Environmental Monitoring Report

1st Semestral Report
Project Number: 46040-013
July 2016

PRC: Yunnan Pu'er Regional Integrated Road Network Development Project

Prepared by Pu'er Municipal Transport Bureau for the Yunnan Pu'er Municipal Government and the Asian Development Bank

Asian Development Bank

People's Republic of China

Yunnan Pu'er Regional Integrated Road Network Development Project

ADB LOAN 3217-PRC

Semi-annual Environmental Monitoring Report

#1 Semi-annual Report

For The Period Ending

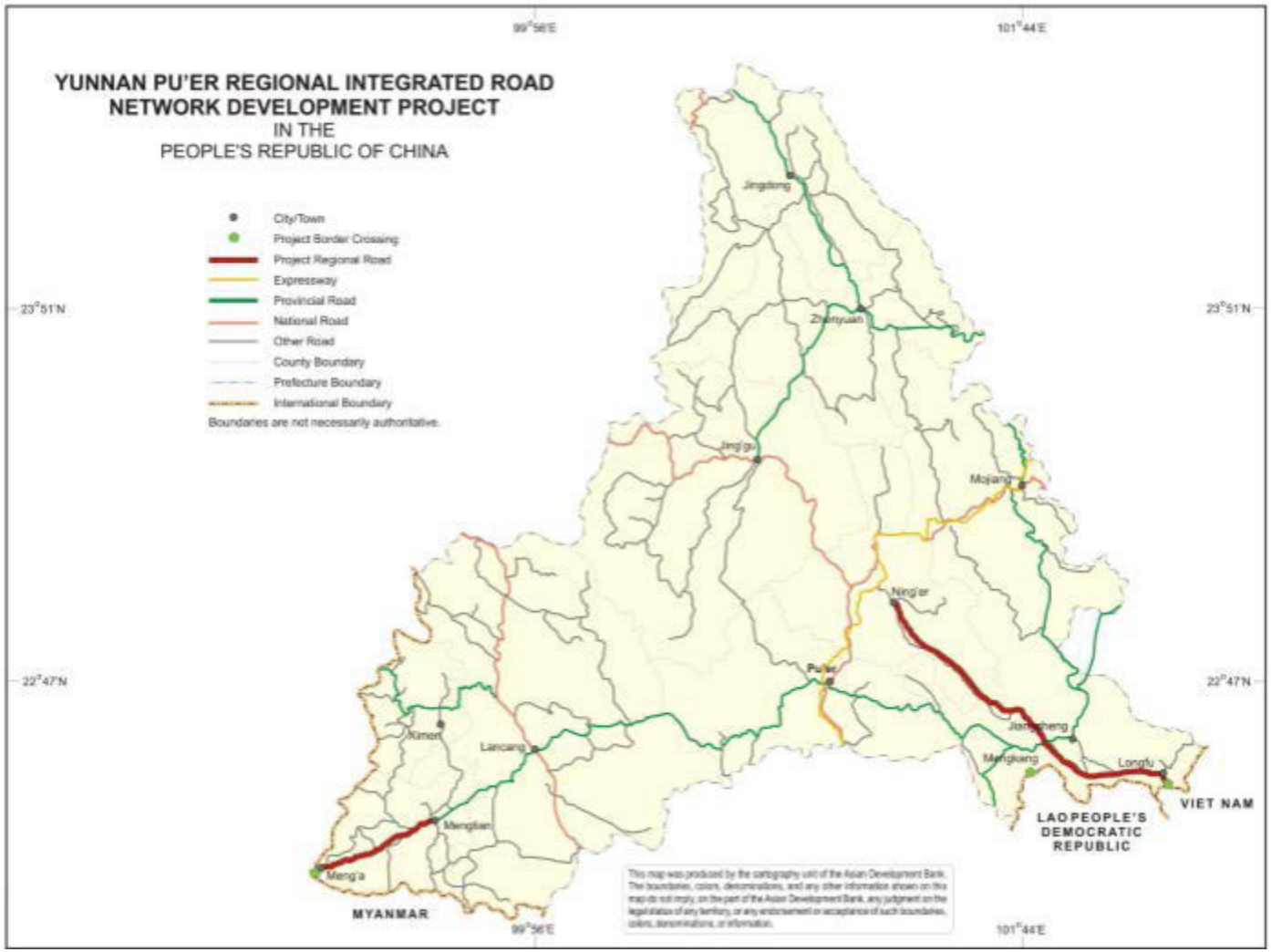
31 July 2016

Pu'er Municipal Government
Pu'er Municipal Transport Bureau

ABBREVIATIONS

ADB	Asian Development Bank
CO_2	Carbon Dioxide
COD_{Cr}	Chemical Oxygen Demand
DO	Dissolved Oxygen
dB(A)	Unit of the equivalent continuous sound level A(Decibel)
EA	Executing Agency
EARF	Environmental Assessment And Review Framework
EEMA	External Environmental Monitoring Agency
EHS	Environmental, Health & Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMDP	Ethnic Minority Development Plan
EMP	Environmental Management Plan
ESE	Environmental Supervision Engineer
FSR	Feasibility Study Report
GRM	Grievance Redress Mechanism
GTRI	Guangxi Transportation Research Institute
ha	Hectare
IA	Implementing Agency
ICB	International Competitive Bidding
km	Kilometre
L	Litre
LIEC	Loan Implementation Environmental Consultant
m^3	Cubic metre
mg	Milligrame
MMR	Menglian-Menga Road
MTC	Meng'A Material Transit Centre
NCB	National Competitive Bidding
NJFR	Ning'er-Jiangcheng-Longfu Road
NO_2	Nitrogen Dioxide
O&M	Operation And Maintenance
PEMS	Pu'Er Environmental Monitoring Station
PEPB	Pu'Er Environmental Protection Bureau
PMG	Pu'Er Municipal Government
PMTB	Pu'Er Municipal Transport Bureau
PPMO	Pu'Er Project Management Office
PRC	Project Completion Report
PRC	People's Republic Of China
PS	Project Supervisor
PWRB	Pu'Er Water Resources Bureau
RP	Resettlement Plan
SO_2	Sulfur Dioxide
SS	Suspended Solid
SWCR	Soil And Water Conservation Repor
TPH	Total Petroleum Hydrocarbons
TSP	Total Suspended Particle
YEPB	Yunnan Environmental Protection Bureau
YNFY	Yunnan Fangyuan Technology Co., Ltd.

Map 1 The Location of Yunnan Pu'er Regional Integrated Road Network Development Project



Contents

I. INTRODUCTION

A. Report Purpose and Rationale

The purpose of the Environmental Monitoring Report（EMR） is to document the environmental management activities and compliance with the EMP. This report is 1st semi-annual EMR for the period from April to June, 2016. As 1st semi-annual EMR, it demonstrate compliance with the EMP for the design, bidding, and construction preparation stages.

The Report covers: (i) Implementation progress of the project; (ii) Implementation status of the *Environmental Management Plan* (EMP) and layout of the environmental supervisory institutions; (iii) Implementation of measures to lessen environmental impacts of the project; (iv) Findings of environmental monitoring; (v) Public consultation; (vi) Building and training of institutions; (vii) Major environmental problems during the current phase, countermeasures and suggestions.

The EMP is prepared by the External Environmental Monitoring Agency (Guangxi Transportation Research Institute, Yunnan Fangyuan Science and Technology Co., Ltd, Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd, Kunming Longhui Engineering Design Consulting Co., Ltd). It based on the environmental supervision reports, the external environmental monitoring reports and the Soil Erosion Protection monitoring reports, submitted by the External Environmental Monitoring Agencies. Some information provided by the PPMO and other management departments. The field survey carried out by the PPMO and ESE.

B. Project Objective and Components

B-1. Project Scope and Objectives

The principal objective of the project is to improve rural transport situation in Pu'er and regional road network, and to strengthen regional integration of Pu'er and boarder areas of neighboring countries the trade development among them. The project is designed to accomplish these objectives through three discrete components.

Output 1: Regional roads development. This output comprises: (i) upgrading and new construction for a total of 228.078 km of Class III highway between Ning'er–Jiangcheng–Longfu; (ii) upgrading and new construction for the 44.739 km Menglian to Meng'a section of the existing Lancang–Menglian–Meng'a Class III / IV border road to a predominantly Class II road; (iii) the development of trade facilities at the MTC; and (iv) improving the safety of the roads by introducing safety measures determined by the ChinaRAP road safety design decision making tool.

Output 2: Rural access improvements. This output comprises: (i) the upgrading of about 600 km of village earthen or gravel roads to concrete Class IV standard; (ii) spot improvements on up to 1,200 km (or CNY24 million investment) of connecting lower level village roads; (iii) introduction of five new village bus service routes on a pilot basis, and (iv) a gender focused rural road maintenance program. The primary objective of the roads is to provide all weather access to administrative villages or to link with higher level roads.

Output 3: Institutional development. This output will address the limited implementation capacity of PMG. A project management consultant will be recruited to assist the PMG to implement and monitor the project in accordance with ADB procedures. The project will finance a 3-year training program ($400,000 for 40 person-months) for international and domestic training in financial and project management, road maintenance engineering, road maintenance practices, road safety, environmental management, social safeguards management, and wildlife trafficking and human and drugs trafficking enforcement.

B-2. Engineering Brief

Output 1: Regional Roads

Menglian-Meng'a Road： The Road starts from Menglian at K54+900，goes through Mengma, ends at Meng'a Port, chainage of K99+744.3. There are three broken chainages, so the actual length is 44.7km. The technical standard is highway Class II with design speed of 60 km/h. The standard width is 12m from K54+900 to K95+594.8, only at the end section from K95+585.04 to K99+744.29, ending at Meng'a Port the road width of 23m applies.

Ning'er–Jiangcheng–Longfu Road： The Road starts at Ningjing Highway K3+800, north side of Ning'er Township, Ning'er County, ends at Jiangcheng No.3 China-Vietnam border marker, 228.1km in length. The technical standard is highway Class III, with the design speed of 40 km/h, the width of 8.5m from the start point to Laozhaozhai, 25.136km in length, and the design speed of 30 km/h, the width of 7.5m from the Laozhaozhai to the end point, 202.9km in length (12m in width for the section of KM231+706.30～KM234+069.52).

Output 2: Rural Access Improvements

The rural access improvement plan is to provide all-weather Class IV, thirty-one paved rural roads, 600km in total length in seven counties in Pu'er municipality, and provide spot improvements on the village roads, 1200km in total length linking the remote villages with these rural roads. The current plan is that thirty rural roads, 537.12km in total length will receive the improvements, including three rural roads, 73.7km in total length in Mojiang County, two roads, 70.75km in Jinggu, seven roads, 126.94km in Zhenyuan, two roads, 56.3km in Jiangcheng, five roads, 59.65km in Lancang, six roads, 66.3km in Ximeng and five roads, 73.48km in Jingdong. Most of these rural roads will be paved with cement concrete. The site investigations on the village roads for the spot improvements will be conducted late; the scope will be finalized accordingly.

Table 1-1: Engineering Features

Engineering Name		Menglian-Meng'a Road	Ning'er–Jiangcheng–Longfu Road	Rural Access Improvements
Total Length		44.739km	228.002km	537km
Road Class:		Class Ⅱ- 2 lanes, undivided; uncontrolled access	Class Ⅲ - 2 lanes, undivided; uncontrolled access	Class Ⅱ- 1 lane; uncontrolled access
Design Speed		60km/h	30 / 40km/h	20km/h
Loading Class		2	2	2
Earthquake Zone:		IX	VII,VIII	Ⅷ、IX
Design Flood		large bridge, 100 years, other 50 years; roadway 50 years	large and medium bridge, 50 yrs, other 25 yrs; roadway 25 years	small bridge,50years
Subgrade Width		integrated 2 lanes 12 m, 23 m	integrated 2 lanes 7.5 m, 8.5 m	4.5～6.5m
Land area occupied		121.384 ha	147.949 ha	—
Terrain		mountain area	mountain area	mountain area
Horizontal alignment	Curve	90	1673	—
	Minimum radius	162.97m	15m	15m
	Length of route in curve	59.67%	60.62%	—
Vertical alignment	Steepest gradient	6%	12%	9%
	Minimum curve radius	crest 2,200 m sag 2,874.341 m	crest 300m sag 300m	—

C. Project Implementation Progress

C-1. Procurement Progress

Output 1: Regional Roads

The project has two regional roads. They are Menglian – Meng'a Class II Road 44.739 km in Total Length, and Ning'er – Jiangcheng – Longfu Class III Road 228.078 km in Total Length. The civil works procurement packages are divided into 12 subgrade packages (including 2 for Menglian – Meng'a Road) and 4 pavement packages (including 1 for Menglian – Meng'a Road). Among them, there are 2 subgrade packages applied with International Competitive Bidding (ICB) procedures, 10 subgrade packages and 4 pavement packages applied or will apply with National Competitive Bidding (NCB) procedures. All 12 subgrade packages procurements were completed and the Contract Agreements signed. 4 pavement packages are planned for tendering in Q1 2017.

Agencies for monitoring environment and soil erosion protection in construction period of **Regional Roads** have been hired. Environmental monitoring on Menglian - Meng'a Road in construction period is undertaken by Guangxi Transportation Research Institute, and soil erosion protection monitoring is undertaken by Yunna Jin Yu Ecological Engineering Consulting Co., Ltd. Environmental monitoring on Ning'er - Jiangcheng - Longfu Road in construction period is undertaken by Yunnan Fangyuan Technology Co., Ltd., and water conservation monitoring is undertaken by Kunming Longhui Engineering Design Consultation Co., Ltd.

The Project Supervisor on Menglian - Meng'a Road is implemented by Yunnan Shengmeng Engineering Consulting Co., Ltd. The Project Supervisor on Ning'er - Jiangcheng - Longfu Road is implemented by Yunnan Yuantu Engineering Supervision Co., Ltd. and Shangdong Ping'an Lu'qiao Engineering Consulting Co., Ltd. In the process of construction engineering supervision, the environmental supervision is to be implemented.

Output 2: Rural Access Improvements

The project is planned to include 30 rural roads. The PMO submitted on 29 April 2016 the Procurement Plan for the first batch of Rural Roads to ADB for the review and approval, ADB approved 3 packages of 7 rural road procurement plan for Jinggu County and Lancang County. The PMO has submitted on 7 July 2016 the Procurement Plan for the Second Batch of Rural Roads to ADB for the review and approval including the remaining 23 rural roads divided into 11 packages. The tenders for rural roads procurements are underway.

C-2. Construction Progress

Output 1: Regional Roads

Menglian - Meng'a Road：By 31 July 2016 procurement of this subgrade contract package has been completed, and the contractors have prepared for subgrade construction and have mobilized at road sections K62+890~K63+150 and K84+200~K84+400, with excavation and embankment work started; procurement of pavement work has yet been finished, so the construction has not been commenced.

Ning'er - Jiangcheng - Longfu Road：By 31 July 2016 procurement of this subgrade contract package has be completed, but the mobilization of the contractor and subgrade works have not started; purchasing by invitation to bid of pavement works has yet been finished, so the construction has not been commenced.

Output 2: Rural Access Improvements

Procurement is underway. Construction is not commenced.

II. INSTITUTIONAL ORGANISATION AND RESPONSIBILITIES FOR EMP IMPLEMENTATION

A. Institutional responsibilities

The Pu'er Municipal Government is the Executing Agency (EA) who has overall responsibility for project implementation. The EA has established the Pu'er Project Management Office (PPMO), which has been delegated overall responsibility for day-to-day management of the project, supervising the implementation of the EMP, coordinating the project environmental grievance redress mechanism and reporting to ADB.

The Pu'er Municipal Transport Bureau(PMTB) is the Implementing Agency (IA) responsible for implementing project components, administering and monitoring contractors and suppliers, construction supervision, quality control and EMP implementation. The IA will prepare bid documents and ensure that bids are responsive to environmental requirements and budgets and contracts include environmental clauses from the EIA, and the full EMP.

The PPMO and the IA have both assigned environmental staff to manage, coordinate, oversee and verify EMP implementation.

Mitigation measures (including, road alignment avoiding sensitive or protected areas) have been built into the detailed design by the engineeing design consultants.

PMTB has contracted the Yunnan Fangyuan Science and Technology Co., Ltd, Guangxi Transportation Research Institute, Kunming Lonhwin Engineering Design Consulting Co., Ltd, and Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd, who shall carry out environmental monitoring at the construction stage according to the EMP .These four agencies are the External Environmental Monitoring Agency（EEMA）.

PMTB has contracted Yunnan Shengmeng Engineering Consulting Co., Ltd, Shandong Ping'an Road and Bridge Engineering Consulting Co., Ltd, and Yunnan Yuantu Engineering Supervision Co., Ltd, to supervise the construction of the Menglian-Meng'a Road and the Ning'er-Jiangcheng-Longfu Road, supervise the environment simultaneously during engineering supervision, and submit the environmental supervision report on monthly basis.

The IA and PMTB have contracted an independent Environmental Supervision Engineer (ESE) to undertake compliance monitoring for external verification of compliance with EMP implementation.

A Loan Implementation Environmental Consultant (LIEC) is included through the project Management Consulting services. They will assist the PPMO and the IA with EMP implementation including environmental training and reporting. The semi-annual EMPs will be preared by the External Environmental Monitoring Agency.

Contractors will be responsible for implementing the mitigation measures during construction under the supervision of PPMO through the Supervision Office, ESE and LIEC.

In their bids, contractors are required to respond to the environmental management and monitoring requirements defined in the EMP. Each contractor is required to develop site specific EMPs and will assign a person responsible for environment, health and safety.

See the Appendix 1 for the environmental management institutions of the project.

Table 2-1 Compliance Status of Institutional Responsibilities for Environmental Management

Responsible Entity	Project Stage	Environmental Responsibility	Compliance with EMP
PMG	**All Stages**	The Executing Agency (**EA**) for the project responsible for overall implementation and compliance with loan assurances and the EMP.	Being complied with
PPMO	**Project Preparation**	• Engage design institutes on FSR, EIR, RP and SWCR	• Complied with
	Engineering Detailed Design	• Engage design institutes • Review updated EMP, confirm that mitigation measures have been included in engineering detail design	• Complied with
	Tendering & Pre-construction	• Appoint at least one environmental specialist on staff	• Complied with
		• Incorporate EIA/EMP clauses in tender documents and contracts	• Complied with
		• Prepare EIAs for replacement rural roads according to the EARF and submit to ADB	• Being complied with
	Construction	• Supervise the effective implementation of the EMP	• Being complied with
		• Establish and operate the project public complaint s center and coordinate the project environment GRM.	• Being complied with
		• Prepare quarterly project progress reports and semi-annual environment monitoring reports and submit them to ADB	• Being complied with
		• Conduct information disclosure and public consultation	• Being complied with
		• Inspect implementation of mitigation measures.	• Being complied with
PMTB	**Tendering & Pre-construction**	• Manage the procurement process	• Complied with
		• Incorporate EIA/EMP clauses in tender documents and contracts	• Complied with
		• Appoint at least one environmental specialist on staff	• Complied with
		• Engage LIEC as part of the Loan Implementation Project Management Consulting Services	• Complied with
		• Engage PEMS for environmental monitoring	• Complied with
		• Engage ESE for independent compliance monitoring	• Complied with
	Construction	• Supervise contractors and ensure compliance with the EMP	• Being complied with
		• Approve method statements	• Being complied with
		• Coordinate construction supervision and quality control	• Being complied with
		• Coordinate environmental monitoring according to the environmental monitoring program in the approved EMP	• Being complied with
		• Act as a local entry point for the project GRM	• Being complied with
		• Submit quarterly monitoring results to PPMO, PEPB.	• Being complied with

Responsible Entity	Project Stage	Environmental Responsibility	Compliance with EMP
Design institutes	**Project Preparation**	• Prepare project FSRs, EIRs, RPs, SWCRs	• Complied with
		• Conduct public consultation	• Complied with
	Engineering Detailed Design	• Incorporate mitigation measures defined in the EMP into engineering detail designs	• Complied with
		• Update the EMP in cooperation with the LIEC	• Being complied with
YEPD	**Project Preparation**	• Review and approve the project EIRs	• Complied with
PEPB/PWRB	**Construction**	• Conduct inspections of construction sites and activities to monitor compliance with PRC regulations and standards	• Being complied with
PPTA consultant	**Project Preparation**	• Provide technical assistance	• Complied with
		• Review EIRs	• Complied with
		• Prepare EIA report and EMP	• Complied with
LIEC	**Engineering Detailed Design**	• Review updated EMP, confirm that mitigation measures have been included in engineering detailed design	• Complied with
	Tendering & Pre-construction	• Review bidding documents to ensure that the EIA/EMP clauses are incorporated	• Complied with
		• Confirm project's readiness in respect of environmental management.	• Complied with
	Construction	• Advise on mitigation measures	• Being complied with
		• Provide technical support to PPMO and PMTB for environmental management	• Being complied with
		• Conduct environmental training	• Being complied with
		• Conduct semi-annual EMP compliance review	• Being complied with
		• Support PPMO in preparing quarterly project progress reports and semi-annual environmental monitoring reports.	• Being complied with
		• Review domestic environmental acceptance reports	• Being complied with
		• Prepare environmental completion report.	• To be complied with
Contractors	**Tendering & Pre-construction**	• Ensure sufficient funding and human resources for proper and timely implementation of required mitigation and monitoring measures in the EMP throughout the construction phase	• Complied with
	Construction	• Appoint an environment, health and safety (EHS) officer to oversee EMP implementation related to environmental, occupational health and safety on construction site	• Complied with
		• Ensure health and safety	• Being complied with
		• Implement mitigation measures	• Being complied with
		• Prepare method statements on the implementation of pollution control and mitigation measures listed in Table 2 of EMP, and submit to PMTB and ESE for review	• Being complied with
		• Act as a local entry point for the project GRM	• Being complied with

Responsible Entity	Project Stage	Environmental Responsibility	Compliance with EMP
EEMA	**Construction**	• Undertake environmental monitoring according to the environmental monitoring program in the approved EMP (contracted by PMTB)	• Being complied with
		• Report monitoring data to ESE and PMTB monthly	• Being complied with
ESE	**Construction**	• Conduct independent verification of project's environment performance and compliance with the EMP (contracted by PMTB)	• Being complied with
		• Review monthly monitoring data submitted by PEMS and conduct compliance checking against applicable environmental standards	• Being complied with
		• Provide advice to contractors for resolving on-site environmental problems when monitoring data show non-compliance.	• Being complied with
		• Submit quarterly compliance monitoring results to PPMO, PMTB and PEPB	• Being complied with

B. Incorporation of Environmental Requirements into Project Contractual Arrangements

The main items of the EIA and all the contents of the EMP have been included in the bidding documents and construction contracts.

B-1. Output 1: Regional Roads

The environmental engineering is clearly defined as one of the main contents in the bidding documents for regional roads and all the requirements concerning environmental protection are included in the special terms of related contracts:

Menglian-Meng'a Road:

Table2-2: Environmental Requirements of Menglian-Meng'a Road Construction Contract

Terms	Environmental Requirements
4.18 Environmental Protection	The Contractor shall execute environmental monitoring procedures and mitigation measures to minimize adverse impacts of the project to the environment. The aforesaid mitigation measures shall cover the design, construction and management of the project and the maintenance and operation of equipments used here, and shall be implemented strictly. The Contractor shall guarantee that the emissions, disposed items and sewage generated during the construction of the project will not go beyond related limits defined by related laws and regulations. (1) For the purpose of protecting health of the construction workers, the Contractor shall, as for the control of noises generated by construction machinery and transport vehicles, observe the *Noise Pollution Control Law of the People's Republic of China* and the *Emission Standard of Environmental Noise within the Boundary of Construction Site* (GB12523-2011) and arrange the working machinery rationally so that to minimize the duration of exposure of workers in the intensive environmental noises, or arrange periodic intensive noise work, or provide protective devices (like safety shoes and helmets, goggles, breathing masks or take other effective measures, which including definitely, shorter work hours. Furthermore, importance shall be paid to maintain the machinery so that to minimize possible noises. For the purpose of protecting residents nearby, no night construction activities shall be arranged, or earlier approval from the residents shall be obtained or use low-noise machinery if night construction is required. Loud-noise equipments, such as the stone breaker and the concrete mixer, shall be kept at least 1km away from the noise sensitive objects.

Terms	Environmental Requirements
	(2) Pollutants during road construction mainly come from the lime-soil dust generated from the running and transportation of construction vehicles and machines. In this regard, effective measures shall be taken to mitigate air pollution on the construction site so that to protect health of the workers. These measures include: a. Choose sealed dustproof electronic equipments; b. Water the machines for channel building and the concrete mixing plants at regular intervals to lower the dust; c. For by-stage works, certain moisture shall be kept to avoid dust; d. Treat the sludge in the drilled pile with correct method when erecting bridges so that to prevent directly dumping the sludge into the rivers or farmlands; e. Spoils can be dumped only at approved site. (3) Reliable measures shall be taken to guarantee unblocked traffic, water supply for domestic use and irrigation, power supply, communication, and normal living and production conditions of nearby urban and rural resident. (4) The preparatory area for construction, work shed, storing area for fuel and other materials, and the fueling and maintenance areas shall be at least 500m away from the water source. (5) The Contractor shall comply with related national and local environmental laws and regulations to A) Set up an operating mechanism to control environmental impacts; B) Adopt and implement the environmental supervision, EIA and EMP. The Contract shall report the implementation of such environmental supervision, EIA and EMP to the Owner on quarterly or half-yearly basis. The Contractor shall comply with related national, provincial and local environmental laws and regulations and the EMP. In addition, the Contractor shall: (1) Set up the environmental impact control system; (2) include in the EIA and the EMP the measures to control and mitigate environmental impacts; (3) Distribute budget according to related requirements so that to guarantee implementation of related measures. The Contractor is required to report to the Owner the implementation of these measures on half-yearly basis. What's more, the Contractor shall comply with (i) The measures and requirements proposed in the EIA and the EMP, see the Appendix [2] for details; (ii) The Employer shall be always ready to monitor the implementation of the EMP and carry out all the correction or prevention presented in the security monitoring report. The Contractor shall follow these measures, requirements and actions to distribute the cost.
Work Contents	MM-Sub1: Roadbed, bridge and culverts, greening and environmental protection, etc; MM-Sub2: Roadbed, bridge and culverts, greening and environmental protection, etc;

Ning'er-Jiangcheng-Longfu Road:

Table2-3: Environmental Requirements of Ning'er-Jiangcheng-Longfu Road Construction Contract

Terms	Environmental Requirements
General terms 1.1 (36)	Work contents: NJL-Sub1: Roadbed, bridge and culverts, greening and environmental protection, etc ; NJL-Sub2: Roadbed, bridge and culverts, greening and environmental protection, etc; NJL-Sub3: Roadbed, bridge and culverts, greening and environmental protection, etc; NJL-Sub4: Roadbed, bridge and culverts, greening and environmental protection, etc; NJL-Sub5: Roadbed, bridge and culverts, greening and environmental protection, etc;
General terms	Following documents are part of the contract:

Terms	Environmental Requirements
2.3 (9)	1. Resettlement plan (RP); 2. Environmental Impact Assessment (EIA); 3. Environmental Management Plan (EMP); 4. Gender Action Plan (GAP); 5. Ethnic Minority Development Plan(EMDP);
Special terms 65	The Contractor shall comply with the national, provincial and local environmental laws and regulations; The Contractor shall: (a) Set up a running system for environmental impact management; (b) Take monitoring and mitigation measures over the EIA, EMP, RP and EMDP (focus on the environmental protection, the non-voluntary resettlement guarantee measures and indigenous people guarantee, during construction); (c) Comply with all the corrective and preventive measures, including: (i) the guarantee supervision report; or (ii) follow-up agreements between the Asian Development Bank and the People's Government of Pu'er; (d) Take all the necessary measures to minimize damage to religious trees and religious remains during construction; (e) Allocate budget for guarantee the implementation of all the above measures. The Contractor shall fulfill related responsibilities concerning the non-voluntary resettlement guarantee before settling the final payment. The Contractor shall submit to the IA reports on the implementation of all the above measures on quarterly basis.

B-2. Output 2: Rural Roads

The bidding documents of Rural Roads are under preparation.

III. COMPLIANCE WITH ENVIRONMENTAL PROTECTION TERMS OF AGREEMENTS CONCERNING THE PROJECT

Up to now, the EA and IA of the project have fully implemented or are implementing all the due environmental terms defined in the loan agreement, and have get well prepared to implement all the undue environmental terms. See the following table for compliance with environmental terms defined in Appendix B of the Loan Agreement.

Table3-1: Compliance with Environmental Protection Terms of Agreements

Environmental Relevant Covenant	Status of Compliance
2. PMG shall ensure or cause to ensure that the preparation, design, construction implementation, operation and decommissioning of the project and all project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EIA, the EMP, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report， or (ii) which are subsequently agreed between ADB and PMG.	The executing institution and the implementing institution have strictly taken measures and observed requirements defined in the EIA and the EMP. • Being complied with.
3. PMG shall ensure that permanent and temporary land take for the MenglianMeng'a Road shall avoid intact woodlands at road sections as specified and agreed in the EMP.	Design and current construction of the Menglian-Meng'a Road have avoided the whole forest land along the road. • Being complied with.
4. PMG shall ensure CO_2 emissions monitoring and annual reporting to ADB during the operation of the Project Rural Roads and Project Regional Roads up to year 2020, by conducting traffic counts annually and calculating CO_2 emissions, for comparison with ADB's CO_2 emission threshold of 100,000 tons annually for all the project roads combined.	• To be complied during operation
5. PMG shall ensure that the design of the project roads takes into consideration climate change adaptation recommendations from the ADB funded climate change assessment study.	• Complied with.
6. PMG shall ensure that the road section as specified and agreed in the EMP shall not traverse through Protection Zones 1 and 2 of the Wenquan Reservoir.	The protected area 1 and protected area 2 of the Wenquanhe Reservoir are avoided during the design stage of the section K25+200~K45+200 of the Ning'er-Jiangcheng-Longfu Road; • Complied with.
7. PMG shall ensure that there is no tree felling and siting of asphalt mixing and concrete batching station within the road section as specified and agreed in the EMP during its construction.	Up to now, no trees are cut during construction of roads in the project; the asphalt mixing plant and the concrete grading station haven't started work yet; • Being complied with.
8. PMG shall ensure that the protected tree species at locations along the Ning'er-Longfu Road as specified under the EMP shall be marked, tagged and fenced off before commencement of the construction	• To be complied during the construction stage of the Ning'er-Jiangcheng-Longfu Road;
9.PMG shall ensure that noise mitigation measures are implemented. Such measures shall include road side noise barriers and provision of double-glazed windows at locations specified in the approved domestic Environmental Impact Assessment for the Menglian-Meng'a Road and the Ning'er-Longfu Road.	The corresponding noise reducing measures will be included in the engineering design; • To be complied at the late stage of construction.

IV. ENVIRONMENTAL MITIGATIONS AND COMPENSATION MEASURES IMPLEMENTED IN THE REPORTING PERIOD

Investigation is made on changes in the engineering contents during the current report period and results are as follows:

Adjustments have been made to 28 line positions along the Menglian-Meng'a Road, increasing the earthwork by 43,500m^3 and the requisitioned forest land by 5.2474ha. All the adjustments are made by unilateral vibration based on the original line positions, which leads to no increase or decrease of environmental sensitive protected objects along the line. Thus, no increase or decrease of measures to mitigate the environmental impact is required and there is no need to update the EMP.

Construction of the Ning'er-Jiangcheng-Longfu Road hasn't started yet. The protected areas of the Wenquanhe Reservoir are avoided during the design stage of the NJL Road section K25+200~K45+200 and there is no changes in the contents of other works. Thus, there is no need to update the EMP.

The implementation status of measures to mitigate environmental impacts of the project up to now is listed below according to the EMP. During the current report period, measures to be implemented to mitigate the environmental impacts have been implemented.

Table4-1: Implementation Status of Measures to Mitigate Potential Environmental Impacts

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
A. Potential environmental impacts and countermeasures existing in and applicable to the Ning'er-Jiangcheng-Longfu Road, Menglian-Meng'a Road and rural roads					
The Design Stage					
Soil resources	Loss of land and topsoil and increased risk of erosion	➢ Minimize permanent and temporary land take for both highways, especially cultivated land and basic farmland. ➢ Retain/incorporate landscape features of interest in design. ➢ Optimize balance between cut and fill and avoid deep cuts and high embankments to minimize earthworks. ➢ Maximize reuse of spoil within the construction or adjacent construction works. ➢ Agree borrow and spoil disposal sites, management and rehabilitation plan with PEPB if these sites are different from those specified in the Soil and Water Conservation Report. ➢ Remove and store topsoil (10-30cm) for restoration works prior to main earthworks. ➢ Specify landscape species that serve a specific bioengineering function, are in keeping with natural habitats and landscape and of local provenance. ➢ Design appropriate retention and drainage systems for slopes to reduce soil erosion.	Design Institute	PPMO; PMTB	The dedicated *Design Proposal for Water and Soil Conservation* is prepared and this proposal will be followed for engineering construction here. ➢ Complied with
Extreme weather events due to climate change	Road surface cracking due to extreme hot or cold weather, landslide and flooding due to torrential rainfall	➢ Consider potential impacts from extreme weather events due to climate change in designing road subgrade, pavement, road-side slopes, drainage system, bridges and culverts. ➢ Adopt appropriate protective measures such as vegetation cover, geotextiles, settling basins, permeable paving, infiltration ditches, stepped slopes, riprap, crib walls, retaining walls and intercepting ditches to reduce the speed of surface run-off.	Design Institute	PPMO; PMTB	Potential impacts from extreme weather events are taken into consideration during the design stage. See the designed flood frequency set forth in Table 1-1 herein. ➢ Complied with
Water quality	Bridge construction across water	➢ All construction staging areas, construction camps, fuel and materials storage, re-fuelling and maintenance areas to be located at least 500m from watercourses.	Design Institute	PPMO; PMTB	All the designed interim facilities during construction stage of the project are far away from the surface

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
	bodies	➢ Design of these construction staging areas and construction camps must ensure proper collection and treatment of wastewater and site runoff.			water; sewage collection and treatment facilities are designed for all the construction areas and living quarters. ➢ Complied with
Health and safety	Promotion of pedestrian safety, protection of vulnerable road users	➢ Design must ensure public health and safety. ➢ Design must ensure safety of pedestrians and agricultural traffic. ➢ Adopt universal design principles for where appropriate.	Design Institute	PPMO; PMTB	Dedicated public health and safety design are made during design of the project ➢ Complied with
Air emissions	Construction transport emissions	Specify local materials from licensed providers that minimize transport distance.	Design Institute	PPMO; PMTB	Most of materials used for construction of the project are purchased from local markets according to the principle of "purchase nearby"; ➢ Complied with
GHG emissions	Energy efficiency	Consider energy efficient machinery and operational equipment	Design Institute	PPMO; PMTB	All the machines and equipments used for the project satisfy related energy efficiency standard of China. ➢ Complied with
Pre-construction Stage					
Institutional strengthening	Lack of environment management capacity within PPMO	➢ Appoint qualified environment specialist to PPMO staff. ➢ Include LIEC in loan implementation project management consulting services. ➢ LIEC to conduct environment management training for PPMO staff and environmental specialist.	PPMO, LIEC, PEPB	ADB	PPMO has appointed the environment specialist and the LIEC. Environment management trainings have been included in the plan ➢ Being complied with
	Lack of environment management and monitoring capacity within PMTB	➢ Appoint qualified environmental specialist to PMTB staff. ➢ Contract PEMS to conduct environment monitoring ➢ Contract qualified ESE to conduct external compliance monitoring and verification of EMP implementation ➢ LIEC to conduct environment management training for PMTB staff and their environmental specialist.	PMTB, LIEC, PEPB	PPMO, ADB	PMTB has appointed the environment specialist and signed a contract with the external environmental monitoring institutions to carry out legal compliance supervision for environmental monitoring and the EM. The LIEC hasn't organized related

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
					training activities yet. ➢ Being complied with
EMP update	-	➢ Review mitigation measures defined in this EMP and update as required to reflect detailed design. ➢ Submit to ADB/PPMO for approval and disclose updated EMP on ADB website. ➢ Prepare a revised environmental compliance monitoring plan as required to meet the environmental requirements in the updated EIA and EMP.	PMTB, LIEC	PPMO, ADB	Reviewing shows that the EMP requires no upgrading now. ➢ Complied with
EIA for replacement rural roads		• Prepare EIA (including EMP) for replacement rural roads according to the EARF and submit to ADB	PPMO	ADB	At present, the EIA for replacement rural roads has been submitted to PEPB for approval and will later, if approved, be submitted to the ADB. ➢ Being complied with
Air quality	Dust (TSP) impact to sensitive receptors	Put into tender documents dust suppression measures: ➢ Frequent watering of unpaved areas, backfill areas and haul roads to suppress dust; ➢ Erect hoarding around dusty activities to contain emissions; ➢ Manage stockpile areas with frequent watering or covering with tarpaulin; ➢ Minimize the storage time of construction and demolition wastes on site by regularly removing them off site; ➢ Do not overload trucks when transporting earth materials to avoid spilling dusty materials onto public roads; ➢ Equip trucks for transporting earth materials with covers or tarpaulin to cover up the earthy materials during transport; ➢ Install wheel washing equipment or conduct wheel washing manually at each exit of each works area to prevent trucks from carrying muddy or dusty substance onto public roads; ➢ Immediately cleanup all muddy or dusty materials on public roads outside the exits of the works areas; ➢ Sensibly plan the transport routes and time to avoid busy traffic and heavily populated areas when transporting earthy materials; and	Design Institute	PPMO; PMTB	Some measures (see the special term 4.18) in the EMP are included in the tender documents for the Menglian-Meng'a Road; no detailed measures are included in the tender documents for the Ning'er-Jiangcheng-Longfu Road but the EIA and the EMP are included are part of the contract (General term 2.3 (9)). ➢ Being complied with

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		➢ Immediately plant vegetation in all temporary land take areas upon completion of construction to prevent dust and soil erosion.			
	Fumes and particulate matter from asphalt mixing plant and concrete batching plant	Put into tender documents that • These plants must be enclosed and equipped with bag house filter or similar air pollution control equipment. • Locate asphalt mixing plants and concrete batching plants at least 300m downwind from residential areas and other sensitive receptors.	Design Institute	PPMO; PMTB	
Noise	Power mechanical equipment noise impact to sensitive receptors	Put into tender documents the following noise mitigation measures: ➢ Use quiet equipment; ➢ Adopt good O&M of machinery; ➢ Use temporary hoardings or noise barriers to shield off noise sources; ➢ Avoid nighttime construction between 2200 and 0600 hours; ➢ If nighttime construction needed, consult nearby residents beforehand for their consensus; ➢ If nighttime construction needed, avoid using noisy equipment; and ➢ Maintain continual communication with the schools along the road alignments to avoid noisy activities near the schools during examination periods.	Design Institute	PPMO; PMTB	
Water quality	Construction site wastewater impact on water bodies	Put into tender documents the following measures to treat wastewater and runoff from construction sites and to prevent pollution to nearby water channels:: ➢ All construction camps, fuel and materials storage, re-fuelling and maintenance areas to be located at least 500m from watercourses ➢ Provide portable toilets and small package WWTPs for workers and canteens; and ➢ Install sedimentation tanks on-site to treat process water and muddy runoff.	Design Institute	PPMO; PMTB	

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
Ecology	Protection of flora and fauna	Put into tender documents: ➢ All project personnel, including construction workers, are prohibited from catching or trading in flora or fauna ➢ Project personnel will immediately report to the PMTB and ESE any fauna found trapped within project sites e.g. in ditches or pits	Design Institute	PPMO; PMTB	
Solid waste	Disposal or storage of excavated spoil	Specify in tender documents the spoil disposal or storage sites and that only these sites could be used.	Design Institute	PPMO; PMTB	
Health & safety	Occupational health & safety of workers	Specify in tender documents the provision of personal safety and protective equipment such as safety hats and shoes, eye goggles, respiratory masks, etc. to all construction workers;	Design Institute	PPMO; PMTB	
Social and environmental	Handling and resolving complaints received during project implementation	➢ PPMO to establish a project Complaint Center with hotline ➢ PPMO to publicize local access points (contractors, PMTB) for the GRM ➢ PPMO to establish grievance redress mechanism procedures for resolving, documenting and reporting complaints according to the EMP	PPMO	ADB	PPMO has set up the GRM. ➢ Complied with
Traffic	Construction vehicles causing traffic congestion	Plan transport routes for construction vehicles and specify in tender documents to forbid vehicles from using other roads during peak traffic hours.	Design Institute, Local traffic police	PPMO; PMTB	It is clearly defined in the tender documents that the Contractors shall "take reliable measures to guarantee unblocked traffic". ➢ Complied with
Construction Stage					

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
Soil resources	Spoil disposal	➢ Strip and store topsoil in a stockpile for reuse in restoration. ➢ Use spoil disposal sites approved by PEPB and manage in accordance with approved plan. ➢ Avoid side casting of spoil on slopes. ➢ Co-ordinate with water resources bureau monitoring station on effectiveness of soil erosion prevention measures and any need for remedial action. ➢ Rehabilitate and restore spoil disposal sites in accordance with agreed plan. ➢ Conduct project completion audit to confirm that spoil disposal site rehabilitation meets required standard, contractor liable in case of non-compliance.	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. The surface soil, spoils and waste are treated strictly according to the design and the EMP. ➢ Being complied with
	Soil erosion	• Implement soil erosion protection measures as defined in the Soil and Water Conservation Report • Confirm location of the borrow pits and spoil storage and disposal sites; if these are different from those specified in the Soil and Water Conservation Report. • Construct intercepting ditches and drains to prevent runoff entering construction sites, and diverting runoff from sites to existing drainage; • Construct hoardings and sedimentation ponds to contain soil loss and runoff from the construction sites • Limit construction and material handling during periods of rains and high winds; • Stabilize all cut slopes, embankments, and other erosion-prone working areas while works are ongoing; • Stockpiles shall be short-term, placed in sheltered and guarded areas near the actual construction sites, covered with clean tarpaulins when not in use, and sprayed with water during dry and windy weather conditions; • All cut areas shall be stabilized with thatch cover within 30 days after earthworks have ceased at the sites; • Immediately restore and landscape temporarily occupied land	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. Measures proposed in the SWCR are implemented in the road sections under construction now and monitoring on the soil erosion protection is carried out. ➢ Being complied with

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		upon completion of construction works. • Unauthorized extraction or disposal at other sites would be subject to penalties.			
	Soil contamination	➢ Properly store petroleum products, hazardous materials and wastes on an impervious surface. ➢ Develop spill response plan. Keep a stock of absorbent materials (e.g. sand, earth or commercial products) on site to deal with spillages and train staff in their use. ➢ If there is a spill take immediate action to prevent entering drains, watercourses, unmade ground or porous surfaces. Do not hose the spillage down or use any detergents. Use oil absorbent materials and dispose at a licensed waste management facility. ➢ Record any spill events and actions taken in environmental monitoring logs and report to LIEC. ➢ Properly store petroleum products, hazardous materials and waste in clearly labeled containers on an impermeable surface in secure and covered areas, preferably with bund and/or containment tray for any leaks. ➢ Remove all construction waste from the site to approved waste disposal sites.	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. Petroleum products on the road under construction are all kept according to related regulations. All hazardous substances and waste materials are treated appropriately without leakage. Construction wastes are delivered to designated place for disposal. ➢ Being complied with
Air quality	Dust (TSP) during construction	➢ Frequent watering of unpaved areas, backfill areas and haul roads to suppress dust. ➢ Pave frequently used haul roads ➢ Limit the speed of vehicles traveling on unpaved areas and haul roads ➢ Pay particular attention to dust suppression near sensitive receptors such as schools, hospitals, residential areas and natural areas. ➢ Erect hoarding/screens around dusty activities such as demolition. ➢ Manage stockpile areas to avoid mobilization of fine material, cover with tarpaulin and/or spray with water. ➢ Do not overload trucks transporting earth materials.	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. One watering truck is provided for the each section contractor of the Menglian-Meng'a Road; the watering truck waters once per three non-rainy days. No excess load is found on any haulage truck and all the trucks are covered during transportation. Traffic rush hours and areas with intensive

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		➢ Equip trucks transporting earth materials with covers or tarpaulin to cover loads during transport. ➢ Install wheel washing equipment or conduct wheel washing manually at each exit of each works area to prevent trucks from carrying muddy or dusty substance onto public roads. ➢ Immediately cleanup all muddy or dusty materials on public roads outside the exits of the works areas. ➢ Plan the transport routes and time to avoid busy traffic and heavily populated areas when transporting earthy materials. ➢ Immediately plant vegetation in all temporary land take areas upon completion of construction to prevent dust and soil erosion.			population are avoided. No wheel-washing facilities are configured at the exit of the construction area. ➢ Being complied with
	Fumes and particulate matter from asphalt mixing plant, concrete batching plant and other equipment and machinery	➢ Locate asphalt mixing plants and concrete batching plants at least 300m downwind from residential areas and other sensitive receptors. ➢ Enclose these plants and equip them with bag house filter or similar air pollution control equipment. ➢ Regularly inspect and certify vehicle and equipment emissions and maintain to a high standard.	Contractor	PMTB; ESE; LIEC	The asphalt mixing plant and the concrete mixing station haven't started construction yet. ➢ To be complied with
Noise	Noise from power mechanical equipment and vehicles	➢ Sensibly schedule construction activities, avoid noisy equipment working concurrently. ➢ Select advanced quiet equipment and construction method, and tightly control the use of self-provided generators. ➢ Comply with local requirements in areas with sensitive receptors very close by, ➢ Avoid construction works, particularly noisy activities such as piling and compaction from 22:00 to 06:00 hr. ➢ If nighttime construction needed, consult nearby residents beforehand for their consensus. ➢ If nighttime construction needed, avoid using noisy	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. All the contractors comply with related requirements to reduce noises. Noise within the boundary of construction site meets GB12523-2011 and no adverse impacts are generated to local residents. ➢ Being complied with

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		equipment ➢ If necessary, set up temporary noise barriers. ➢ Control speed of bulldozer, excavator, crusher and other transport vehicles travelling on site. ➢ Specify equipment and machinery that conforms to PRC noise standard GB12523-90 and ensure regular maintenance. ➢ Adopt noise reduction devices and measures for works in proximity to sensitive noise receptors to ensure required standards are maintained. ➢ Locate sites for rock crushing, concrete mixing and other noisy activities at least 1km away from sensitive noise receptors. ➢ Limit the speed of vehicles travelling on site and on haul roads (less than 8 km/hr). ➢ Minimize the use of whistles and horns. ➢ Maintain continual communication with schools along the road alignments to avoid noisy activities near the schools during examination periods and other noise-sensitive activities.			
Water quality	Management of works in and adjacent to watercourses	➢ If possible, carry out bridge pier construction during the dry season. ➢ Erect berms or sandbags during bridge foundation works if necessary to contain runoff polluting the rivers. ➢ Maintain adequate flood flow during the rainy season. ➢ All construction camps, fuel and materials storage, refueling and maintenance areas to be located at least 500m from watercourses. ➢ Take all necessary measures to prevent construction materials and waste from entering drains and water bodies.	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. No bridge foundation work is carried out. All the interim facilities are far away from the water source. ➢ Being complied with
Water quality	Construction site wastewater discharge	➢ All construction wastewater to be treated to appropriate PRC standard prior to discharge. ➢ Ensure timely cleanup of scattered materials on site, stockpiles must adopt measures to prevent being washed	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of earthwork in

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		into water bodies by rain water. ➢ Reuse equipment and wheel wash wastewater for dust suppression.			some sections. All the sewage from construction is treated according to related requirements. ➢ Being complied with
Solid waste	Construction site refuse	➢ Prepare a waste management plan including waste minimization and re-use ➢ Prepare a spill management plan for hazardous materials on construction sites ➢ Set up centralized domestic waste collection point and transport offsite for disposal at licensed municipal waste facility; ➢ Prohibit burning of waste.	Contractor	PMTB; ESE; LIEC	At present, all contractors of all road sections haven't prepared the *Waste Management Plan* and the *Spillage and Leakage Control Plan*. All the construction wastes are treated jointly according to related regulations. ➢ Being complied with
Ecology	Protection of vegetation and fauna, and restoration of disturbed areas	➢ Demarcate the construction working area to prevent encroachment and damage to adjacent areas. ➢ Ensure sufficient aftercare for landscape planting to maximize survival. ➢ Agree compensation planting for any forestry losses in line with PRC forestry laws. ➢ All project personnel, including construction workers, are prohibited from catching or trading in flora or fauna ➢ Project personnel will immediately report to the PMTB and ESE any fauna found trapped within project sites e.g. in ditches or pits	Contractor	PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. All the construction areas are within the boundary and no hunting or picking of plants are founded. ➢ Complied with
Physical cultural resources	Destruction of cultural relics in river bed and soil	Contractor must comply with PRC's Cultural Relics Protection Law and Cultural Relics Protection Law Implementation Regulations if such relics are discovered, stop work immediately and notify the relevant authorities, adopt protection measures and notify the local Cultural Bureau to protect the site.	Contractor	Cultural Relics Bureau; PMTB; ESE; LIEC	At present, construction of the Ning'er-Jiangcheng-Longfu Road hasn't started; the Menglian-Meng'a Road is at the stage of excavation and embankment work in some sections. No historical relics are found in the construction area. ➢ Complied with
Occupational health and safety	Construction site sanitation	➢ Effectively clean and disinfect the site. ➢ During site formation, spray with phenolated water for disinfection.	Contractor	PMTB; ESE; LIEC	The layout of the living quarters on the construction site of the Menglian-Meng'a Road is irrational,

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		➢ Disinfect toilets and refuse piles and ensure timely removal of solid waste; ➢ Exterminate rodents on site at least once every 3 months, and exterminate mosquitoes and flies at least twice each year; ➢ Provide public toilets in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, ➢ Appoint designated staff responsible for cleaning and disinfection.			no disinfection work or cleaning work is carried out. ➢ Being complied with
	Occupational safety	➢ Appoint Environment, Health and Safety Officer to develop and implement environmental, health and safety management plan, maintain records concerning health, safety and welfare and regularly report on accidents, incidents and near misses. ➢ Train all construction workers in general health and safety matters and on emergency preparedness and response procedures. ➢ Provide personal protective equipment (hard hats, shoes and high visibility vests) to all construction workers and enforce their use. ➢ Provide goggles and respiratory masks to workers doing asphalt road paving. ➢ Provide ear plugs to workers working near noisy powered mechanical equipment (PME), especially during piling of bridge foundations. ➢ Ensure safe handling, transport, storage and application of explosives for tunnel construction. ➢ Implement special measures to ensure worker safety in confined spaces during tunnel construction. ➢ Provide a clean and sufficient supply of fresh, potable water for all camps and work sites. ➢ Provide an adequate number of latrines and other sanitary arrangements at the site and work areas and ensure that they are cleaned and maintained in a hygienic state.	Contractor	PMTB; ESE; LIEC	The contractor of the Menglian-Meng'a Road under construction now has prepared corresponding environmental health and safety control plan and carried out related training. Personal protective appliances are distributed to some but not all the construction workers. Safe drinking water is available on the construction site. WC (with ordinary sanitary conditions) and waste collecting facilities are made available. There is no child labor. ➢ Being complied with

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		➢ Provide adequate waste receptacles and ensure regular collection and disposal. ➢ Ensure that Contractors have adequate worker and third party insurance cover. ➢ No children (less than 14 years of age) to work on any contract.			
	Food safety	➢ Inspect and supervise food hygiene in cafeteria on site regularly. ➢ Cafeteria workers must have valid health permits. ➢ Once food poisoning is discovered, implement effective control measures immediately to prevent it from spreading	Contractor	PMTB; ESE; LIEC	At present, the food and sanitary conditions of the dining hall on the construction site are good; however, some workers in the dining hall have no related health permits. No food poisoning events have taken place during the report period. ➢ Being complied with
	Disease prevention and safety awareness	➢ Construction workers must have physical examination before start working on site. ➢ If infectious disease is found, the patient must be isolated for treatment to prevent the disease from spreading. ➢ From the second year onwards, conduct physical examination on 20% of the workers every year. ➢ Establish health clinic at location where workers are concentrated, which should be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents. ➢ Specify the person responsible for health and epidemic prevention responsible for the education and propaganda on food hygiene and disease prevention to raise the awareness of workers. ➢ Regularly inspect works to ensure there are no areas of stagnant water that could provide breeding grounds for malaria, encephalitis and dengue fever mosquitoes.	Contractor	PMTB; ESE; LIEC	Annual health checks are required by Chinese regulation. All construction workers have annual exam. No infectious diseases have been reported during the report period. ➢ Complied with

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
Community health and safety	Temporary traffic management	➢ A traffic control and operation plan will be prepared together with the local traffic management authority prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance. ➢ As much as possible, schedule delivery of construction materials and equipment during non-peak hours.	Contractor, local traffic police	PMTB; ESE; LIEC	The contractors have prepared traffic control and implementation plan. Specific workers are appointed to guide the traffic at road intersections and signboards are erected. ➢ Complied with
	Information disclosure	Residents and businesses will be informed in advance through publicity about the construction activities and provided with the dates and duration of expected disruption and alternative routes, as required.	Contractor, PMTB	PPMO, LIEC	Bulletin boards are set up at the construction area of each section of the Menglian-Meng'a Road to publicize information concerning construction of the project. ➢ Complied with
	Access to construction sites	➢ Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations and raising awareness on safety issues. ➢ All sites will be made secure, discouraging access by members of the public through fencing or security personnel, as appropriate.	Contractor	PMTB; ESE; LIEC	Safety warning boards are set up at the construction area of each section of the Menglian-Meng'a Road. ➢ Complied with
	Utility services interruptions	➢ Assess construction locations in advance for potential disruption to services and identify risks before starting construction. ➢ If temporary disruption is unavoidable, develop a plan to minimize the disruption in collaboration with relevant local authorities such as power company, water supply company and communication company. ➢ Communicate the dates and duration in advance to all affected people.	Contractor, local service providers	PMTB; ESE; LIEC	All the electrical power, telecommunication and water supply facilities within the construction site of the Menglian-Meng'a Road are relocated when the contractors move in. No interruption or adverse impacts to the public service facilities have taken place during the report period. ➢ Complied with
Social & environmental	Handling and resolving complaints	● Appoint a GRM coordinator within PPMO. ● Brief and provide training on GRM access points (PMTB, contractors).	PPMO, PMTB, Contractor	ADB	PPMO has set up the GRM. Specific workers at all the road sections are appointed to handle and solve

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
		● Disclose GRM to affected people before construction begins at the main entrance to each construction site. ● Maintain and update a Complaints Register to document all complaints and their resolution. Report on GRM in quarterly project progress reports and semi-annual environmental monitoring reports..			complaints and announcement will be made on the construction site. No related complaints are reported during the report period. ➢ Complied with
Operational Stage					
Traffic	Road condition	Regularly inspect and maintain the road surface, drains and verges.	O&M units	PPMO	➢ To be complied at operational stage
	Road safety and traffic accidents	Strictly enforce traffic law to improve road safety and reduce traffic accidents.	Pu'er Traffic Police	PMG	➢ Complied with
	Collisions with wildlife	Monitor incidence and type of wildlife fatality and install warning signs or other preventative measures, as required.	O&M units	PPMO/PMG	➢ To be complied at operational stage
B. Specific potential impacts and mitigation measures for Ning'er-Jiangcheng-Longfu Road					
Detailed Design Stage					
Drinking water source – Wenquan Reservoir	Alignment near the reservoir at section K25+200 to K45+200.	● Alignment design of road section K25+200 to K45+200 must not traverse through Protection Zone 1 of the Wenquan Reservoir ● Drainage design of road section K25+200 to K45+200 traversing through Protection Zone 2 of the Wenquan Reservoir must have collection, containment and treatment systems for the road runoff.	Design Institute	PPMO; PMTB	Protected areas of the Wenquanshui Reservoir are avoided in the Ning'er-Jiangcheng-Longfu Road section K25+200 to K45+200. ➢ Complied with
Social, environmental health	Traffic noise impact to sensitive receptors	➢ Design road side noise barriers at the following 6 locations as indicated in the domestic EIR: ■ Banhai Village – 2.5 m high x 100 m long ■ Manlian Village – 2.5 m high x 90 m long ■ Sanjia Village – 2.5 m high x 50 m long ■ Longtangba – 2.5 m high x 50 m long ■ Xishitou Village – 2.5 m high x 100 m long ■ Baozang Township – 2.5 m high x 250 m long	Design Institute	PPMO; PMTB	Dedicated design for 6 noise barriers is made during design ➢ Complied with
Pre-construction Stage					
Trees native to	Damage to protected tree	Trees at the following locations shall be tagged, conspicuously marked and fenced off prior to commencement of construction	PMTB environme	PPMO	At present, contractors of detailed sections haven't moved in. They will

Impact Factor	Potential Impacts and/or Issues	Mitigation Measures defined in the EMP	Implementing Entity	Supervising Entity	Implementation status and compliance with EMP
Yunnan	species native to Yunnan by construction workers and machinery	activities ➢ *Panax zingiberensis* 姜状三七: 20 trees in Liming Township along chainage K80 to K85 ➢ *Phoebe nanmu* 滇楠: 3 trees in Liming Township approximately 200 m to the right of road center line at chainage K85+100 and in Qushui Township approximately 55 m to the right of road center line at chainage K200+800 ➢ *Dalbergia retusa* 黑黄檀: 1 tree in Mengxian Township approximately 100 m to the left of road center line at chainage K48+800. ➢ *Aesculus wangii* 云南七叶树: 5 trees in Qushui Township approximately 50 m to the right of road center line at chainage K215+800.	ntal specialist		marks and separate the protected plants with fences after moving in. ➢ To be complied with
C. Specific potential impacts and mitigation measures for Menglian-Meng'a Road					
Detailed Design Stage					
Social, environmental health	Traffic noise impact to sensitive receptors	Design road side barrier at the following one location as indicated in the domestic EIR: Menghai Primary School – 3 m high x 200 m long	Design Institute	PPMO; PMTB	Special design of sound barrier is made for the Manghai Primary School during design of the project. ➢ Complied with
Landscape	Preservation of trees and woodlands	Permanent and temporary land-take to avoid intact woodlands at sections K55+200-K65+500、K70+100-K72+300、K75+300-K77+200	Design Institute	PPMO; PMTB	The whole forest land along the line is avoided during design of the Menglian-Meng'a Road. ➢ Being complied with
Operational Stage					
Social, environmental health	Traffic noise impact to sensitive receptors	Install 140 m^2 of double-glazed windows on first row of non-commercial buildings facing the road at the following 3 locations as indicated in the domestic EIR (CNY1,000/m^2). Total cost = $23,000 • Mengma Township at K79+800 • Manglang at K95+200 • Anma at K97+350	PPMO	PMG, PEPB	➢ To be complied during the operation stage

V. SUMMARY OF ENVIRONMENTAL MONITORING

A. Monitoring Plan and Responsibilities

This Environmental Monitoring Report is prepared by the External Environmental Monitoring Agency (Guangxi Transportation Research Institute, Yunnan Fangyuan Science and Technology Co., Ltd, Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd, Kunming Lonhwin Engineering Design Consulting Co., Ltd). It based on the environmental supervision reports, the external environmental monitoring reports and the Soil Erosion Protection monitoring reports, submitted by the External Environmental Monitoring Agencies. Some information provided by the PPMO and other management departments. The field survey carried out by the PPMO and ESE. This Report covers for the period from April to June, 2016.

For the regional roads, the monitoring plan during the construction period is defined in the EMP. Environmental monitoring on Menglian - Meng'a Road in construction period is undertaken by Guangxi Transportation Research Institute, and soil erosion protection monitoring is undertaken by Yunna Jin Yu Ecological Engineering Consulting Co., Ltd. Environmental monitoring on Ning'er - Jiangcheng - Longfu Road in construction period is undertaken by Yunnan Fangyuan Technology Co., Ltd., and water conservation monitoring is undertaken by Kunming Longhui Engineering Design Consultation Co., Ltd.

Table 5-1: Monitoring Plan during Construction Period for the Regional Roads

Item	Monitoring Parameter	Monitoring Location	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity
Menglian-Meng'a Road					
Construction Stage					
Air quality	TSP; (SO_2 & NO_2 only if there is asphalt mixing within 500 m)	10 locations that are within 20 m of the alignment: 1. Hegelaozhai (K76+460) 2. Hegexinzhai (K77+060) 3. Mengma Primary School (K79+900) 4. Hehaxinzhai (K82+500) 5. Manghai Primary School (K89+060) 6. Nanma Electric Station Dormitory (K89+800) 7. Guangsan (K90+650) 8. Bingsuo (K91+800 9. Manglang (K95+350) 10. Anma (K97+350)	1 day (24-hr) per month (Monitor only when road section has construction activities within 500 m)	GXTRI	PMTB, ESE
Noise	L_{Aeq}	10 locations that are within 20 m of the alignment: 1. Hegelaozhai (K76+460) 2. Hegexinzhai (K77+060) 3. Mengma Primary School (K79+900) 4. Hehaxinzhai (K82+500) 5. Manghai Primary School (K89+060) 6. Nanma Electric Station Dormitory (K89+800) 7. Guangsan (K90+650) 8. Bingsuo (K91+800 9. Manglang (K95+350) 10. Anma (K97+350) [*Note: nighttime monitoring not needed at the school locations*]	2 times per day (daytime and nighttime); 1 day per month (Monitor only when road section has construction activities within 500 m)	GXTRI	PMTB, ESE
Water quality	DO, SS, TPH	3 locations in Nanma River during bridge construction at the following	1 time per day; 1 day per month	GXTRI	PMTB, ESE

Item	Monitoring Parameter	Monitoring Location	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity
		road sections: 1. K64+200 2. K77+800 3. K99+200 Set up 2 stations for water quality monitoring at each of the 3 locations as follows: 1. Control station: 50 m upstream of the bridge alignment 2. Impact station 100m downstream of the bridge alignment (Note: if downstream impact station data > 130% of upstream control station data (DO <130%), mitigation measures are needed)	during bridge construction		
Ning'er-Jiangcheng-Longfu Road					
Construction Stage					
Air quality	TSP; (SO_2 & NO_2 only if there is asphalt mixing within 500 m)	11 locations that are within 20 m of the alignment 1. Banhai Primary School (K4+100) 2. Manlian Primary School (K7+100) 3. Xishitou Village (K20+200) 4. Mengxian Middle School (K56+900) 5. An'ning Village (K63+800) 6. Xuan'de Village (K69+800) 7. Xianren Village (K106+500) 8. Liming Village (K123+350) 9. Baozang Village (K156+500) 10. Qiyiqiao (K174+600) 11. Niuluohe Village (NK1+200)	1 day (24-hr) per month (Monitor only when road section has construction activities within 500 m)	YNFY	PMTB, ESE
Noise	L_{Aeq}	11 locations that are within 20 m of the alignment 1. Banhai Primary School (K4+100) 2. Manlian Primary School (K7+100) 3. Xishitou Village (K20+200) 4. Mengxian Middle School (K56+900) 5. An'ning Village (K63+800) 6. Xuan'de Village (K69+800) 7. Xianren Village (K106+500) 8. Liming Village (K123+350) 9. Baozang Village (K156+500) 10. Qiyiqiao (K174+600) 11. Niuluohe Village (NK1+200) [*Note: nighttime monitoring not needed at the school locations*]	2 times per day (daytime and nighttime); 1 day per month (Monitor only when road section has construction activities within 500 m)	YNFY	PMTB, ESE
Water quality	DO, SS, TPH	7 rivers during bridge construction at the following road sections: 1. Mengxian River (K68+160) 2. Manxian River (K101+983) 3. Manbangtian River (K126+353) 4. Mengyejiang (K153+643) 5. Lahu River (K207+253) 6. Longtong River (K234+283) 7. Shili River (K238+173) Set up 2 stations for water quality monitoring at each of the 7 rivers as follows::	1 time per day; 1 day per month during bridge construction	YNFY	PMTB, ESE

Item	Monitoring Parameter	Monitoring Location	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity
		1. Control station: 50 m upstream of the bridge alignment 2. Impact station 100m downstream of the bridge alignment (Note: if downstream impact station data > 130% of upstream control station data (DO <130%), mitigation measures are needed)			

B. Environmental Quality Objectives and Sampling Analysis Method

B-1. Environmental quality objectives

The environmental monitoring results of the project are evaluated according to the environmental quality objectives defined in the EMP. In which, the latest GB3095-2012 is adopted for the *Ambient Air Quality Standard*. See the table below for applicable standards.

Table 5-2: Applicable Standards for Monitoring Indexes

Period	Indicator	Standard
Construction	TSP	*Ambient Air Quality Standard* (GB3095-2012)ClassⅡ
	Fume from asphalt mixing plant (SO_2, NO_2)	*Integrated emission standard of air pollutants* (GB 16297-1996)
	Noise limits of PME at boundary of construction site	Emission standard of environment noise for boundary of construction site(GB 12523-2011)
	Discharge of wastewater from construction sites	*Integrated Wastwater Discharge Standard* (GB 8978-1996)Class Ⅰ
	DO, SS and TPH levels in river during bridge construction works	SS and TPH at downstream impact station <130% of the upstream control station. DO at downstream impact station >70% of the upstream control station and must not be < 2mg/L
Operation	Traffic noise at sensitive receptor within 35 m of road red line	*Environmental Quality Standard for Noise* (GB3096-2008) Category 4a Functional Area
	Traffic noise at sensitive receptor beyond 35 m of road red line	*Environmental Quality Standard for Noise* (GB3096-2008) Category 1 and Category 2 Functional Areas

B-2. Sampling analysis method

The sampling analysis methods of monitoring parameters are subject to related national standards. See the following table for details.

Table5-3: Sampling Analysis Methods of the Indicators

Indicator	Sampling analysis method	Detection Limit
COD_{Cr}	*Water Quality-Determination of the Chemical Oxygen Demand-Dichromate Method* (GB11914-89)	10 mg/L
SS	*Water Quality-Determination of Suspended Substance-Gravimetric Method* (GB11901-89)	4 mg/L
TPH	*Water Quality-Determination of Petroleum Oil, Animal and Vegetable Oils-Infrared Photometric Method* (HJ637-2012)	0.04 mg/L
DO	*Water Quality-Determination of Dissolved Oxygen-Iodometric Method* (GB 7489-1987)	0.2mg/L
Noise(L_{Aeq})	*Environmental Quality Standard for Noise* (GB3096-2008)	/
TSP	*Ambient Air-Determination of Total Suspended*	0.001mg/m^3

	Particulates--Gravimetric Method (GB/T15432-1995)	

C. Monitoring Results

C-1. Project Implementation Progress at Environmental Monitoring Points

Menglian - Meng'a Road: Table 5-4 shows project implementation progress at each monitoring points of Menglian - Meng'a Road by 31 July, 2016.。

Table 5-4: Project Progress at Monitoring Points of Menglian - Meng'a Road

S/N	Monitored Objects	Stake No.	Name of the Monitoring Point	Progress of works
1	Noise	K76+460	Hegelaozhai	Neither subgrade works nor pavement works is commenced
2		K77+060	Hegexinzhai	Neither subgrade works nor pavement works is commenced
3		K79+900	Mengma Primary School	Neither subgrade works nor pavement works is commenced
4		K82+500	Hehaxinzhai	Neither subgrade works nor pavement works is commenced
5		K89+060	Manghai Primary School	Neither subgrade works nor pavement works is commenced
6		K89+800	Nanma Electric Station Dormitory	Neither subgrade works nor pavement works is commenced
7		K90+650	Guangsan	Neither subgrade works nor pavement works is commenced
8		K91+800	Bingsuo	Neither subgrade works nor pavement works is commenced
9		K95+350	Manglang	Neither subgrade works nor pavement works is commenced
10		K97+350	An'ma	Neither subgrade works nor pavement works is commenced
1	Ambient air quality	K76+460	Hegelaozhai	Neither subgrade works nor pavement works is commenced
2		K77+060	Hegelaozhai	Neither subgrade works nor pavement works is commenced
3		K79+900	Meng'a Primary School	Neither subgrade works nor pavement works is commenced
4		K82+500	Hegexinzhai	Neither subgrade works nor pavement works is commenced
5		K89+060	Manghai Primary School	Neither subgrade works nor pavement works is commenced
6		K89+800	Nanma Electric Station Dormitory	Neither subgrade works nor pavement works is commenced
7		K90+650	Guangsan	Neither subgrade works nor pavement works is commenced
8		K91+800	Bingsuo	Neither subgrade works nor pavement works is commenced
9		K95+350	Manglang	Neither subgrade works nor pavement works is commenced
10		K97+350	An'ma	Neither subgrade works nor pavement works is commenced
1	Surface water	K64+200	Nanma River	River-crossing bridge works have not started yet, while the subgrade works of upstream road sections K62+890~K63+150 are in construction phase
2		K77+800	Nanma River	River-crossing bridge works have not started yet

3		K99+200	Nanma River	River-crossing bridge works have not started yet

Ning'er - Jiangcheng - Longfu Road：Table 5-5 shows the project progress at each monitoring points of Ning'er - Jiangcheng - Longfu Road by 31 July, 2016**.** Therefore, in this monitoring period, this road has not been constructed yet, the environmental monitoring units conducted environmental background monitoring on each monitoring point.

Table 5-5: Project Progress at Monitoring Points of Ning'er-Jiangcheng-Longfu Road

S/N	Monitored Objects	Stake No.	Name of the Monitoring Point	Progress of works
1	Noise	K4+100	Banhai Primary School	Neither subgrade works nor pavement works is commenced
2		K7+100	Manlian Primary School	Neither subgrade works nor pavement works is commenced
3		K20+200	Xishitou village	Neither subgrade works nor pavement works is commenced
4		K56+900	Mengxian Middle School	Neither subgrade works nor pavement works is commenced
5		K63+800	An'ning Village	Neither subgrade works nor pavement works is commenced
6		K69+800	Xuande Village	Neither subgrade works nor pavement works is commenced
7		K106+500	Xianren Village	Neither subgrade works nor pavement works is commenced
8		K123+350	Liming Township	Neither subgrade works nor pavement works is commenced
9		K156+500	Baozang Township	Neither subgrade works nor pavement works is commenced
10		K174+600	Qiyiqiao	Neither subgrade works nor pavement works is commenced
11		NK1+200	Niuluohe Village	Neither subgrade works nor pavement works is commenced
1	Ambient air quality	K4+100	Banhai Primary School	Neither subgrade works nor pavement works is commenced
2		K7+100	Manlian Primary School	Neither subgrade works nor pavement works is commenced
3		K20+200	Xishitou village	Neither subgrade works nor pavement works is commenced
4		K56+900	Mengxian Middle School	Neither subgrade works nor pavement works is commenced
5		K63+800	An'ning Village	Neither subgrade works nor pavement works is commenced
6		K69+800	Xuande Village	Neither subgrade works nor pavement works is commenced
7		K106+500	Xianren Village	Neither subgrade works nor pavement works is commenced
8		K123+350	Liming Township	Neither subgrade works nor pavement works is commenced
9		K156+500	Baozang Township	Neither subgrade works nor pavement works is commenced
10		K174+600	Qiyiqiao	Neither subgrade works nor pavement works is commenced
11		NK1+200	Niuluohe Village	Neither subgrade works nor pavement works is commenced
1	Surface	K68+160	Mengxian	River-crossing bridge works have not

	water		River	started yet
2		K101+986	Manxian River	River-crossing bridge works have not started yet
3		K126+353	Manbangtian River	River-crossing bridge works have not started yet
4		K153+643	Mengye River	River-crossing bridge works have not started yet
5		K207+253	Lahu River	River-crossing bridge works have not started yet
6		K234+283	Longdong River	River-crossing bridge works have not started yet
7		K238+173	Shili River	River-crossing bridge works have not started yet

C-2. Monitoring Results of Noise

Menglian - Meng'a Road：

From April to July 2016, a whole-day monitoring was conducted monthly at ten sensitive sites: Hegelaozhai (K76+460), Hegexinzhai (K77+060), Mengma primary school (K79+900), Hehaxinzhai (K82+500), Manghai primary school (K89+060), Nanma Electric Station Dormitory (K89+800), Guangsan (K90+650), Bingsuo (K91+800), Manglang (K95+350), An'ma (K97+350), among them, Mengma Primary School and Manghai Primary School need no monitoring at nighttime according to EMP. Table 5-6 shows monitoring results.

Table 5-6 shows that from April to July 2016, the overall qualified rate for monitoring data, forty sets (seventy-eight figures) in total, of noise at ten monitoring points is 100% within requirements. The monitoring values at these points range from 55.0 dB (A) to 59.0 dB (A) at daytime and range from 44.3 dB (A) to 48.0 dB (A) at night, which satisfies the limit value given in GB3096-2008.

Table5-6： Noise Monitoring Results in Construction Period of Menglian - Meng'a Road Unit: dB (A)

Name of the Monitoring Point	Monitoring Time	Standard Limit	Monitoring Results							
			April		May		June		July	
			Sampling Date	Monitoring Value	Sampling Date	Monitoring Value	Sampling Date	Monitoring Value	Sampling Date	Monitoring Value
Hegelaozhai (K76+460)	Daytime	70	11	55.5	10	55.8	15	56.6	14	56.2
	Nighttime	55	11	47.9	10	47.6	15	45.4	14	45.8
Hegexinzhai (K77+060)	Daytime	70	11	59.0	10	58.3	15	57.9	14	57.4
	Nighttime	55	11	47.4	10	46.8	15	47.1	14	46.3
Mengma Primary School (K79+900)	Daytime	60	11	55.0	10	57.1	15	58.3	14	56.8
	Nighttime	50	11	/	10	/	15	/	14	/
Hehaxinzhai (K82+500)	Daytime	70	11	58.4	10	58.1	15	56.9	14	57.7
	Nighttime	55	11	47.4	10	46.1	15	44.8	14	46.9
Manghai Primary School (K89+060)	Daytime	60	11	57.9	10	55.2	15	57.8	14	55.9
	Nighttime	50	11	/	10	/	15	/	14	/
Nanma Electric Station Dormitory (K89+800)	Daytime	70	11	57.1	10	56.6	15	57.5	14	57.4
	Nighttime	55	11	44.7	10	45.1	15	47.4	14	45.8
Guangsan (K90+650)	Daytime	70	11	58.2	10	55.5	15	58.2	14	58.2
	Nighttime	55	11	44.8	10	45.4	15	44.6	14	47.2
Bingsuo (K91+800)	Daytime	70	11	55.7	10	58.9	15	57.9	14	56.8
	Nighttime	55	11	44.3	10	45.3	15	46.6	14	45.9
Manglang (K95+350)	Daytime	70	11	56.9	10	56.6	15	58.3	14	57.3
	Nighttime	55	11	46.7	10	47.4	15	48.0	14	46.4
An'ma (K97+350)	Daytime	70	11	55.4	10	56.5	15	57.6	14	57.6
	Nighttime	55	11	45.6	10	47.5	15	44.7	14	46.7

Ning'er - Jiangcheng - Longfu Road：

The subgrade works and pavement works of Ning'er - Jiangcheng - Longfu Road have not been constructed. According to EMP, noise background monitoring is performed at each monitoring point by Yunnan Fangyuan Technology Co., Ltd. Table5-7 shows monitoring results.

Table 5-7：Noise Monitoring Result before Construction of Ning'er - Jiangcheng - Longfu Road Unit: dB (A)

S/N	Name of the Monitoring Point	Monitoring Period	Sampling Date	Monitoring Results	Standard Limit
1	Banhai Primary School (K4+100)	Daytime	12 Jul.	57.4	60
		Nighttime	12 Jul.	/	/
2	Manlian Primary School (K7+100)	Daytime	12 Jul.	56.9	60
		Nighttime	12 Jul.	/	/
3	Xishitou village (K20+200)	Daytime	12 Jul.	57.7	65
		Nighttime	12 Jul.	44.7	55
4	Mengxian Middle School (K56+900)	Daytime	12 Jul.	58.6	60
		Nighttime	12 Jul.	/	/
5	An'ning Village (K63+800)	Daytime	12 Jul.	57.9	60
		Nighttime	12 Jul.	45.2	50
6	Xuande Village (K69+800)	Daytime	12 Jul.	58.3	60
		Nighttime	12 Jul.	45.6	50
7	Xianren Village (K106+500)	Daytime	12 Jul.	58.7	60
		Nighttime	12 Jul.	44.9	50
8	Liming Township K123+350	Daytime	12 Jul.	59.1	60
		Nighttime	12 Jul.	45.7	50
9	Baozang Township K156+500	Daytime	12 Jul.	59.3	60
		Nighttime	12 Jul.	45.4	50
10	Qiyiqiao K174+600	Daytime	12 Jul.	58.5	60
		Nighttime	12 Jul.	45.3	50
11	Niuluohe Village NK1+200	Daytime	12 Jul.	57.3	60
		Nighttime	12 Jul.	44.8	50

Table 5-7 shows the monitoring results of noise at eleven monitoring points is 100% within requirements. The monitoring value ranges from 56.9dB (A) to 59.3dB (A) at daytime and ranges from 44.7dB (A) to 45.7dB (A) at night. All the monitoring points can satisfies the corresponding requirements of limit value given in GB3096-2008.

C-3. Monitoring Results of Ambient Air Quality

Menglian - Meng'a Road：

By 31 July, 2016, the roads around acoustic environmental monitoring points of noise environment on Menglian - Meng'a Road have not been constructed. From April to July 2016, Guangxi Transportation Research Institute monitored the TSP concentration in ambient air at ten sensitive sites. They are Hegelaozhai (K76+460), Hegexinzhai (K77+060), Mengma primary school (K79+900), Hehaxinzhai (K82+500), Manghai primary school (K89+060), Nanma Electric Station Dormitory (K89+800), Guangsan (K90+650), Bingsuo (K91+800), Manglang (K95+350), An'ma (K97+350), etc. Table 5-8 shows monitoring results.

During the period from April to July 2016, as show in Table 5-8 that the monitoring results of all monitoring points is 100% within requirements. There are forty monitoring data of ambient air at ten monitoring points in total. The TSP daily mean value of these ten monitoring points ranges from 0.106 to 0.219, which satisfie the limit of Class II in *Ambient Air Quality Standard* (GB3095-2012).

Table 5-8: Ambient Air Quality Monitoring Results in Construction Period of Menglian - Meng'a Road **Unit: mg/m^3**

S/N	Location of the Monitoring Point	Standard Limit	Monitoring Results							
			April		May		June		July	
			Sampling Date	Monitoring Value	Sampling Date	Monitoring Value	Sampling Date	Monitoring Value	Sampling Date	Monitoring Value
1	Hegelaozhai (K76+460)	0.3	11	0.138	10	0.162	13	0.141	10	0.106
2	Hegexinzhai (K77+060)	0.3	11	0.145	10	0.164	13	0.211	10	0.170
3	Mengma primary school (K79+900)	0.3	12	0.185	11	0.142	14	0.167	11	0.165
4	Hehaxinzhai (K82+500)	0.3	12	0.191	11	0.149	14	0.149	11	0.188
5	Manghai primary school (K89+060)	0.3	13	0.211	12	0.219	15	0.194	12	0.156
6	Nanma Electric Station Dormitory (K89+800)	0.3	13	0.143	12	0.197	15	0.145	12	0.187
7	Guangsan (K90+650)	0.3	14	0.212	13	0.159	16	0.198	13	0.121
8	Bingsuo (K91+800)	0.3	14	0.154	13	0.193	16	0.209	13	0.158
9	Manglang (K95+350)	0.3	15	0.141	14	0.139	17	0.206	14	0.182
10	An'ma (K97+350)	0.3	15	0.16	14	0.185	17	0.176	14	0.170

Ning'er - Jiangcheng - Longfu Road：

The subgrade works and pavement works of Ning'er - Jiangcheng - Longfu Road have not been constructed. According to EMP of this project, Ambient Air Quality background monitoring is performed at each monitoring point by Yunnan Fangyuan Technology Co., Ltd.

Table5-9: Ambient Air Quality Monitoring Result and Evaluation before Construction of Ning'er - Jiangcheng - Longfu Road Unit: mg/m^3

S/N	Location of the Monitoring Point	Sampling Date	Monitoring Results	Standard Limit
1	Banhai primary school (K4+100)	13 Jul.	0.132	0.3
2	Manlian Primary School (K7+100)	13 Jul.	0.146	0.3
3	Xishitou village (K20+200)	14 Jul.	0.172	0.3
4	Mengxain middle school (K56+900)	14 Jul.	0.227	0.3
5	An'ning Village (K63+800)	15 Jul.	0.156	0.3
6	Xuande Village (K69+800)	15 Jul.	0.196	0.3
7	Xianren Village (K106+500)	16 Jul.	0.145	0.3
8	Liming village (K123+350)	16 Jul.	0.189	0.3
9	Baozang village (K156+500)	17 Jul.	0.203	0.3
10	Qiyiqiao (K174+600)	17 Jul.	0.140	0.3
11	Niuluohe Village (NK1+200)	18 Jul.	0.179	0.3

Table 5-9 shows that the monitoring results of ambient air at eleven monitoring points is 100% within requirements. The TSP daily mean value ranges from 0.132 mg/m^3 to 0.227 mg/m^3, which satisfie the limit of Class II in *Ambient Air Quality Standard* (GB3095-2012).

C-4. Monitoring Results of Surface Water

Menglian - Meng'a Road：

By 31 July, 2016, all the bridge works along Menglian - Meng'a Road has not been constructed. From April to July 2016, Guangxi Transportation Research Institute monthly monitored water quality in river reach near theer river-crossing bridges (K64+200, K77+800, K99+200) specified in EMP of the project. The bridge construction of Menglian - Meng'a Road had not started, therefore, the water quality monitoring results of monitoring points between 50m upstream(control station) and 100m downstream(impact station) have not been compared and evaluated. However, up-to-standard evaluation is mainly performed for water quality at monitoring points. Table 5-10 shows monitoring results.

According to evaluation for monitoring results, three monitoring indexes of river reaches near Nanma River K64+200, K77+800, K99+200, COD_{Cr}, DO and petroleum during April to July 2016 can satisfy the water quality standard of category III in *Environmental Quality Standard for Surface Water* (GB3838 - 2002). For suspended solids (SS), no up-to-standard evaluation is performed because no corresponding water environmental quality standard exists in China at present. However, the monitoring point in Nanma River K64+200 is affected by subgrade construction of section K62+890 - K63+150 and SS reaches to 85~156mg/L, which is higher than other monitoring points.

Table5-10: Surface Water Monitoring Results and Evaluation in Construction Period of Menglian - Meng'a Road Unit: mg/L

River Name and Stake Number	Sampling Date	Sampling stations	Monitoring Results			
			COD_{Cr}	DO	SS	TPH
Environment Quality Standard of Surface Water (GB3838—2002) Class III			≤20	≥5	—	≤0.05
Nanma River K64+200	14 April	Control station	<10	5.6	85	0.04
	14 April	Impact station	<10	6.4	90	0.04
	13 May	Control station	<10	5.3	113	0.05
	13 May	Impact station	12	6.4	118	<0.04
	17 June	Control station	14	5.5	133	0.05
	17 June	Impact station	15	7.1	132	<0.04
	13 July	Control station	14	7.9	152	0.05
	13 July	Impact station	<10	6.8	156	0.05
Nanma River K77+800	14 April	Control station	15	7.9	21	0.04
	14 April	Impact station	16	6.5	16	0.05
	13 May	Control station	14	5.5	21	0.04
	13 May	Impact station	14	6.4	19	<0.04
	17 June	Control station	10	6.5	11	0.05
	17 June	Impact station	12	6.3	14	0.05
	13 July	Control station	10	6	15	0.04
	13 July	Impact station	<10	5.9	21	<0.04
Nanma River K99+200	14 April	Control station	<10	7.5	11	0.04
	14 April	Impact station	14	8.0	14	0.04
	13 May	Control station	<10	5.8	13	0.04
	13 May	Impact station	16	7.8	18	0.04
	17 June	Control station	<10	5.3	25	<0.04
	17 June	Impact station	14	6.8	14	0.04
	13 July	Control station	10	7.2	33	0.04
	13 July	Impact station	<10	7.1	8	0.05

Ning'er - Jiangcheng - Longfu Road：

The bridge construction of Ning'er - Jiangcheng - Longfu Road has not started. In July 2016, environmental status monitoring is performed at 7 surface water monitoring points defined in *Environmental Management Plan* (EMP) by Yunnan Fangyuan Technology Co., Ltd. The bridge construction of this road had not started, therefore, the water quality monitoring results of monitoring points between 50m upstream(control station) and 100m downstream(impact station) have not been compared and evaluated. However, up-to-standard evaluation is mainly performed for existing water quality of river. Monitoring results and evaluation are given in Table5-11.

According to the evaluation of monitoring results, all monitoring indexes of the 6 monitoring points, namely, the Manxian River (K101+986), the Manbengtian River (K126+353), the Mengye River (K153+643), the Lahu River (K207+253), the Longdong River (K234+283) and the Shili River (K238+173) comply with related water quality standard; while the COD_{Cr} of Mengxian River (K68+160) exceeds the class III water quality standard. As for SS, since there is no corresponding water environment quality standard at present, no evaluation is made here.

Table 5-11: Surface Water Monitoring Results before Construction of Ning'er - Jiangcheng - Longfu Road Unit: mg/L

River Name and Stake Number	Sampling Date	Sampling Station	Monitoring Results			
			COD_{Cr}	DO	SS	TPH
Environment Quality Standard of Surface Water (GB3838—2002) Class Ⅲ			≤20	≥5	—	≤0.05
Mengxian River K68+160	15 Jul.	Control station	21	7.6	4	＜0.04
	15 Jul.	Impact station	27	7.9	5	＜0.04
Longdong River K234+283	18 Jul.	Control station	15	7.9	7	＜0.04
	18 Jul.	Impact station	17	8.3	6	＜0.04
Shili River K238+173	18 Jul.	Control station	＜10	8.2	6	＜0.04
	18 Jul.	Impact station	＜10	8.2	5	＜0.04
Environment Quality Standard of Surface Water (GB3838—2002) Class Ⅳ			≤30	≥3	—	≤0.5
Manxian River K101+986	16 Jul.	Control station	＜10	8.5	8	＜0.04
	16 Jul.	Impact station	＜10	7.6	6	＜0.04
Manbangtian River K126+353	16 Jul.	Control station	17	8.5	4	＜0.04
	16 Jul.	Impact station	＜10	8.5	4	＜0.04
Mengye River K153+643	17 Jul.	Control station	12	8.1	5	＜0.04
	17 Jul.	Impact station	＜10	8.1	6	＜0.04
Lahu River K207+253	18 Jul.	Control station	＜10	8.7	7	＜0.04
	18 Jul.	Impact station	＜10	8.9	9	＜0.04

C-5. Monitoring Result of Soil Erosion Protection

Menglian - Meng'a Road：

Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd. accepted the monitoring commission for soil and water conservation of highway works for Langcang, Pu'er City - Menglian - Meng'a in November 2013, and its monitoring of soil and water conservation for highway works in Lancang - Menglian - Meng'a started from March 2014. The *Monitoring Report for Soil and Water Conservation of Highway Works in Canglan, Pu'er - Menglian - Meng'a* was submitted quarterly. However, the construction of Menglian - Meng'a section had not started, therefore no soil and water conservation monitoring has been applied to Menglian - Meng'a Road.

In May 2016, to satisfy the requirements of EMP, the supplemental agreement attached to monitoring contract of water and soil conservation was signed by and between Pu'er Transportation Investment Group Co., Ltd. and Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd. In June 2016, workgroup of water and soil conservation monitoring made a site survey and data collection along the whole Menglian - Meng'a Road and developed a monitoring plan for water and soil conservation along Menglian - Meng'a Road on the basis of original *Monitoring Design and Implementation Plan for Water and Soil Conservation of Highway Works in Pu'er City along Canglian - Menglian - Meng'a*. The monitoring for water and soil conservation is planned to start in mid-August 2016.

Ning'er - Jiangcheng - Longfu Road：

After undertaking monitoring work of water and soil conservation for construction project along Ning'er - Jiangcheng - Longfu Road in May 2016, the Kunming Longhui Engineering Design Consulting Co., Ltd. established a monitoring workgroup of water and soil conservation and made a site survey and data collection along the whole line.

In June 2016, organizing collected project information, the monitoring workgroup of water and soil conservation made the *Monitoring and Implementation Plan for Water and Soil Conservation of*

Highway Works in Pu'er City along Ning'er - Jiangcheng - Longfu Road by combing actual situation, as well as monitoring plan. The construction of Ning'er - Jiangcheng - Longfu Road has not started, therefore the monitoring for water and soil conservation of this project is planned to start in mid-August, 2016 by monitoring unit of water and soil conservation.

VI. PUBLIC CONSULTATION

The EMP has defined the public consultation plan during the construction and operation stage of the project. The EMP consists of public participation in the following aspects: (i) Monitor the impacts and countermeasures during the construction and operation stage; (ii) Assess the environmental and economic benefits and social influences; and (iii) have interview with the public after completion of the project. The following types of public participation are included in the EMP: field survey, seminar, investigation into problems, interview and public hearings, etc. The following table details implementation of the public consultation plan.

Table 6-1: Public Consultation Plan

Organizer	Format	No. of Times	Subject	Attendees
Construction Stage				
PPMO	Public consultation & site visit	4 times: 1 time before construction commences and 1 time each year during construction	Adjusting of mitigation measures, if necessary; construction impact; comments and suggestions	Residents adjacent to project sites, representatives of social sectors
PPMO, PMTB	Expert workshop or press conference	As needed based on public consultation	Comments and suggestions on mitigation measures, public opinions	Experts of various sectors, media

The one time public consultation before construction of the project has been implemented at the EIA stage. In the EIA stage, field investigation and questionnaire are organized and carried out among local residents by the responsible body to carry out the EIA. The results of public consultation before the construction of each sub-project is included in the EIA report of such sub-project.

Public consultation during the construction stage (annual): Menglian-Meng'a Road has only several sections starting earthwork but including no road sections involving in residents. Therefore, the once-per-year public consultation during the construction period hasn't started. The first public consultation during the construction period is expected to be organized in the first half of 2017. As for the Ning'er-Jiangcheng-Longfu Road and the rural roads, no construction has started. Therfore, there is no constructions in inhabited areas; no public consultation during the construction period is carried out. Consultation will be carried out according to the construction schedule.

VII. INSTITUTIONAL STRENGTHENING AND TRAINING

According to EMP，The capacity of the PPMO, PMTB and contractors' staff responsible for EMP implementation and supervision will be strengthened. All parties involved in implementing and supervising the EMP must have an understanding of the goals, methods, and practices of project environmental management. The project will enhance capacity and expertise in environmental management through (i) institutional capacity building and (ii) training.

A. Institutional strengthening

The EMP defines corresponding measures concerning the development of environmental management ability of the executing institution (PPMO) and the implementing institution (PMTB) of the project. The implementation status of these measures is listed below.

Table7-1: Implementation status of Institutional strengthening

Implementing Entity	Mitigation Measures defined in the EMP	Supervising Entity	Implementation status and compliance with EMP
PPMO	➢ Appoint qualified environment specialist to PPMO staff. ➢ Include LIEC in loan implementation project management consulting services. ➢ LIEC to conduct environment management training for PPMO staff and environmental specialist.	ADB	PPMO has appointed the environment specialist and LIEC. However, no related training activities have yet been done by LIEC. ● Partly complied with
PMTB	➢ Appoint qualified environmental specialist to PMTB staff. ➢ Contract PEMS to conduct environment monitoring ➢ Contract qualified ESE to conduct external compliance monitoring and verification of EMP implementation ➢ LIEC to conduct environment management training for PMTB staff and their environmental specialist.	PPMO、ADB	PMTB has appointed the environmental specialist and contracted EEMA to conduct environment monitoring. PMTB has contracted ESE to conduct external compliance monitoring and verification of EMP implementation. LIEC hasn't organized related training activities. ➢ Partly complied with

B. Training

According to EMP，The PPMO, PMTB, contractors and O&M units will receive training in EMP implementation, supervision, and reporting, and on the Grievance Redress Mechanism. Training will be facilitated by the LIEC with support of other experts (e.g. the ESE) under the loan implementation project management consulting services.

Table7-2: Implementation status of Training Plan

Training	Attendees	Contents	No. of Times	Implementation Status	Plan
EMP adjustment and implementation	PPMO, PMTB, contractors	Development and adjustment of the EMP, roles and responsibilities, monitoring, supervision and reporting procedures,	Once prior to	The Menglian-Meng'a Road has carried out training on the environmental management in April 2016 by the supervisory institution; Party have been implemented	Official training is planned to be carried out after coming of the loan and environmental consultant

Training	Attendees	Contents	No. of Times	Implementation Status	Plan
		review of experience (after 12 months)	once after one year of project	To be implemented	Will be organized in May 2017 as scheduled.
Grievance Redress Mechanism	PPMO, PMTB, contractors, PEPB	Roles and responsibilities, procedures, review of experience (after 12 months)	Once prior to	To be implemented	Trainings will be done after LIEC assume office
			once after one year of project	To be implemented	Will be organized in May 2017 as scheduled.
Environmental technologies and processes	PPMO, PMTB, contractors, O&M units	Engineering and pollution control technologies, equipment selection and procurements,	Once (during project implementation)	To be implemented	Trainings will be done after LIEC assume office
Environmental quality monitoring	PPMO, PMTB, contractors, O&M units	Monitoring methods, data collection and processing, reporting systems	Once (at beginning of project construction)	To be implemented	Trainings will be done after LIEC assume office
Roads and traffic	PMTB, O&M units	Traffic management and traffic safety	Once (during project implementation)	To be implemented	Trainings will be done after LIEC assume office
	Customs Bureau	Wildlife trafficking	Once (during project implementation)	To be implemented	Trainings will be done after LIEC assume office

VIII. Key Environmental Issues

A. Key Issues Identified

By 31 July, 2016, only two sections of subgrade works along Menglian - Meng'a, pavement works and bridge works have not been constructed. The construction of whole line along Ning'er - Jiangcheng - Longfu Road has not started. The environmental monitoring results show the environmental baseline. The monitoring of Soil Erosion Protection is planned to start in mid-August in 2016.

According to monitoring results, the quality of acoustic environment, atmospheric environment and surface water environment along Menglian - Meng'a Road and Ning'e - Jiangcheng - Longfu Road is good, measurments meet requirements of corresponding environmental quality standards. However, due to the subgrade construction of Menglian - Meng'a Road (section K62+890 - K63+150). The SS of some river reaches in downstream Nanma River increase.

B. Solutions and Actions

The above problems have been reported to PPMO. The PPMO will then urge the construction supervising institution to strengthen supervision over the contractor of the section K62+890~K63+150 and will carry out control and prevention against the water and soil erosion.

For environment protection in next stage, the following suggestions are provided:

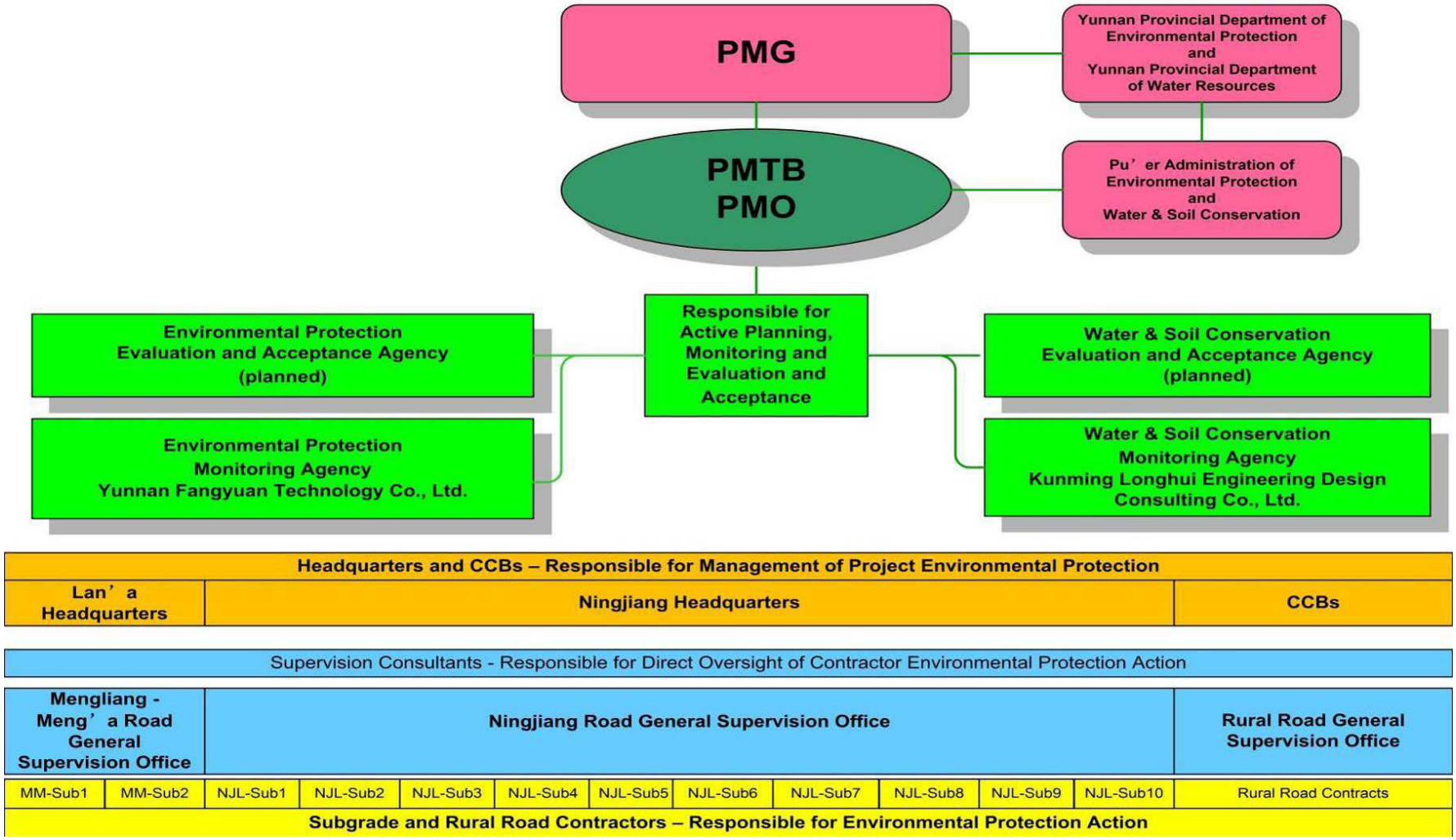
(1) The construction contractors are required to carry out measures of environmental protection and water conservation in EIA and SWCR to complete environmental protection work during construction.

(2) Strengthened prevention and control of soil erosion during subgrade construction of roads along river to mitigate impact on water quality of river along lines.

IX. Appendices

Appendix 1 Environmental Impact Mitigation and Monitoring Structure Diagram
Appendix 2 The Qualifications of the External Environmental Monitoring Agencies
Appendix 3 Proposed Grievance Redress Mechanism
Appendix 4 GRM Access Points

Appendix 1 Environmental Impact Mitigation and Monitoring Structure Diagram



Appendix 2 The Qualifications of the External Environmental Monitoring Agencies

检验检测机构
资质认定证书

证书编号：152512050004

名称：云南方源科技有限公司

地址：云南省昆明经开区经开路3号科技创新园2A8-23室（650031）

检测地址：云南省昆明市五华区昆师路2号

经审查，你机构已具备国家有关法律、行政法规规定的基本条件和能力，现予批准，可以向社会出具具有证明作用的数据和结果，特发此证。资质认定包括检验检测机构计量认证。

检验检测能力及授权签字人见证书附表。

你机构对外出具检验检测报告或证书的法律责任由云南方源科技有限公司承担。

许可使用标志

CMA

152512050004

发证日期：2015 年 08 月 28 日

有效期至：2021 年 08 月 27 日

发证机关：

本证书由国家认证认可监督管理委员会监制，在中华人民共和国境内有效。

The Qualification of Yunnan Fangyuan Science and Technology Co., Ltd.

资质认定

计量认证证书

证书编号：2014 20 2396 U

名称：广西交通环境监测中心站

地址：广西南宁市高新区高新2路6号(邮政编码：530001)

经审查，你机构已具备国家有关法律、行政法规规定的基本条件和能力，现予批准，可以向社会出具具有证明作用的数据和结果，特发此证。

检测能力见证书附表。(*凡涉及相关法律法规设定许可的检验检测项目，应在获得相应许可后方可开展检验检测工作*)

准许使用徽标

CMA

发证日期：2014年12月16日

有效期至：2017年12月15日

换证申请日期：2017年07月16日前

发证机关：广西壮族自治区质量技术监督局

本证书由国家认证认可监督管理委员会制定，在中华人民共和国境内有效

The Qualification of Guangxi Transportation Research Institute

生产建设项目水土保持监测资质证书

（副 本）

单 位 名 称：昆明龙慧工程设计咨询有限公司

法定代表人：罗松

资 质 等 级：乙级

资 质 证 号：水保监资证 乙 字第 408 号

有 效 期：自 2012 年 12 月

至 2017 年 12 月

发证机关：

二〇一二年十二月十二日

说 明

1、本证为从事生产建设项目水土保持监测活动的合法凭证。

2、持证单位应当按照《生产建设项目水土保持监测资质管理办法》规定的范围从事监测活动。

3、甲级资质单位，可以承担由各级人民政府水行政主管部门审批水土保持方案的生产建设项目的水土保持监测工作；乙级资质单位，可以承担由县级以上地方人民政府水行政主管部门审批水土保持方案的生产建设项目的水土保持监测工作。

4、资质证书有效期届满需要延续的，应当按照《关于规范生产建设项目水土保持监测资质申请和延续工作程序的通知》办理延续手续。

5、持证单位应当妥善保管资质证书，如有遗失或损坏，应及时办理补证手续。

中华人民共和国水利部制

生产建设项目水土保持监测资质证书

（正 本）

单 位 名 称：昆明龙慧工程设计咨询有限公司

法定代表人：罗松

资 质 等 级：乙级

资 质 证 号：水保监资证 乙 字第 408 号

有 效 期：自 2012 年 12 月至 2017 年 12 月

发证机关：

二〇一二 年 十二 月 十二 日

中华人民共和国水利部制

The Qualification of Kunming Lonhwin Engineering Design Consulting Co., Ltd.

生产建设项目水土保持监测单位水平评价证书
（正本）

单位名称：云南今禹生态工程咨询有限公司

证书等级：甲级

证书编号：水保监测 甲 字 第064 号

有 效 期：自 2015 年 04 月 01 日 至 2019 年 03 月31 日

发证机构：

2015年04月01日

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水土保持方案编制资格证书

单位名称：云南今禹生态工程咨询有限公司

编制机构：水保设计部

证书等级：乙级

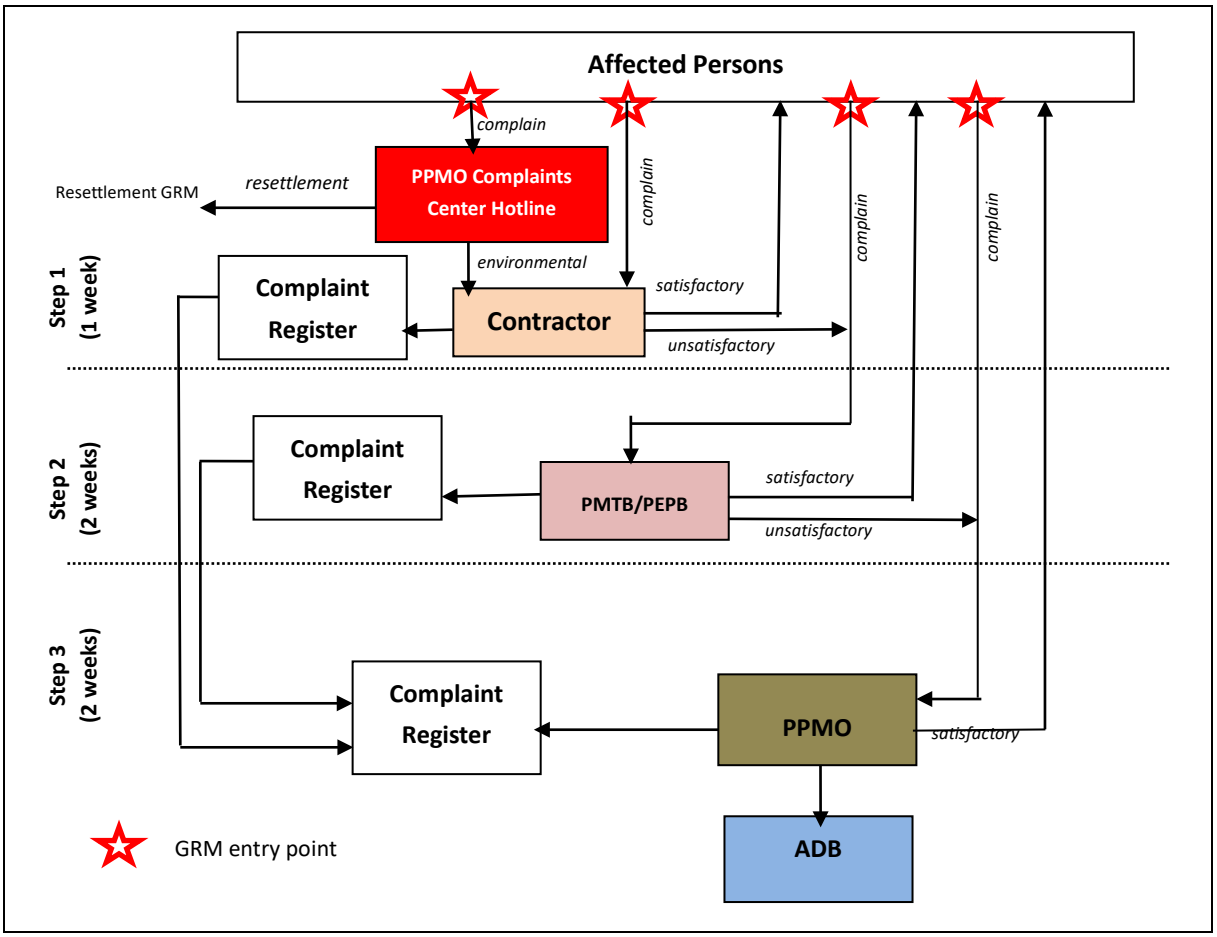
证书编号：水保方案乙云 字 第 001 号

有 效 期：自 2013 年 09 月 06 日至 2016 年 09月 05 日

2013 年09 月06 日

The Qualification of Yunnan Jin Yu Ecological Engineering Consulting Co., Ltd.

Appendix 3 Proposed Grievance Redress Mechanism



Appendix 4 GRM Access Points

Implementing Entity		Responsible person	Complaints Hotline
PPMO		Zhou tian shuang ni	+86 0879 2819198
PMTB		Zhao shifa	+86 0879 2312319
PEPB		Pu'er Municipal Environmental Monitoring Detachment	+86 0879 12369
Menglian - Meng'a Road：			
MM-Sub1	CCCC Fourth Highway Engineering Co., Ltd.	Zhang Wenbo	+86 18002139751
MM-Sub2	Yunnan Highway & Bridge Co., Ltd.	Zhou Jian	+86 18587156683
MM-Pav1	Contract not awarded yet	Not yet specified	Not yet specified
Ning'er-Jiangcheng-Longfu Road			
NJL-Sub 1	Liaoning Communication Construction Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 2*	Sheng Di Communication Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 3*	Yunnan Jin'guang Construction Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 4*	Shenmu Yuliang Construction Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 5*	Jiangxi Hongfa Road & Bridge Construction Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 6	Hei Longjiang Hualong Construction Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 7	Maoming Transport Construction Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 8	Dongxiang County GanDong Luqiao Engineering co., LTD.	Not yet specified	Not yet specified
NJL-Sub 9	Jiangxi province Guyue Engineering Co., Ltd.	Not yet specified	Not yet specified
NJL-Sub 10	Hunan foreign Construction group co., LTD.	Not yet specified	Not yet specified
NJL-Pav1	Contract not awarded yet	Not yet specified	Not yet specified
NJL-Pav2	Contract not awarded yet	Not yet specified	Not yet specified
NJL-Pav3	Contract not awarded yet	Not yet specified	Not yet specified

Appendix 5 Environmental Management Training

Topic	Trainer(s)	Attendees		Date
ADB financed project management & implementation	ADB	PMTB	1	2014-3-31～4-3
ADB financed project management & implementation	Chuxiong PMO Longrui PMO	PMTB	4	2015-3-24～3-26
Project management	PMG	PMTB	1	2015-4-29
Disbursement & financial management, procurement, social safeguards, and environmental management (Shangxi Xi'an)	ADB	PMTB	3	2015-9-23～9-25
Disbursement & financial management, procurement, social safeguards, and environmental management (Yunnan Mangshi)	Dehong Transport Bureau	PMTB	3	2016-1-13～14
Disbursement & financial management, procurement, social safeguards, and environmental management (Yunnan Pu'er)	ADB	PMTB & CTB	100	2016-4-11～13
Environmental supervision training	MMR General Supervision Office	Supervision Engineer	13	2016-4