	2,5,10,15,17,19,21,22,23,24,25,27,28,30,	2,3,4,5,7,8,9,10,14,15,16,17,18,19,22,23,24,28,29,30.	2,3,4,5,7,8,9,10,14,15,16,17,18,19,22,23,24,28,29,30.
June	4,5,7,11,12,14,16,18,19,21,23,28,	6,8,9,12,13,18,20,22,25	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30.	29,30	4,6,7,14,19,21,22,24,27	4,6,8,14,15,19,22,27	1,2,4,5,6,7,9,11,12,13,14,16,18,19,21,23,25,28,29,30	1,2,4,5,6,7,9,11,12,13,14,16,18,19,21,23,25,28,29,30
Total / month	Jan = 10, Feb = 6, Mar = 11, April = 9, May = 7, June = 12	Jan = 14, Feb = 7, Mar = 8, April = 10, May = 12, June = 9	Jan = 30, Feb = 28, Mar = 20, April = 12, May = 10, June = 30	Jan = 7, Feb = 4, Mar = 6, April = 8, May = 5, June = 2	Jan = 2, Feb = 3, Mar = 2, April = 8, May = 6, June = 9	Jan = 2, Feb = 19, March = 10, May = 14, June = 8	Jan = 5, Feb = 13, March = 10, April = 25, May = 25, June = 20	Jan = 5, Feb = 13, March = 10, April = 25, May = 25, June = 20
Total	55	60	130	32	30	53	98	98

Abbreviations same as Appendix 1a

Appendix 2—Sample Photographs of Projects during the reporting period

RNUSP Package 1 Manatuto-Laclubar Sample Site Inspection Photographs January to June 2018

<p>February (Km90+100 left side) Contractor compound, fuel tanks banded and oil storage area cleaned up and improved as requested (CPAR09 Mar).</p>	<p>June (Km90+760 right side) Cribas river borrow pit completely replenished from downstream flows in previous wet season.</p>
	
<p>June 2018 (Km89) Cribas village completed, asphalt & markings, lay-bye, side pavements, drains & ped'n. crossing. Road marking & signs in progress.</p>	<p>June 2018 (Km94+600) asphalt complete, slope stabilization measures & drains and guardrail complete.</p>
	

RNUSP Package 2 Laclubar-Natarbora Sample Site Inspection Photographs January to June 2018

<p>June (Km118 left side) Contractor asphalt plant: Fuel and oil storage, fuel tank bunded, needs improvement (higher bund wall CPAR009 Mar 2018)</p> 	<p>June (Km110 approx right side) Retaining wall and drain under construction.</p> 
<p>June 2018 (Km107 approx.) Completed asphalt course & drains. Tree avoided</p> 	<p>June (Km105 approx.) Surplus, bulk construction materials removed and better control. However proper signage and barriers still required.</p> 

NR1UP Package 2 Manatuto–Baucau Sample Site Inspection Photographs January to June 2018

<p>January (Km9 right side) Contractor compound, Bund to fuel tank constructed. Needs improvement and clean up of residual fuel / oil).</p>	<p>March (Km95) Signage somewhat improved. Needs improvement (CPAR04)</p>
	
<p>March (Km91 to Km93 right side) Excavated unsuitable soil and spoil removed & residue levelled. Other areas still require attention CPAR04)</p>	<p>March (Km104 approx.) Large feature tree (<i>Ficus benjamina</i> – weeping fig) remaining. One of 24 avoided by minor curve adjustment.</p>
	

RNUSP-AF Baucau-Lautem Sample Site Inspection Photographs January to June 2018

<p>June (Km131 left) Contractor compound, Fuel tanks require bund to be constructed. Control & clean up residual fuel on open ground.</p>  A photograph showing a contractor compound. In the foreground, there is a large white fuel tank on a truck. Behind it, there are several white containers or tanks. The ground is dirt and appears to be an open area. There are palm trees and a utility pole in the background.	<p>June (Km139) Clearing & grubbing & embankment. Bund of material on left to reduce speed and dust prevents travel on unsealed surface (needs signs).</p>  A photograph of a dirt road. A white car is driving away from the camera. On the left side of the road, there is a bund of material. The sky is blue with some clouds. There are utility poles and trees on the right side of the road.
<p>June (Km131 left) Contractor compound, Centrifugal pipe casting machine fitted with safety rail.</p>  A photograph of a centrifugal pipe casting machine. The machine is yellow and blue. It has a large horizontal pipe. There is a safety rail in front of the machine. In the background, there is a concrete water tower and some buildings.	<p>June 2018 Bridges reconstruction. Consider crocodile habitat. Update CEMP & include safety plan avoid crocodile & human conflict (CPAR001)</p>  A photograph of a river. There are several water buffalo in the water. A crocodile is visible in the water. The riverbank is rocky and there are some trees.

RNUSP-AF Maubara-Karimbala Sample Site Inspection Photographs January to June 2018

<p>June (Km131 left) Contractor compound, Fuel tanks require bund to be constructed. Control & clean up any residual fuel on open ground.</p> 	<p>June. Clearing & grubbing & embankment. Bund of material on left to reduce speed and dust prevents travel on unsealed surface (needs signs).</p> 
<p>June (Km131 left) Contractor compound, Centrifugal pipe casting machine requires to be fitted with safety rail.</p> 	<p>June 2018 Water spraying for dust control on embankment. Schedule needs review for sufficient water in all places</p> 

RNUP-AF Four Lanes 2 Tasitolu–Tibar Sample Site Inspection Photographs January to June 2018

<p>June 25th 2018 Km 10+200 (R/S) Access road for sea wall constructed. Updated CEMP to include sea wall construction method (CPAR007)</p>	<p>June 2018 Slope cutting and construction of embankment at Tibar (Km12)</p>
	
<p>June 2018 (Km10 – Km11) embankment Km10+300 & saddle (top hill) approaching completion. Poor signage (CPAR007) uncontrolled access.</p>	<p>June 2018 (Km13). Tibar Bridge construction was excavated and reworked after inundation with mud after heavy rains in Dec. 2017.</p>
	

RNUP-AF Four Lanes 2 Tasitolu–Tibar Photographs. Access road prior to sea wall construction & prior condition Apr 2014 to Jun 2018

<p>June 7th 2018 Km 10+200 (R/S) Access road for sea wall partially constructed.</p>	<p>June 6th 2018 Km 10+200 (R/S) Access road for sea wall partially constructed</p>
	
<p>April 17th 2018 (Km 10+200 R/S) Access road for sea wall not yet constructed..</p>	<p>April 3rd 2014 10+100 (R/S) 20 months before start of project construction.</p>
	

Appendix 3 – Compliance with EMP

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
Climate change adaptation	Risk of increased erosion and damage to road infrastructure	<ul style="list-style-type: none"> Ensure all measures incorporated in design are implemented 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH
Contractor EMP prepared Awareness and orientation of Contractor	All foreseeable impacts captured in CEMP.	<ul style="list-style-type: none"> The following sections or method statements shall be included in the CEMP based on the EMP and the CEMP shall be prepared by the Contractor in the preconstruction stage for approval by PISC and endorsement by PMU and implementation by the Contractor: Waste Disposal (covering spoil disposal, general waste and hazardous waste); Quarries, borrow areas and construction materials management; Blasting and vibration; Asphalt, hot mix plant, rock crushers and bitumen supply; Erosion control and runoff; Bridge repairs and river protection; Water contamination prevention; Dust and noise minimization; Tree cutting and replanting; Enhancement planting; Construction camp operations, sanitation and diseases; Power and utilities protection; Drainage system, irrigation and water resources; Safety precautions - workers and public; Temporary traffic management; and Accidental discovery of archaeological assets, sites or resources. Decommissioning, rehabilitation, revegetation and recontouring of quarries, borrow areas and construction materials processing areas. 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTLY COMPLIED WITH (being updated)	PARTLY COMPLIED WITH (being updated)	PARTLY COMPLIED WITH (being updated)	PARTLY COMPLIED WITH (being updated)

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
PISC Check on legitimacy of material sources	Project complies with donor bank requirements, best practice and material suppliers are fit for purpose	<ul style="list-style-type: none"> PISC checks legitimacy of material supplies proposed by Contractor in the CEMP and reports to PMU. 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH
Surveying and demarcation of centre-line	Minor loss of vegetation during demarcation	<ul style="list-style-type: none"> Vegetation clearance during surveying and demarcation activities, especially of trees along the river banks and road-side, will be minimized. Major trees (especially in suco areas) to be removed will be clearly marked, only marked trees will be removed; In order to minimize loss of trees the trees that are not within the paved area or hard-shoulder but are in the embankment will not be cut unless for justifiable engineering or safety reasons; The contractor will be responsible for providing adequate knowledge to construction workers in relation to existing laws and regulations regarding illegal logging. Contract documents and technical specifications will include clauses expressly prohibiting the felling of trees, not requiring to be cleared by the project, by construction workers for the term of the project; and Construction workers will be informed about general environmental protection and the need to avoid un-necessary felling of trees wherever possible. 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH
Site clearance, digging, excavations	Accidental discovery of PCR or cultural property sites	<ul style="list-style-type: none"> Contractor's CEMP to include section on "chance finds" Site agents will be instructed to keep a watching brief for relics in excavations. Should any potential items be located, the PMU will immediately be contacted and work will be temporarily stopped in that area. The PMU with the assistance of the PMU will determine if that item is of potential significance and contact MPW to pass the information to the relevant department in 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
	Health & safety	<ul style="list-style-type: none"> • Provide adequate housing for all workers at the construction camps and establish clean canteen/eating and cooking areas; • Potable water, clean water for showers, hygienic sanitation facilities/toilets with sufficient water supply, worker canteen/rest area and first aid facilities will be provided. Separate toilets shall be provided for male and female workers; • Portable lavatories (or at least pit latrines in remote areas) shall be installed and open defecation shall be prohibited and use of lavatories encouraged by cleaning lavatories daily and by keeping lavatory facilities clean at all times; • Wastewater effluent from contractors' workshops and equipment washing-yards will be passed through gravel/sand beds and all oil/grease traps and contaminants will be removed before discharging it into natural streams. Oil and grease residues shall be stored in drums awaiting disposal in Tibar in line with the agreed waste management section of the EMP and the Environmental License; • Predictable wastewater effluent discharges from construction works shall have the necessary permits from DNCPIA and local authorities before the works commence; • As much as possible, food shall be provided from farms nearby or imported to the area. Bush meat supplies from protected areas will be banned to discourage poaching. Solid and liquid wastes will be managed in line with the provisions of the waste management section of the EMP; • Use of guns and hunting equipment by workers will be banned and dismiss workers taking or using green timber or hunting or in possession of wildlife; 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH (under construction)

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<ul style="list-style-type: none"> Entry to the protected areas, IBAs and/or sensitive areas (beaches and mangrove areas) by workers will be banned; Provision of adequate protection to the general public in the vicinity of the work site, including advance notice of commencement of works, installing safety barriers if required by villagers, and signage or marking of the work areas; Provision of safe access across the works site to people whose suco and access are temporarily affected or disconnected during construction works (especially across drainage works in sucos); 							
	Spread of communicable diseases	<ul style="list-style-type: none"> Construction camp(s) will be established in areas with adequate drainage in order to prevent water logging at the camp and formation of breeding sites for mosquitoes in order to facilitate flow of the treated effluents; Implementation of HIV/AIDS awareness and prevention program – community (villages) 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH
Operation of construction plant and vehicles generating emissions	Emission of exhaust from vehicles and machinery; Dust from aggregate crushing plant; generated by heavy vehicles transporting materials on roads; Uncovered loads on trucks; Dust from exposed stockpiles	<ul style="list-style-type: none"> Construction equipment will be maintained to a good standard. The equipment will be checked at regular intervals to ensure they are maintained in working order and the checks will be recorded by the contractor as part of environmental monitoring; Prohibition of the use of equipment and machinery that causes excessive pollution (i.e. visible smoke) at the Project site; Material stockpiles being located in sheltered areas and be covered with tarpaulins or other such suitable covering to prevent dusty material becoming airborne; Ensuring that all vehicles transporting potentially dust-producing material are not overloaded, are provided with adequate tail-boards and side-boards, and are adequately covered with a tarpaulin (covering the entire load and secured at the front, sides and tail of the vehicle) during transportation. This is 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH (all equipment in next reporting ariod)

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		especially important as there are a number of suco along the road; <ul style="list-style-type: none"> • Damping down of the road, especially within 100m the sucos along the road and any roads being used for haulage of materials, during the dry season shall take place four times per day; and Periodic qualitative air quality monitoring.							
Works in, or adjacent to, rivers and streams and in the vicinity of the coast	Erosion of riverbanks,; Effects on river structure including (i) changes to river water flows, including levels and velocity; (ii) changes to channel depth, structure & location resulting from excavations; and (iii) changes to riverbanks; Increased turbidity of river waters due to gravel extraction; Increased siltation at culverts; Construction materials are washed out into rivers and other areas	<ul style="list-style-type: none"> • Material stock-piles will not be located within riverbeds or the islands in the centre of rivers. Similarly, they will not be located within the current area of floodplain in areas subject to regular flooding (i.e. once per year or more). All land will be for temporary uses will be rehabilitated to original condition or better condition upon completion of the works to the satisfaction of the PMU; • Scour protection will be used as temporary measures, as needed, to ensure temporary structures do not damage river configuration; • Movements of vehicles and machinery, and hence disturbance, within the riverine habitats will be minimized at all times; • No vehicles or machinery shall be washed in the river; • In the event that the contractor causes damage to the river bank or other structural parts of a river, the contractor is solely responsible for repairing the damage and/or paying compensation; • Embankments and in-stream/river activities will be monitored during construction for signs of erosion; • Re-vegetation with local fast growing species, or other plants in consultation with the land owners and suco chiefs, will be carried out incrementally and as quickly as possible after work within any river habitat has been completed; and • Spoils, rubbish or any material will not be disposed of within any river system including riverbed, banks or floodplain areas. Suitable 	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		disposal sites will be designated in consultation with land owners and suco chiefs and approved by PMU.							
Sourcing of materials (river gravels, aggregates etc)	Extraction of river gravels from the beds or active channels of rivers changes hydrology altering channel & erosion; Extraction from quarries or borrow pits leaves unusable land, exposed water table, attracts rubbish dumping, reduces visual values	<ul style="list-style-type: none"> • Contractor to prepare materials extraction plan as part of CEMP; • Stockpile topsoil for later use and fence and re-contour borrow pits after use. Properly remove topsoil, overburden, and low-quality materials and stockpile near the site to be covered and preserved for rehabilitation; • Gravel and alluvial material shall not be removed within 10m of the river bank or within 200m upstream or downstream from a bridge; • Gravel and alluvial material shall not be removed to a depth of greater than 2m and holes in river bed shall be re-contoured when extraction is complete; • Alluvial terraces or alluvial deposits which lie on the river beds but not covered by water in normal hydrological conditions; shall be preferred; • Use quarry with highest ratio between extractive capacity (both in terms of quality) and loss of natural state; • Use quarry sites lying close to the alignment, with a high level of accessibility not on slopes and with a low hill gradient; • Reinstate upon completion of construction works at each section damaged access roads, agricultural land and other properties due to transport of quarry/borrow materials, other construction materials and any other project-related activities n; • Provide adequate drainage to avoid accumulation of stagnant water during quarry/borrow site operation; • Avoid use of quarry sites located on river bed. If it is not possible to locate quarries out of river beds use only quarry sites lying on large rivers as approved by PMU. Quarry 	COMPLIED WITH License renewal obtained for quarry April 2018.	PARTIALLY COMPLIED WITH License obtained for quarry Jun 2016 (renewal under processing)	PARTIALLY COMPLIED WITH Location Approval obtained for quarries (5 locations) applied in 2017 - under processing)..	PARTIALLY COMPLIED WITH License for quarries (2 locations) applied-under processing).	PARTIALLY COMPLIED WITH License for quarries (3 locations) applied in 2018 - under processing).	PARTIALLY COMPLIED WITH License for quarries (3 locations) applied in 2018 - under processing).	PARTIALLY COMPLIED WITH Laboratory testing of materials quarries (2 locations) License to be applied in next reporting period 2018 if suitable).

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<p>sites lying on small rivers and streams shall be avoided;</p> <ul style="list-style-type: none"> • Cut berms and terraces during and after extraction in quarries in the mountainous or hilly areas to stabilize slopes, or wherever slopes are important, and implement a drainage system and vegetation cover for rehabilitation; • Dewatered and fence quarries and borrow pits as appropriate, upon completion of extraction activities to minimize health and safety risks; • Ensure borrow pits are left in a tidy state with stable side slopes and proper drainage in order to avoid creation of water bodies favorable for mosquito breeding; • Prevent accidental access and avoid drowning when pits become water-filled by implementing measures such as fencing, providing flotation devices such as a buoy tied to a rope, and backfill as soon as practicable; and • Additional extraction sites and/or borrow pits will not be opened without the restoration of those areas no longer in use; • Refill borrow pits as required by DNCPIA using inert surplus spoil material and • Mark refilled borrow pits and cover with soil and plant vegetation as required by DNCPIA. • The excavation and restoration of sites and borrow areas, as well as their immediate surroundings, will be undertaken in an environmentally sound manner to the satisfaction of the PMU. Sign-off to this effect by PMU will be required before final acceptance and payment under the terms of the contract. • Decommissioning of all accommodation, plant and construction materials processing areas will include removal of all residual contamination, waste, machinery and constructed facilities. 							

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		<ul style="list-style-type: none"> Decommissioning plan will be included in the CEMP covering rehabilitation, revegetation and recontouring of quarries, borrow areas and construction materials processing areas. 							
<p>Spoil disposal. The mitigation measures also apply equally to discarded asphalt of macadam pavement surfaces.</p>	<p>Improper disposal impacts habitats and water courses</p>	<ul style="list-style-type: none"> Contractor's CEMP to include section on spoil disposal Spoil will be reused as far as possible for bulk filling; Spoil shall not be stockpiled at the side of the road or dumped over the road edge or the crash barriers; Spoil will not be disposed of in rivers and streams or other natural drainage path; Under no circumstances will spoil be dumped into any other watercourses (the sea, cliffs near the sea, rivers, streams, drainage, irrigation canals, etc.); Under no circumstances will spoil be temporarily dumped into any other watercourses (rivers, streams, drainage, irrigation canals, etc.); Spoil disposal shall not cause sedimentation and obstruction of flow of watercourses, damage to agricultural land and densely vegetated areas; Spoil will not be disposed of on fragile slopes, flood ways, wetland, farmland, forest, mangrove and associated salt flats, beaches, religious or other culturally sensitive areas or areas where a livelihood is derived; Surplus spoil will be used where practicable for local repair works to fill eroded gullies and depression areas and degraded land in consultation with local community; Spoils shall only be disposed to areas approved by land owner, local authority, PISC and PMU; Spoils shall only be disposed to areas that have acceptable ecological and engineering safety as approved by PISC and PMU; 	<p>COMPLIED WITH</p>	<p>COMPLIED WITH</p>	<p>PARTIALLY COMPLIED WITH</p>	<p>PARTIALLY COMPLIED WITH</p>	<p>PARTIALLY COMPLIED WITH</p>	<p>PARTIALLY COMPLIED WITH</p>	<p>PARTIALLY COMPLIED WITH</p>

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		<ul style="list-style-type: none"> Spoil will be to disposed of to disused quarries and abandoned borrow pits where practicable; Disposed spoil will be spread in 15 cm layers and compacted to optimum moisture content, covered with topsoil, landscaped and provided with drainage and vegetation to prevent erosion in line with best practice; The spoil disposal site shall be located at least 20m from surface water courses and shall be protected from erosion by avoiding formation of steep slopes and by grassing and other planting. 							
Clearing, grubbing, cut and fill activities, construction of embankments; Gravel extraction from rivers leads to erosion; Stockpile and staging areas lead to loss of land use	Soil erosion & silt generation; Increased runoff / erosion; Sediment contamination of rivers; Turbidity	<ul style="list-style-type: none"> All required materials will be sourced in strict accordance with GOTL guidelines and the EMP; Material stock-piles, borrow pits and construction camps will only be located on unused land or non-agricultural land following consultation with PMU, land owners and suco chiefs. All land will be rehabilitated to its original condition or better condition upon completion of the project works; Excavated material will be reused and surplus will be used to refill borrow pits; In the event that the contractor causes damage to agricultural land, productive land or gardens, the contractor is solely responsible for repairing the damage and/or paying compensation based on the rates in the approved resettlement plan; Embankments and in-stream/river activities will be monitored during construction for signs of erosion. A standby pile of stones and rocks should be kept on hand to be used in the event that there is bank or channel erosion for work in location of stream and river; Gabion baskets, rip-rap or bio-engineering methods will be used to both strengthen the 	COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH

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		<p>road and to prevent erosion upstream and downstream of bridge abutments;</p> <ul style="list-style-type: none"> • Re-vegetation of riverbanks will be carried out with fast growing species, or other plants in consultation with the land owners and suco chiefs, as quickly as possible after work has been completed; • Random and uncontrolled fly-tipping of spoil, or any material, will not be permitted. Suitable dump sites will be designated in consultation with land owners and suco chiefs. Dump sites will not be permitted within 50m of rivers or streams or on garden land or in areas used for livelihood production by suco residents; and • Obtaining all necessary permits or approvals for location of construction camps, material extraction sites and sources of construction materials from DNCPIA and other government agencies prior to works commencing. 							
Run-off, discharges, generation of liquid wastes	Impacts on water quality; Increased siltation at culverts and bridges; Construction materials washed out into rivers	<ul style="list-style-type: none"> • Lubricants will be stored in containers / dedicated enclosures with a sealed floor >50m from water bodies; • Fuel tanks 5000 litres or less will be stored in dedicated areas with a sealed floor >50m from water bodies; • Fuel tanks greater than 5000 litres will be stored in a walled enclosure with a sealed floor and bunds >50m from water bodies including rivers and beach; • Work in rivers will be scheduled during dry season and work duration shall be as short as possible. Bare slopes shall be stabilized immediately after works are completed; • Stockpile areas and storage areas for hazardous substances shall be located away from water bodies; • Washing of machinery and vehicles in surface waters shall be prohibited; • Sediment controls such as silt fences or other sediment reducing devices (rock dams 	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH

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		<p>or silt barriers), to prevent both siltation and silt migration during works being undertaken in the vicinity of streams and rivers;</p> <ul style="list-style-type: none"> • Sediment control devices will be cleaned and dewatered, discharges will not be to the rivers or streams. Consultation with land owners and suco chiefs will identify suitable land-based areas for settling ponds or discharge areas; • Diversion ditches will be dug around material stockpiles to catch runoff; • Minimizing interference with natural water flow in rivers, water courses or streams within or adjacent to work sites. Pollution of water resources will not be permitted; • Abstraction from water resources may be permitted after prior approval from PMU in consultation with local suco leaders and local authorities. • Solid wastes, debris, spent oil or fuel from construction machinery or plant, construction material, or waste vegetation removed from work sites will not be dumped in or near streams, rivers or waterways • Discharge of sediment laden construction water or material (including dredged spoil) directly into the rivers, sea, inter-tidal area or surface waters will not be permitted. All such construction water will be discharged to settling ponds or tanks prior to final discharge; • Discharge zones from culverts and drainage structures will be carefully identified, and structures will be lined with rip-rap. Down-drains and chutes will be lined with rip-rap, masonry or concrete; • Spoil and material stock piles will not be located near the coast, on the coastal side of the Project road, or within 15 m of waterways, streams or rivers, or on the edge of slopes or hills above rivers or stream; 							

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		<ul style="list-style-type: none"> Hydro-carbons, fuel, and other chemicals as required for the works, will be stored in secure containers or tanks located >50m away from surface waters, or streams. Any spills will be contained and immediately cleaned up as per the requirements of the emergency response plan prepared by the contractor (and approved by PMU); and All water, waste-water and other liquids shall be disposed of after treatment in line with the Environmental License - see below 							
General activities - solid and liquid waste generation	Uncontrolled and un-managed waste disposal	<ul style="list-style-type: none"> Contractor's CEMP to include section on waste disposal, recycling and re-use of materials from the project; Areas for disposal to be agreed with local authorities and checked and recorded and monitored by the PMU; Segregation of wastes shall be observed. Cleared foliage, shrubs and grasses may be given to local farmers for fodder and fuel. Organic (biodegradables) shall be collected and disposed of on-site by composting; NO Burning. Waste associated with the project or the supporting activities is NOT allowed to be burned anywhere ; Burning of construction and domestic wastes shall be prohibited; Recyclables shall be recovered and sold to recyclers; Residual general wastes shall be disposed of in disposal sites approved by local authorities; Construction/workers' camps shall be provided with garbage bins; Disposal of solid wastes into flood ways, wetland, rivers, other watercourses, farmland, forest, mangrove and associated salt flats, beaches, places of worship or other culturally sensitive areas or areas where a livelihood is derived canals, 	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		agricultural fields and public areas shall be strictly prohibited; <ul style="list-style-type: none"> • There will be no site-specific landfills established by the contractors. All solid waste will be collected and removed from the work camps and disposed in the local authority designated waste disposal sites at Tibar; and • Waste disposal areas approved by local authorities shall be rehabilitated, monitored, catalogued, and marked if required. 							
Use of hazardous materials	Oil and other hazardous chemicals are spilled into the environment resulting in pollution; Hydrocarbon leakage or spills from construction camps and workshops; Accidents placing people at risk	<ul style="list-style-type: none"> • Emergency Response Plan (as part of EMP) shall be prepared as part of the CEMP by Contractor to cover hazardous materials/oil storage, spills and accidents; • Ensure that safe storage of fuel, other hazardous substances and bulk materials are agreed by PMU and have necessary approval/permit from DNCPIA and local authorities. • Hydrocarbon, toxic material and explosives (if required) will be stored in adequately protected sites consistent with national and local regulations to prevent soil and water contamination. • Equipment/vehicle maintenance and re-fuelling areas will be confined to areas in construction sites designed to contain spilled lubricants and fuels. Such areas shall be provided with drainage leading to an oil-water separator that will be regularly skimmed of oil and maintained to ensure efficiency; • Fuel and other hazardous substances shall be stored in areas provided with roof, impervious flooring and bund/containment wall to protect these from the elements and to readily contain spilled fuel/lubricant; • Segregate hazardous wastes (oily wastes, used batteries, fuel drums) and ensure that storage, transport and disposal shall not cause pollution and shall be undertaken 	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	PARTIALLY COMPLIED WITH

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		<p>consistent with national and local regulations;</p> <ul style="list-style-type: none"> • Ensure all storage containers are in good condition with proper labeling at least in English and Tetun; • Regularly check containers for leakage and undertake necessary repair or replacement; • Store hazardous materials above flood level; • Discharge of oil contaminated water shall be prohibited and all oily waste shall be taken to Tibar oil disposal facility as required by DNCPIA; • Used oil and other residual toxic and hazardous materials shall not be poured on the ground; • Used oil and other residual toxic and hazardous materials shall be disposed of in an authorized facility off-site but shall be taken in sealed drums to Tibar oil disposal facility as required by DNCPIA; • Adequate precautions will be taken to prevent oil/lubricant/ hydrocarbon contamination of river channel beds; • Ensure availability of spill clean-up materials (e.g., absorbent pads, etc.) specifically designed for petroleum products and other hazardous substances where such materials are being stored; • Spillage, if any, will not be washed away but will be immediately cleaned up using absorbant cleaning materials with utmost caution to leave no traces; • Spillage waste to disposal sites approved by local authorities and approved by PMU; • All areas intended for storage of hazardous materials will be quarantined and provided with adequate facilities to combat emergency situations complying with all the applicable statutory stipulation; • The contractors shall identify named personnel in their EMP in-charge of storage 							

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		sites for hazardous materials and ensure they are properly trained to control access to these areas and entry will be allowed only under authorization.							
Construction activities causing accidental damage to existing services	Interference with existing infrastructure; Water supply contaminated, and power and telecommunications supplies disrupted through knocking over poles or breaking of pipelines or exposing water table during works.	<ul style="list-style-type: none"> Consult with inservice providers to minimize physical impacts on public infrastructure and disruption to services; Reconfirm power, water supply, telecommunications and irrigation systems likely to be interrupted by the works and any additional trees to be cut near utilities; Contact all relevant local authorities for utilities and local village groups to plan re-provisioning of power, water supply, telecommunications and irrigation systems; Relocate and reconnect utilities well ahead of commencement of construction works and coordinate with the relevant utility company at the district and district levels for relocation and reconnection well before works commence and include for compensatory planting for trees; Inform affected communities well in advance; <p>1. Arrange reconnection of utilities and irrigation channels in the shortest practicable time before construction commences; and</p> <ul style="list-style-type: none"> If utilities are accidentally damaged during construction it shall be reported to the PMU, DRBFC and utility authority and repairs arranged immediately at the contractor's expense. 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH
Encroachment into precious ecology, disturbance of marine and terrestrial habitats, effects on flora and fauna	Impacts on terrestrial habitats; Workers poach animals for food or feathers etc; Protected or sensitive areas affected	<ul style="list-style-type: none"> Invasive species shall not be introduced. Contractor's site office, works yard, rock crushers, material storage, borrow pits, and quarries will all be approved by PMU and will not be permitted in any ecologically important sites or areas valuable for conservation; Vegetation clearance during construction activities, especially of trees along the river 	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH	PARTIALLY COMPLIED WITH			

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<p>banks and road-side, will be minimized and no greater than the absolute minimum in line with the detailed designs;</p> <ul style="list-style-type: none"> • Under no circumstances is the contractor permitted to fell or remove mangroves; • Contractors will not cut any trees within or outside the project at the request of the local land owners or suco leaders without prior approval from PMU; • Vegetative cover cleared from the roadside during rehabilitation activities will be kept for land protection and re-vegetation. Contractors will be responsible for re-vegetation in cleared areas; • The contractor will be responsible for providing adequate knowledge to construction workers in relation to existing laws and regulations regarding illegal logging. Contract documents and technical specifications will include clauses expressly prohibiting the felling of trees, not requiring to be cleared by the project, by construction workers for the term of the project; • The contractor will be responsible for providing adequate knowledge to construction workers in respect of fauna. Contract documents and technical specifications will include clauses expressly prohibiting the poaching of fauna by construction workers and making the contractor responsible for imposing sanctions on any workers who are caught trapping, killing, poaching, or being in possession of or having poached fauna; • The PMU will supervise and monitor a ban on use of forest and mangrove timber and workers shall be prohibited from cutting trees and mangroves for firewood; and • Construction workers will be informed about general environmental protection and the need to avoid un-necessary felling of trees 							

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<ul style="list-style-type: none"> Any complaints regarding noise will be dealt with by the contractor in the first instance through the GRM. 							
Presence of vehicles and equipment in villages, use of people's land for access to construction site, traffic and safety issues	Traffic and access disrupted during construction; Traffic safety affected	<ul style="list-style-type: none"> The contractor will prepare, and submit to PMU, a traffic management plan detailing diversions and management measures; Signs and other appropriate safety features will be used to indicate construction works are being undertaken; Contract clause specifying that care must be taken during the construction period to ensure that disruptions to access and traffic are minimized and that access to villages along the Project road is maintained at all times; Provincial Works and village officials will be consulted in the event that access to a village has to be disrupted for any time and temporary access arrangements made; Construction vehicles will use local access roads, or negotiate access with land owners, rather than drive across vegetation or agricultural land, to obtain access to material extraction sites. Where local roads are used, they will be reinstated to their original condition after the completion of work; The road will kept free of debris, spoil, and any other material at all times; Disposal sites and haul routes will be identified and coordinated with local officials; Provision of adequate protection to the general public in the vicinity of the work site, including advance notice of commencement of works, installing safety barriers if required by villagers, and signage or marking of the work areas; and Provision of safe access across the works site to people whose villages and access are temporarily affected during road re-sheeting activities. 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH
General activities, handling equipment and	Worker health and safety risks	<ul style="list-style-type: none"> At least one month before construction commences the contractors will demonstrate to the PMU they are properly resourced and 	COMPLIED WITH but ESO	COMPLIED WITH but ESO late	COMPLIED WITH but ESO late	COMPLIED WITH but ESO late	COMPLIED WITH ESO changed but	COMPLIED WITH EO & SO changed post	COMPLIED WITH but ESO

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
plant; construction vehicles		<p>a qualified/experienced environment and safety officer (ESO) will be identified by the contractors in the bid;</p> <ul style="list-style-type: none"> • Establishment of safety measures as required by law and by good engineering practice and provision of first aid facilities at work sites, in vehicles and establishment of an first aid/health post at the camp; • The contractor will conduct of training (assisted by PMU) for all workers on safety and environmental hygiene at no cost to the employees. The contractor will instruct workers in health and safety matters as required by law and by good engineering practice and provide first aid facilities; • Instruction and induction of all workers by the contractor in health and safety matters, including road safety is required for all operatives before they start work; • The contractor will instruct and induct all workers in health and safety matters (induction course) including construction camp rules and site agents will follow up with toolbox talks on a weekly basis. Workforce training for all workers starting on site will include safety and environmental hygiene; • Workers shall be provided with appropriate personnel protection equipment (PPE) such as safety boots, helmets, reflector vest, gloves, protective clothes, dust mask, goggles, and ear protection at no cost to the workers; • Fencing will be installed on all areas of excavation greater than 1m deep and sides of temporary works; • Fencing will be installed on all excavation, borrow pits and sides of temporary bridges; • Reversing signals (visual and audible) shall be installed on all construction vehicles and plant. • Provision of potable water supply in all work locations; 	generally late arrivals	arrivals and do no speak English	arrivals and do no speak English	arrivals and do no speak English	late arrivals speaks English	but late speak English	late but speaks English

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<ul style="list-style-type: none"> Scheduling of regular (e.g. weekly tool box talks) to orientate the workers on health and safety issues related to their activities as well as on proper use of PPE; Where worker exposure to traffic cannot be completely eliminated, protective barriers shall be provided to shield workers from passing vehicles. Another measure is to install channelling devices (e.g., traffic cones and barrels) to delineate the work zone; and Construction camps shall be provided with toilets/sanitation facilities in accordance with local regulations to prevent any hazard to public health or contamination of land, surface or groundwater. To ensure these facilities never overflow they shall be well maintained and cleaned regularly to encourage use and allow effective operation and emptied regularly at disposal site approved by PMU. 							
Presence of construction workers	Various social impacts including: (i) social disruption; (ii) possibility of conflicts or antagonism between residents and workers; (iii) spread of communicable diseases including STIs and HIV/AIDS; (iv) children are potentially exposed to exploitation; (v) impacts on community health and safety	<ul style="list-style-type: none"> The contractor will appoint an EO to address health and safety concerns and liaise with the PMU and sucos within the Project area; Barriers (e.g., temporary fence), and signs shall be installed at construction areas to deter pedestrian access to the roadway except at designated crossing points; Adequate signage and security will be provided at the site office and works yard and prevention of unauthorized people (including children) entering work areas and camp. Warning signs will be provided at the periphery of the site warning the public not to enter; The general public/local residents shall not be allowed in high-risk areas, e.g., excavation sites and areas where heavy equipment is in operation and these sites will have a watchman at the entrance to keep public out; Speed restrictions shall be imposed on Project vehicles and equipment traveling 	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH	COMPLIED WITH

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
		<p>within 50m of sucos and sensitive receptors (e.g. residential, schools, places of worship, etc.);</p> <ul style="list-style-type: none"> • Upon completion of construction works, borrow areas will be backfilled or temporarily fenced, awaiting backfilling; • Provisions will be made for site security, trench barriers and covers to other holes and any other safety measures will be installed as necessary; • Drivers will be educated on safe driving practices to minimize accidents and to prevent spill of spoil and hazardous substances (fuel and oil) and other construction materials during transport; • Contractors will ensure that no wastewater is discharged to local water bodies, mangroves, rivers, streams or lakes; • Measures to prevent proliferation of mosquitoes shall be implemented (e.g., provision of insecticide treated mosquito nets to workers, installation of proper drainage to avoid formation of stagnant water, standing water will not be allowed to accumulate in the temporary drainage facilities or along the roadside); • The contractor will make prior provision to ensure the construction workforce attends STI and HIV/AIDS prevention workshops provided through an approved service provider. The workshops will be delivered to the contractor's workforce prior to commencement of any civil works; and • Suco-based community awareness raising about transmission of STIs and HIV, reproductive health and safe sex. The program will be implemented after to contractor mobilization and staff are in post but prior to the commencement of civil works.. • No child labour will be used 							

Project activities	Environmental Impact	Mitigation measures to be included in EMP	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
	leads to accidents	<ul style="list-style-type: none"> General safety will be improved through providing a shoulder and widening within ROW Installation of road safety signage Work with police to carry out enforcement of traffic regulations once road is upgraded Awareness raising through village meetings will be needed to create road safety programs Ongoing community awareness ascertain village concerns regarding traffic calming & management 							
Spread of communicable diseases	Roads act as pathway for spread of communicable diseases such as HIV and STIs	<ul style="list-style-type: none"> At expected traffic volumes risk of spread of such diseases are not expected 	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase
Any other	Unintended or unanticipated impacts	<ul style="list-style-type: none"> As required to avoid or reduce effects or impacts 	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase	Project is in Construction Phase			

Note: The EMP table above is the approved EMP for RNUSP P1 and P2 Projects (Manatuto – Laclubar and Laclubar – Natarbora).

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Appendix 4 – Corrective and preventative action requests for ADB Projects 2016 & 2017.

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER BAU	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
CPAR 001	<p>Clearing Lined Drains. Km65+235 – Km100+355 existing line drains and newly constructed drains blocked. No temporary drainage. Disposal for surplus debris from drains and culverts. Dispose of debris and waste macadam to approved spoil disposal area. Clear the drain and required to construct temporary drains and erosion control structures. 22 January 2016</p>	<p>Dust Control. More frequent watering is required in most areas, particularly near schools and housing. Please ensure water spraying is carried out at least every three hours in all areas in line with good practice, unless there has been rain within the preceding three hours; in which case spraying shall commence after three hours without rain. 2 December 2016</p>	<p>Spoil Disposal. Km37+500 - Km38+500 (5m left side) clearing & grubbing waste and spoil materials are dumped improperly in unsecured land which is NOT in line with Decree Law 5/2011, Contract and EMP requirements. 16 September 2016</p>	<p>Contractor's Environmental Management Plan (CEMP). Contractor to produce their site specific EMP covering all the associated facilities such as Quarries, Crusher, Cement Batching Plant, Asphalt Mix Plant, Sand Washing, Worker Accommodation etc. In Press</p>	<p>Fuel Tank, Fuel tank at the contractor's camp is not banded and covered properly. Fuel tanks with total ≥5000l need to be shaded and banded to contain 110% of largest tank within the bund. 28 August 2017</p>	<p>CEMP & Historical building. Follow up with Sec. of State for Art and Culture (Ministerio da Arte e Cultura) to ensure protection and identify any constraints cause by the Lautem Fort old historical building at Km181+710 in Lautem area to be protected. 30 July 2018.</p>	<p>Spoil Disposal area. • Spoil will not be disposed of on fragile slopes, flood ways, wetland, farmland, forest, and mangrove and associated salt flats, beaches, religious or other culturally sensitive areas or areas where a livelihood is derived. • • Spoil disposal to proceed only after Contractor has provided an agreement of the area of disposal area and sign by land owner and Suco Chief, checked PISC engineer in line with Checklist No.3. 23 July 2018.</p>	<p>Work area markers and station numbers. • Work area markers should be spaced at regular intervals (<25m) in order to ensure that the work activities remain within the designated work area. • Work area markers should be replaced as necessary to indicate to work crews the limits of the work area not to be exceeded. 23 July 2018</p>
CPAR 002	<p>No Burning of Waste. Disposal of Garbage and Oilly Waste. Contractor camp at Cribas Km88+200. Garbage and office waste being dumped and burned outside camp fence behind kitchen. NO BURNING OF WASTE ALLOWED. No proper disposal of waste. 22 January 2016</p>	<p>NO BURNING OF WASTE IS ALLOWED. On some occasions there has been burning of office and kitchen waste inside the Barique camp. This practice must cease. 2 December 2016</p>	<p>NO BURNING OF WASTE IS ALLOWED anywhere on this Project. This is spelled out in the EMP and is generally in line with best practice. In addition, no burning or destruction of flora or pastureland is permitted in any Protected Area. As</p>	<p>Dust Control. Water spraying must take place three times per day as require in the environmental license. Contractor to provide a schedule (including dates and volume of water of water sprayed and source refiling) of water spraying truck operations carried out</p>	<p>Contractor's Environmental Management Plan, Health and Safety Plan and Traffic Management Plan Contractor to produce their site specific plan EMP, Health and safety Plan and traffuc management plan covering all the associated facilities . 29 September 2017</p>			

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER BAU	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
			specified above Mt. Kuri stretches from Km35+500 to Km 48+800 (approx.) and no burning is therefore allowed in this area either. 16 September 2016	each month. 5 June 2017				
CPAR 003	Fuel Tanks Secondary Containment. Contractor camp at Cribas Km88+200. Fuel storage not banded fuel tank with total ≥5000l need to be banded large enough to contain 110% of the contents of the largest tanks within the bund. Seal the ground under both tanks. 22 January 2016	Fuel Tanks Secondary Containment. The two fuel tanks at Barique must be covered and banded to contain accidental spill from leakage or rupture of the tanks. Residual spilled fuel and oil must be gathered up and disposed of as contaminated waste at Tibar disposal area. 2 December 2016	Top Soil Conservation. Topsoil from all ground clearing should be removed and stockpiled for future use in rehabilitation works. This is spelled out in the EMP and is generally in line with best practice and is also a requirement of the specification. 16 September 2016	Spoil Disposal Sites. Contractor should provide the waiver signed by the suco chief and land owner approval of using the land as spoil disposal site to the engineer to be submitted to PMU record. No spoil to take place on river/stream banks or other drainage path. 28 August 2017	Spoil Disposal Sites, burning is not allowed at any location. Extinguish any spontaneous/accidental fires immediately Contractor should provide their waiver signed by the suco chief and land owner approval of using the land as spoil disposal site before dumping commences to engineer and submit to PMU for record. 29 September 2017			
CPAR 004	Km 93 to Km 99. existing line drains and newly constructed temporary drains blocked. No temporary drainage. Disposal of surplus debris from drain and culverts. March 2017	Spoil Disposal. Overloading of spoil disposal areas was observed in November. Spoil disposal opportunity spaces are limited and must be planned and controlled effectively. Spoil area must not be allowed to slip down on to roads or houses. Strict attention is required to spoil disposal and stability calculations are recommended for spoil tips to avoid slips. 2 December 2016	Contractor's Environmental Management Plan (CEMP). Contractor to produce their site specific EMP covering all the associated facilities such as Quarries, Crusher, Cement Batching Plant, Asphalt Mix Plant, Sand Washing, Worker Accommodation etc. In Press	Drinking water. Sufficient drinking water should be provided at all working stations near the workers. Advisory levels are 2 L per workers per day to avoid heat stress. 28 february 2018	Portable batching Plant. Portable batching plan (PBP) allowed to set up discharging into river bed. Sludge should not discharge to river bed. Hazardous materials including cements waste water shall not discharged directly on the ground. 24 October 2017			
CPAR 005	Dust nuisance and road obstruction. Speed bumps made from rocks, used tires and tress trunks were put by the affected residents on the road to slow down the passing vehicles and reduce creating dust. 30 March 2017	No PPE for many workers. Warning sign should be install at the both sides approaching the road working areas. 30 March 2017	Km 20-Km 28. Culverts construction and detour roads: Lack of watering, dusty working areas affected workers and commuters. Plan the watering schedule within this section to	Dust Control/Watering schedule . • 2 August 2018	Contractor's Environmental Management Plan, CEMP overdue and need for CEMP and construction methodologies for the bridge and seawall. CEMP to include proposed method for construction of seawall, or use method identified in the SEIS. PISC to assist contractor on			

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER BAU	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
			water the bare road surface three times a day in line with the Environmental License. 28 July 2017		preparing the CEMP follow the PMU instruction. 1 March 2018			
CPAR 006	Dust Nuisance from bare road surface along the community neighborhoods. Plan the watering schedule with special attention to residential areas to water the road three times per day in line with EMP and environmental license's conditions. 28 July 2017	Approx Km 104 LS No PPE for workers. Workers working on the slope protection structure are not provided with PPE. Dusty working area. Children around the working area. 28 July 2017	Dust nuisance impact on the dense settlements, active working areas and visibility for passing vehicles. Minimize dust by regulars spraying water to maintain acceptable visibility for road users. 27 september 2017		Attachment of ADB letter 11 of April and 7 of June. Griavance redress Mechanism. USAID concern (Conservation International), Marine life at Dili rock (Km 8+749 - 9+980) 13 June 2018			
CPAR 007	Drinking water. Sufficient drinking water should be provided at all working stations near the workers. Advisory levels 2L per workers per day to avoid heat stress. Workers should be encouraged to drink water at least once per hour to avoid heat stress and maintain performance 27 September 2017	Dust nuisance at the dense settlements and active working area. Contractor's drivers should be trained and insturcted to follow safe speed limits and contractors shall enforce this on the drivers. Workers at the active working area should be provide with dust musk. 28 September 2017	Fuel and chemical storage (hazardous substances). Identifies the need for provision of bunded storage areas for all fuel and chemichals with impermeable base and bund walls of sufficient capacity to contain 110% of the volume of the largest tank within the bund. 27 September 2017		PUBLIC ACCESS TO SITE AND RUNOFF Km10+300, ACCESS TO SEA WALL CONSTRUCTION AREA north of Km10+300 to Km 10+100,INCOMPLETE CEMP. Drinking water. Sufficient drinking water should be provided at all working stations near the workers. 13 June 2018			
CPAR 008	No PPE. and traffic sign. Provide (hard helmet, reflective vest, gloves, dust mask and safety boots) for all workers. Maintain installation ad safety barrier and reflective tape at sides of all high platforms, uneven surface, edge of diversions at the road side, > 1m bove surrounding areaand edge of concrete structure construction, replace as necessary. 6 December 2017	Km 105 Quarry Operation; stockpiling and hauling of material done on the public road, narrowing the road and endangering road user. Renewal of Mineral License. 6 December 2017	Dust nuisance on the laid embankment sections impact on the workers at the active working areas, sensitive receivers (schools, health posts, markets and village) and visibility of the commuters creating traffic hazard. 28 february 2018		Sea Wall construction . Silt Fence. The KIE has concluded that the silt fence is unnecessary as the works will be done at low tide. Access Road ,Tides. The methodology says that work will proceed at low tides but does not identify the possible low tides for the month that are available. Only working times are identified.			
CPAR 009	Drinking water. Sufficient drinking water should be	Dust nuisance at the dense settlements and	Dust Control. Insufficient attention is paid to dust control		Sea Wall Construction. • Contractor to include an acceptable construction methodologies for the bridge and			

CPAR	RNUSP P1 MAN-LAC	RNUSP P2 LAC-NAT	NR1UP HER BAU	NR1UP MAN BAU	RNUP-AF TAS-TIB	RNUSP-AF BAU-LAU	RNUSP-AF MKAM	RNUP-AF AIP-BAZ
	provided at all working stations near the workers. Advisory levels 2L per workers per day to avoid heat stress. Workers should be encouraged to drink water at least once per hour to avoid heat stress and maintain performance. 12 March 2018	active working area. Contractor's drivers should be trained and instructed to follow safe speed limits and contractors shall enforce this on the drivers. Workers at the active working area should be provide with dust mask. 2 March 2017	and the previous existing pavement has been removed in most areas. Excessive dust is reducing visibility and may be a contributing cause of several recent traffic accidents and significant nuisance to the general public. 17 May 2018		seawall in the revised CEMP. • Site-specific mitigation measures for the seawall construction, to be at least as effective as those proposed approved in the Environmental License, should be included in the CEMP to be reviewed and cleared by PMU. Previous submissions are insufficient and do not contain all the elements including timing of works and activities (viz. tides) requested by PMU.			
CPAR 010	Partial or inappropriate PPE noted at number of work sites. • Provide PPE (hard helmet, reflective vest, gloves, dust mask and safety boots) for all workers. • Maintain provision of PPE (hard helmet, reflective vest, gloves, orinasal (N95) dust mask and safety boots) for all workers in all working areas. 6 August 2018	Dust Control / watering schedule. • If no rain in past 5 hours, water spraying must take place at least three times per day as required in the environmental License. Contractor to increase the amount of water sprayed to exceed 500ml (0.5litres) per square meter per spraying. Increase water truck passes accordingly to achieve this target. Provide photographs and an updated schedule (including dates and volume of water sprayed and source refilling) of water spraying truck operations carried out each month and this should be checked by the PIS Consultant's (PISC) National Environmental Consultant (NEC) weekly. 6 August 2018	Dust control / Watering schedule . Water spraying must take place at least three times per day as required in the environmental License. Contractor to increase the amount of water sprayed to exceed 500ml (0.5litres) per square meter per spraying. Increase water truck passes accordingly to achieve this target. Provide photographs and an updated schedule (including dates and volume of water sprayed and source refilling) of water spraying truck operations carried out each month and this should be checked by the PIS Consultant's (PISC) National Environmental Consultant (NEC) weekly. 2 August 2018					

Appendix 5 –Responsibilities for Environmental Management

Agency	Responsibilities
Ministry of Public Works (MPW)	<ul style="list-style-type: none"> • Overall responsibility for project construction and operation • Ensure that sufficient funds are available to properly implement all agreed environmental safeguards measures • Ensure that the Project, regardless of financing source, complies with the provisions of lending institution environmental and other policies. • Ensure that Project complies with GOTL environmental laws and regulations • Ensure that tender and contract documents for civil works include all relevant parts of the environmental assessment and project agreements • Submit at least quarterly safeguards monitoring reports to Asian Development Bank
Project Management Unit (PMU)	<ul style="list-style-type: none"> • Ensure that EMP is updated with respect to detailed designs and that contractor completes CEMP in the preconstruction phase. • Ensure that EMP and CEMP provisions are implemented to mitigate environmental impacts to acceptable levels • Ensure that Project complies with Asian Development Bank policies and GOTL laws and regulations • Engage and retain two staff within PMU as environment specialist (ES) and social safeguards specialist (SSS) • Ensure that environmental protection and mitigation measures in the SEIS and EMP are incorporated into the detailed design including climate change adaptation measures. • Ensure that requisite measures from the SEIS and EMP are incorporated into the bid and contract documents • Ensure that measures from the SEIS and EMP are incorporated into the Contractors EMP document • Undertake environmental management capacity building activities for MPW and orientation and awareness training for contractors • Ensure that MPW has obtained necessary environmental license(s) from Secretary of State for Environment (SEMA) prior to award of civil works contracts. • Assist MPW to establish an environmental grievance redress mechanism, as described in the SEIS, to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the Project's environmental performance • Undertake monitoring of the implementation of the EMP & EMP (mitigation and monitoring measures) • Prepare quarterly or semi-annual environmental monitoring reports for submission to Asian Development Bank and other co-financiers as necessary • Based on the results of EMP & CEMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to Asian Development Bank and other co-financiers as necessary • Implement all mitigation and monitoring measures for various project phases specified as PMU's tasks in the EMP & CEMP • Work with DRBFC to undertake any additional environmental assessment for sub-projects prior and submit to Asian Development Bank and DNCPIA for review and clearance
Project Implementation and Construction Supervision Consultant (PISC-included in PMU)	<ul style="list-style-type: none"> • Provide training and capacity building to MPW and PMU staff (including management) and provide training to engineers and contractors prior to the submission of contractor's CEMP • Incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design stage including climate change adaptation measures included in the SEIS. • During detailed design phase provide all necessary information to the MPW to facilitate obtaining environmental licenses from DNCPIA prior to award of civil works contracts • During detailed design notify PMU of any change in alignment or project design/components and provide all necessary information to the PMU to facilitate preparation of any additional environmental assessment prior to project construction as required in the EMP (e.g., preparation of new or supplementary environmental assessment in case of change in alignment that will result to adverse environmental impacts that are not within the scope of the SEIS prepared during loan processing, etc.) • Update, based on detailed design, the EMPs and other environmental protection and management measures to be incorporated in bid and contract documents • Assist PMU to undertake monitoring of the implementation of the EMP & CEMP (mitigation & monitoring measures) including incorporating reports from the Contractor. • Assist PMU to prepare quarterly progress reports and semi-annual safeguards monitoring reports for submission to Asian Development Bank and MPW as necessary including incorporation of reports from the Contractor the Contractor s and corrective action requests to contractor • Based on the results of EMP & CEMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to Asian Development Bank and other co-financiers as necessary
THE CONTRACTOR (Contractor)	<ul style="list-style-type: none"> • Participate in induction training on EMP provisions and requirements delivered by the PMU and incorporate in the CEMP. • Prepare the CEMP and submit to PISC for approval and PMU for endorsement. • Provide sufficient funding and human resources for proper and timely implementation of mitigation measures required in the EMP. • Obtain necessary environmental license(s) from DNCPIA for ancillary facilities for subproject works, quarries, crushers, batching plant, hot-mix plant etc. prior to commencement of civil works contracts • Obtain necessary mineral license(s) from ANPM for ancillary facilities for subproject works, quarries, hot-mix plant etc. prior to commencement of civil works contracts • Ensure that all workers, site agents, including site supervisors and management participate in training sessions delivered by PMU and PISC. Maintain a record of training and conduct of awareness sessions for staff to ensure compliance with environmental and safety statutory and contractual obligations including the approved EMP.

Agency	Responsibilities
	<ul style="list-style-type: none"> • Ensure compliance with environmental statutory and contractual obligations and proper implementation of Asian Development Bank requirements including approved EMP & CEMP. • Based on the results of CEMP monitoring, cooperate with the PISC and PMU to implement environmental corrective actions and corrective action plans, as necessary. • Respond promptly and efficiently to requests and instructions from PMU and PISC for environmental corrective actions and corrective actions and implement additional environmental mitigation measures, as necessary.
Secretary State for Environment (SEMA)	<ul style="list-style-type: none"> • Review and approve environmental assessment reports required by the GOTL • Issue & renew environmental licenses as required by the GOTL during the life of the project • Undertake monitoring of the project's environmental performance based on their mandate
National Authority for Petroleum and Mineral (ANPM)	<ul style="list-style-type: none"> • Review and approve Location Opinion on sites for extraction of construction material as required by the law • Issuing / granting and renewing mineral licenses specifically for supply of construction materials; referred to as mining (downstream and upstream activities) in the law • Undertake monitoring of the extraction of the construction material, health and safety and rehabilitation plan based on their mandate
Secretary of State for Professional Training and Employment	<ul style="list-style-type: none"> • Ensure the implementation of the work in line with the Labour Law • Support government to enhance the labour policy and regulatory framework • Provide training to improve worker skills and capacities • Ensure the statutory requirements for employers and employees rights and duty are observed
Department of Protected Area Ministry of Agriculture, Forestry and Fisheries	<ul style="list-style-type: none"> • Establish and maintain the national system of protected areas • Identify areas requiring protection based on scientific data & prepare proposal to establish protected areas • Demarcate the Protected Areas and their zones and administrate the protected areas' operation • Protect the valuable ecosystem and other species • Enforce the law in consultation with other relevant institutions and suco councils.
National Directorate of Cultural Heritage	<ul style="list-style-type: none"> • Preserving and managing cultural heritage as part of Timorese cultural identity. • Assist to identify physical cultural heritage resources potentially affected by the project
District Administration Ministry of State Administration	<ul style="list-style-type: none"> • Ensuring community well being and hygienic living conditions, controlling government utilities and preserving local cultural heritage resources • Coordinate with community to provide human resources to support the project • Assist in coordinating community concerns with regard to the implementation of the project