Environmental Assessment and Review Framework

June 2014

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

Prepared by the Pu’er Municipal Government for the Asian Development Bank.

CURRENCY EQUIVALENTS
(as of 30 November 2013)

Currency Unit	–	yuan (CNY)
CNY1.00	=	$0.16078
$1.00	=	CNY6.078

ABBREVIATIONS

ADB	–	Asian Development Bank
CNY	–	Chinese Yuan
CO_2	–	carbon dioxide
EA	–	Executing Agency
EARF	–	Environmental Assessment and Review Framework
EIA	–	Environmental Impact Assessment
EIR	–	Environmental Impact Report
EIT	–	Environmental Impact Table
EMP	–	Environmental Management Plan
EPB	–	Environmental Protection Bureau
FS	–	feasibility study
FSR	–	feasibility study report
GHG	–	greenhouse gas
GRM	–	grievance redress mechanism
IA	–	Implementing Agency
LDI	–	local design institute
MSW	–	municipal solid waste
NO_x	–	nitrogen oxides
PM_{10}	–	particulate matter with diameter ≥10 μ
PEPB	–	Pu'er Environmental Protection Bureau
PMO	–	Project Management Office
PPMO	–	Pu'er Project Management Office
TSP	–	total suspended particulates

WEIGHTS AND MEASURES

μ	–	micron
^oC	–	degree Centigrade
cm	–	centimeter
dB[A]	–	decibel based on A-weighted measurements
d/a	–	day per annum
h	–	hour
h/d	–	hour per day
ha	–	hectare
kg	–	kilogram
kg/m3	–	kilogram per cubic meter
km	–	kilometer
km^2	–	square kilometer

KWh	–	kilowatt hour
KWh/a	–	kilowatt hour per annum
Leq	–	equivalent continuous sound pressure level [dB]
m	–	meter
m^2	–	square meter
m^3	–	cubic meter
m^3/d	–	cubic meter per day
m/s	–	meter per second
m^3/s	–	cubic meter per second
mg/l	–	milligram per liter
mg/m^3	–	milligram per cubic meter
mm	–	millimeter
mm/a	–	millimeter per annum
t/a	–	ton per annum
t/d	–	ton per day
tCO_2e	–	ton of carbon dioxide equivalent

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I. INTRODUCTION

1. The Project, Yunnan Pu'er Regional Integrated Road Network Development Project, includes a rural road component that proposes paving and drainage improvements to 33 rural road sections, a total of 600 km in length. The project is classified by ADB as environment category A. A Project environmental impact assessment (EIA) report including an environmental management plan (EMP) has been prepared that covers all project components including the 33 rural roads. There is the possibility that the final list of rural roads funded by ADB may need to be updated after project approval.

2. As there is some degree of uncertainty over the 33 rural road sections that will be funded, this Environmental Assessment and Review Framework (EARF) has been prepared to present the agreed processes for updating the EIA and EMP in the event of change as required by ADB operational procedures for Safeguard Policy Statement (SPS, 2009).

II. RESPONSIBILITIES AND AUTHORITIES

3. The Pu'er Project Management Office (PPMO) is responsible for (i) the selection of rural roads to be added to the list, (ii) the appointment of a domestic environmental design institute to prepare the EIT for these rural roads for submission to and approval by the PEPB, and (iii) the preparation of new environmental assessment reports for replacement rural roads for submission to and approval by the ADB.

4. The new environmental assessment reports shall be submitted to ADB for review, approval and disclosure according to operational procedures as described in SPS (2009).

III. CRITERIA FOR RURAL ROAD SELECTION

5. The Project criteria for selecting rural roads are:

(i) that the road should connect multiple village groups and administrative villages,
(ii) that the road should connect to a national or provincial highway or an important county road,
(iii) that there should be a balance between the 9 counties and 1 district, and
(iv) that there should be no dead-end roads (roads should not end in the middle of nowhere, but should connect to higher level roads on both sides or end at an administrative village).

6. Rural road selection should avoid significant environmental impacts where possible. For the rural roads that have been appraised works are restricted to paving and drainage improvement and it has been agreed that replacement roads will only be considered if works are restricted to these activities. Rural roads selected should avoid sensitive habitats such as wetland and drinking water sources and protected areas, where possible.

IV. PROCEDURES FOR ENVIRONMENTAL IMPACT ASSESSMENT FOR NEWLY SELECTED RURAL ROADS

A. Key Environmental Impacts and Risks

7. If there is a need to assess new subprojects for the rural road component it will be necessary to assess proposed replacement roads to determine key environmental risks and impacts that need to be addressed in the environmental assessment reports, these may include the following:

(i) Traffic forecast: although traffic forecast is not environmental, yet it forms the basis for predicting future traffic emissions and traffic noise. Therefore, traffic forecast up to a design horizon of 15 to 20 years must be provided by the feasibility study, so that the environmental assessment team can use the figures to predict future traffic emissions and noise, and propose appropriate mitigation measures if needed.
(ii) Environmental protection targets: sensitive receptors that could potentially be affected by the construction and operation of the project roads. Such targets could include residential households, schools and medical establishments that are sensitive to air quality and noise pollution; protected flora and fauna, and protected areas such as nature reserves and other conservation areas; water bodies; and physical cultural resources.
(iii) Construction phase air quality: asphalt or concrete batching plants are the main air pollution sources during road construction. Provide information or design requirements on their air pollution control requirements, such as equipped with dust removal bags, etc. Also provide specifications on where they can or cannot be sited, based on information on the locations of air sensitive targets such as schools, hospitals, temples and residential areas.
(iv) Traffic noise during the operation phase: based on the traffic forecast, calculate the traffic noise levels at the identified noise sensitive targets such as schools, hospitals, temples and residential areas for the:
    (a) condition at road opening,
    (b) intermediate condition (mid-way between now and the design horizon), and
    (c) long term condition (at the design horizon).
    Mitigation measures, such as double-glazed windows or air-conditioning, should be provided for sensitive targets impacted by traffic noise exceedance.
(v) Greenhouse gas (GHG) emission during the operation phase: based on the types of vehicles travelling on the project roads, distances travelled and types of fuel consumed, calculate the total amount of carbon dioxide emitted from traffic travelling on all project roads each year at the design horizon.
(vi) Climate change impacts: Opportunities to improve drainage and stabilise slopes should be considered to increase climate resilience.

B. Country Environmental Assessment and Review Procedures

8. Similar to ADB, the PRC has procedures to categorize the environmental assessment requirements for different types of projects based on their potential environmental impacts. For projects having substantial impacts on the environment (which is similar to ADB's category A projects), the PRC requires the preparation, submission and approval of a project Environmental Impact Report (EIR). For projects with less substantial environmental impacts on the environment (which is similar to ADB's category B projects), the PRC requires the preparation, submission and approval of a project Environmental Impact Table (EIT). For projects with minimal environmental impacts on the environment (which is similar to ADB's category C projects), the PRC requires the preparation, submission and approval of a project Environmental Impact Registration Form.

9. An EIT for the 33 proposed rural roads was prepared, which was approved by the Pu'er Environmental Protection Bureau (PEPB) in March 2014. Should new rural roads be added to the list, an EIT will need to be prepared and submitted to the PEPB for domestic approval.

C. Inception of the Environmental Impact Assessment Study for ADB

10. Selection of an appropriately qualified domestic design institute to conduct the environmental assessment study and prepare the report is of utmost importance. The degree of details required by ADB in environmental assessment reports is much more than that required locally. An environmental design institute with international funded investment project experience is preferred. If not available, the design institute should at least have adequate experience, staffing and capability to produce all the information mentioned in this report.

11. The selection of the Feasibility Study (FS) design institute is also important, because it will have a direct bearing on the quality of the environmental assessment report. Again, ADB requires much more details in the FS than what is required locally. In fact, ADB's 'FS' requirement is approximately equivalent to the completion of preliminary design in the PRC. Therefore, the FS design institute for the rural roads must have the experience, staffing, capability and willingness to complete the preliminary design of the rural road improvement in order to meet ADB requirements. An institute with general consulting experience will not be able to meet ADB requirements.

12. Upon start of the environmental assessment study, the environmental assessment team should complete the following tasks as soon as possible:

(i) Site visit: The environmental assessment team should visit the proposed rural roads as soon as possible to get an understanding of the environmental conditions in the vicinity. During the site visit, all targets sensitive to air, noise and water pollution from the project must be identified and documented. Sensitive targets include residential areas, hospitals, schools, temples, cultural heritage sites, protected areas on conservation and ecology, national parks and nature reserves, water gathering grounds, and water bodies such as rivers and streams. These should be photographed and with their relative distances to the project sites measured and documented.

(ii) Baseline monitoring: Based on the site visit, the environmental assessment team should determine whether there is a need to conduct baseline monitoring. Such determination should be based on the existing traffic conditions on the proposed rural roads, the number and locations of environmental protection targets especially schools and medical clinics, the presence of ecologically sensitive or protected areas, and the presence of surface or ground drinking water sources within the project area of influence. Baseline monitoring should be conducted if needed.

(iii) Public consultation: ADB requires two rounds of public consultation. The first round should be conducted at environmental assessment inception. The purpose of the first round is to describe the project to the stakeholders and to solicit their views, concerns and suggestions so that these could be adequately considered in the environmental assessment study. It should be conducted as soon as the environmental assessment study is started and should be in form of a public forum. More details on public consultation are provided in later sections.

D. Procedures for Preparing the Environmental Assessment Report

13. The structure of the addendum environmental assessment report and information required under each chapter is described below.

Chapter 1 – Executive Summary

14. This chapter describes concisely the critical facts, significant findings, and recommended actions. The following information should be included in this Chapter. Where appropriate, the environmental assessment report for the substitute rural roads could make reference to information already presented in the EIA and EMP for the whole project (the Project EIA report).

(i) Summarize the rationale for selecting these rural roads and their locations;
(ii) Summarize the potential environmental benefits and impacts during construction and operation phases;
(iii) Summarize information disclosure and public consultation activities undertaken during environmental assessment preparation; and
(iv) Summarize the recommended actions in mitigating potential impacts and EMP implementation.

Chapter 2 – Policy, Legal, and Administrative Framework

15. This chapter discusses the national and local legal and institutional framework within which the environmental assessment is carried out, including applicable environmental standards. It also identifies project-relevant international environmental agreements to which the country is a party. This chapter can make reference to the same chapter in the Project EIA report.

Chapter 3 – Description of the Project

16. This chapter describes the proposed rural roads. The following information should be provided in this chapter:

(i) Description of rationale in selecting these rural roads;
(ii) Locations, lengths and engineering design features for the proposed rural roads;
(iii) Existing traffic volume and projected traffic demand forecast;
(iv) Permanent and temporary land take areas;
(v) Earth cut and earth fill balance;
(vi) Construction methods and duration, e.g. road paving, road drainage, etc.; and
(vii) Drawings and maps showing the rural road locations and their project area of influence (assessment area).

Chapter 4 – Description of the Environment

17. Chapter 3 describes relevant physical, biological, and socioeconomic conditions within the project's area of influence (assessment area). The following information should be provided in this chapter where appropriate:

(i) Description of the project sites (existing land use on permanent and temporary land take areas);

(ii) Description of air quality and noise sensitive receptors (locations, distances to the road red line, number of households, types (e.g. school, residential, etc.);
(iii) Description of water bodies in the assessment area, their planned function and water quality;
(iv) Description of ecological resources that are under international, national or provincial protection; presence or absence of protected areas within the assessment area;
(v) Description of presence or absence of physical cultural resources; and
(vi) Information on the socio-economic profiles of the counties where these rural roads are located.

Chapter 5 – Anticipated Environmental Impacts and Mitigation Measures

18. Chapter 5 starts with describing the positive impacts and environmental benefits of the project, followed by information on environmental impacts during construction and operation, mitigation measures needed to reduce such impacts, and resettlement. The following information should be provided in this chapter:

(i) Positive impacts and environmental benefits: Describe positive impacts and environmental benefits of the rural roads. The description should be both qualitative and quantitative.
(ii) Impact and mitigation measures during the construction phase: Provide information on the assessment results on air quality, noise, water (surface and ground) quality, waste, ecology and cultural heritage during the construction phase. Information to address the key environmental issues during construction of the rural roads must be included here, and the information should be quantitative as far as possible. The following should be noted:
    (a) the assessment results should be quantitative,
    (b) compare these results with the environmental standards in Chapter 2 to see if they comply with or exceed the relevant standards,
    (c) if there is exceedance, propose mitigation measures that will reduce the environmental impact to acceptable levels, and
    (d) also list these mitigation measures in the environmental management plan (EMP).
(iii) Resettlement: Provide information on
    (a) area of land to be permanently acquired by the project,
    (b) area of land to be temporarily occupied by the project,
    (c) how much of the land to be permanently acquired is cultivated land,
    (d) area of buildings to be demolished, and
    (e) number of persons to be resettled due to the project.
    The land to be permanently acquired represents resources that will be permanently lost and that cannot be replaced.
(iv) Impact and mitigation measures during the operation phase: Provide information on the assessment results on air quality, noise, water (surface and ground) quality, waste, ecology and cultural heritage during the operation phase. Information to address the key environmental issues during operation of the rural roads must be included here, and the information should be quantitative as far as possible. The following should be noted:
    (a) the assessment results should be quantitative,
    (b) compare these results with the environmental standards to see if they comply with or exceed the relevant standards,

(c) if there is exceedance, propose mitigation measures that will reduce the environmental impact to acceptable levels,
(d) also list these mitigation measures in the environmental management plan (EMP),
(e) assess impact from demand on resources as well, e.g. the quantity of ground water extracted by the water supply project and assess such impact due to increased demand on this resource, and
(f) also describe pollutant reductions during the operation phase, e.g., the amount of BOD_5 and COD_{Cr} reduced from discharging into the river due to the provision of WWTP by the project, the number of small boiler rooms demolished which will result in the reduction of how many tons of SO_2 emission per year due to the provision of district heating, etc.

(v) Calculate the total annual carbon dioxide emission from traffic traveling on all the proposed rural roads in the long term design year, to assess whether the ADB threshold of 100,000 t/a carbon dioxide is exceeded.

Chapter 6 – Analysis of Alternatives

19. Chapter 6 various options considered for the rural roads, including the “no project” (no improvement) option. Examples of options that could be evaluated could include road paving, road drainage design, slope stabilization design, etc.

Chapter 7 – Information Disclosure, Consultation, and Participation

20. Chapter 7 describes the public consultations conducted during the environmental assessment study. ADB requires that the consultation must be meaningful and prefers it to be conducted in form of a discussion forum. Information to be provided in this chapter includes:

(i) the dates and locations of the public consultation,
(ii) the number and make up (e.g. government representatives, village leaders, private citizens, etc) of participants questions, concerns, ideas,
(iii) suggestions raised by the participants,
(iv) how are the questions, concerns, ideas and suggestions raised by the participants addressed in the environmental assessment study and report, and
(v) the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

Chapter 8 – Grievance Redress Mechanism

21. This chapter describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance. This report could make reference to the grievance redress mechanism (GRM) described in the Project EIA and EMP.

Chapter 9 – Environmental Management Plan

22. An Environmental Management Plan (EMP) has to be prepared as an Appendix to the environmental assessment report. The requirements of the EMP are described in later sections.

Chapter 9 in the environmental assessment report summarizes the key components of the EMP, which include:

(i) a summary of environmental impacts and their respective mitigation measures,
(ii) a summary of the environmental monitoring plan,
(iii) public consultation needs during the construction and operation phases,
(v) responsibilities of various parties during the implementation of the EMP,
(vi) a project specific GRM, and
(v) cost estimates for implementing the EMP.

Chapter 10 – Conclusions

23. Chapter 10 summarizes the findings of the environmental assessment study. It should include information on:

(i) project benefits including both socio-economic and environmental benefits,
(ii) summary of significant environmental impacts during the construction and operation phases, and their respective mitigation measures,
(iii) the use of irreplaceable resources such as the area of land and associated habitats and resources that will be permanently lost due to permanent land acquisition, and
(iv) highlights of the environmental management plan including environmental monitoring requirements.

E. Procedures for Preparing the Environmental Management Plan

24. The EMP should include 5 main items. These are (i) environmental mitigation measures, (ii) environmental monitoring, (iii) public consultation, (iv) institutional strengthening and training, and (v) project GRM. These items are described below.

25. The EMP should include a table listing the implementation of the mitigation measures (see Table 2 of the project EMP). All mitigation measures for the rural roads mentioned in the environmental assessment report should be listed in this table, covering the detail design, construction and operation phases. It is important to include the detail design phase because some mitigation measures such as drainage and slope stability will become part of the road infrastructure and will have to be designed and included in the specifications for tendering. It is important to clearly state the responsibilities, on who is responsible for implementation and who for supervision. Cost estimates also need to be provided. To avoid double counting of costs, costs for items that will become a permanent part of the facility (such as road side landscaping, road drainage etc) and for items that are already included in the daily operational costs of the project should not be included in this table, since these should already have been included in the overall project cost. Costs to be included in the table should be mostly temporary measures during the construction stage. Examples are the watering of construction site and haul roads to reduce dust, temporary noise barriers around noisy machines, sedimentation basins and perimeter drainage ditch to control muddy site runoff, temporary chemical toilets for construction workers etc.

26. Based on results of the environmental impact assessment and the locations of sensitive targets such as residential areas, hospitals, schools, temples, rivers, etc, an environmental monitoring plan should be compiled for the construction and operation phases (see Table 5 of the project EMP). The plan should be impact and location specific. For example, construction dust and noise monitoring at environmental protection target locations might only be needed

when construction activities are within 500 m of the targets. The plan should also be very specific on the parameters to be monitored, the total number of monitoring locations, the exact locations (=location and name of each sensitive target) where monitoring is to be carried out, and the frequency and duration of monitoring. The table should also list clearly who is responsible for doing the monitoring and who is responsible for supervision. Cost estimates should be provided for undertaking such monitoring. For the operation phase, cost estimates should be provided for the first year, and the need to continue monitoring after the first year should be reviewed at the end of the first year.

27. The need for public consultation should be addressed in the EMP, with the numbers and types of public consultation during the construction and operation phases listed (see Table 9 of the project EMP). This is an important public relations means to get the stakeholders involved and informed in the project. Cost estimates for conducting such consultation should also be provided.

28. Institutional strengthening and training of the local PMO, EA, IA and other parties involved in the project is important in ensuring that they have the capacity to implement the EMP (see Table 8 of the project EMP). The environmental assessment report should review and determine if further training will be needed, such as for the new O&M units for the substitute rural roads.

29. A GRM for the project should be included in the EMP. This report could make reference to the GRM already established for the project as described in the approved Project EIA and EMP.

F. Report Review and Submission

30. The PPMO should first review the environmental assessment report. Their review criteria will be based on adequacy of information requirements described in this report. If the environmental assessment reports are deemed to fulfil the information requirements described in this EARF, the PPMO will submit to ADB for review, approval and disclosure.

31. ADB will update the approved Project EIA/EMP with the information from the new environmental assessment report. This will be done by including an addendum cover sheet explaining the changes and their implications for implementation and the new environmental assessment report for the replacement road sections will be included as a new appendix in the updated version of the Project EIA/EMP. The updated Project EIA/EMP will be disclosed on the ADB website for a period of 120 days prior to approval of the change in scope.

G. Staffing Requirements and Budget

32. The EAs will bear the costs for preparing the new environmental assessment studies and reports. The EMP will itemize the staffing requirements, institutional strengthening and training needs, implementation of the environmental mitigation measures and environmental monitoring. The EAs will bear all these costs.