Initial Environmental Examination

April 2018

CAM: Rural Roads Improvement Project III

Prepared by the Ministry of Rural Development for the Asian Development Bank.

ABBREVIATIONS

ADB	Asian Development Bank
CEMP	contractor's environmental management plan
DBST	double bituminous surface treatment
DDIS	detailed design and implementation supervision
EHS	Environment Health and Safety
EIA	environmental impact assessment
EMP	environmental management plan
GRM	grievance redress mechanism
IEE	initial environmental examination
MCFA	Ministry of Culture and Fine Arts
MOE	Ministry of Environment
MRD	Ministry of Rural Development
PDRD	Provincial Department of Rural Development
PDE	Provincial Department of Environment
ROW	right of way
SEO	social and environmental office
UXO	unexploded ordnance

WEIGHTS AND MEASURES

°C	degree Celsius
cm	Centimeter
dB(A)	decibel (with A scale weighting)
km	kilometer
mm	millimeter
m	meters
m/s	meter per second

NOTE

In this report, "$" refers to US dollars. unless otherwise stated.

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

I. EXECUTIVE SUMMARY

1. The Cambodia Rural Road Improvement Project III is classified as Environmental Category B and an initial environmental examination (IEE) has been conducted as part of project preparation in accordance with the Asian Development Bank (ADB) Safeguard Policy Statement (2009) Safeguard Requirements 1.

2. The Project proposes the upgrading of 359.80 kilometers (km) of existing rural roads from graveled (laterite) roads to paved condition with double bituminous surface treatment and/or reinforced concrete payment including drainage improvements. There will be 22 roads located in five provinces that will pass through 23 districts and 54 communes/sangkats of Cambodia expected to benefit about 137,491 families or about 601,001 population (including 306,686 female population representing 51% of the total population). The project area traversed by these roads has 21,952 female-headed households or about 16% of the total number of families. No indigenous peoples and ethnic minority groups live within the proposed road project area.

3. These roads serve primarily rural communities and comprise a mix of well-established and frequently trafficked road links and a number of links that are currently being or have been recently improved to gravel road standard. As the Project will only upgrade roads within existing widths, no land or other physical assets need to be acquired and hence there are no involuntary resettlement issues anticipated.

4. Under Sub-decree (No: 72 ANRK.BK) on Environmental Impact Assessment (EIA) the Project Owner is required to submit an initial environmental impact assessment (IEIA) or an EIA to the Ministry of Environment (MOE) for review. For transport infrastructure projects, an environmental assessment is only required for construction of bridges with a capacity equal to or in excess of 30 tons or national roads involving construction or rehabilitation in excess of 100 km in length. The individual roads under this project vary in length from about 1.8 km to 61.30 km and there are no major bridges. Formal IEIA/EIA approval is not required.

5. Cambodia's climate is dominated by the monsoon which causes distinct wet and dry season. The southwest monsoon typically brings the rainy season from May to October. The northeast monsoon brings drier and cooler air from early November to March and then hotter air prevails in April and May. The southern part of the country typically has generally a 6-month dry season and the northern part of the country also a 6-month dry period although with climate change such generalizations need to be made with caution. The Project Climate and Disaster Risk Assessment (PCDRA) carried out for the project indicates that annual rainfall may remain unchanged, but rainfall intensity and duration will increase in the wettest months. This will lead to longer dry periods. There may be "mini-droughts" during the wet season; precipitation will increase most in the south-west and decrease in the north-east; both the maximum 5-day and 1-day storms are expected to increase; the projected increases are 10% for 2030, 20% for 2050 and 30% or more for 2090; the relative increase in rainfall is heavier for short durations; climate change will cause an increase in short term intense rainfall; and an increase of 20% of existing rainfall intensity should be allowed to take account of future events.

6. Vegetation cover along the project roads largely consists of agricultural crops such as rice, while some sections traverse areas covered with plantation crops such as rubber, black pepper, cassava, mango, cashew, shrubs, grasses and sparse trees. No extensive removal of vegetation or tree cover is anticipated. For privately-owned trees, compensation shall be consistent with the entitlement provided in the Community Participation Framework.
Condition surveys have been carried out for each road and environmentally sensitive receptors

such as villages, schools, pagodas, clinics/hospitals, and water courses have been identified and the chainage given for each location (See Appendix 2).

7. As the works are proposed within the existing rights of way, only minor environmental impacts are anticipated during construction and these are considered temporary and for the most part localized to the roadside and adjacent area. Materials will be sourced from existing quarries and borrow pits, where possible, any new sites will be subject to assessment and approval from relevant authorities. To avoid or mitigate negative impacts arising from the Project, an environmental management plan (EMP) detailing mitigation measures and monitoring activities has been prepared as part of the IEE. Each works contractor will develop a site-specific environmental management plan based on the EMP prior to construction. the detailed design implementation supervision (DDIS) consultant will carry out additional consultations and develop site- specific mitigation measures for environmentally sensitive receptors to be adopted in the EMP, and in the contractor's EMP (CEMP). Proper and timely implementation of the EMP provisions will avoid or minimize environmental impacts concerning location of project roads and construction facilities, safety risks due to potential presence of unexploded ordnance (UXO), potential encroachment to culturally protected areas, disruption and damage to community facilities, dust emissions and elevated noise levels, damage to vegetation and loss of wildlife, soil erosion, waste disposal and other issues associated with construction works.

8. During the operation phase, the Project will have overall positive impacts such as on the quality of life because the permanently paved roads will result in significant reductions in dust emissions resulting in improved air quality, and noise levels, reduced travel times; and traffic safety. However, a few potential adverse impacts during operation are also addressed in the EMP, such as those pertaining to traffic noise and road safety related to accidents due to increased vehicular traffic speeds and drunk driving[1] among others. These impacts can be mitigated through implementation of the EMP and the proposed community road safety program.

9. Public consultations involving affected people and local officials have been conducted through focus group discussions and individual interviews in all ten (10) provinces[2] during the preparation of the feasibility study and IEE in compliance with ADB's information disclosure and consultation requirements. In general, people were supportive of the project but expressed some concerns about road safety,

10. A grievance redress mechanism will be established by the Ministry of Rural Development (MRD) prior to start of site works to ensure that affected people's concerns, complaints, and grievances about the Project's environmental performance are promptly addressed. To ensure that Project is carried out consistent with the EMP requirements, the EMP will be included in the tender documents and civil works contracts and implementation will be a condition of contract and a loan covenant. MRD's Social and Environment Office (SEO) with support from DDIS consultants will be responsible for monitoring the environmental performance of contractors. The DDIS consultants will provide environmental management capacity building and training for SEO, MRD and Contractors during Project implementation.

11. The project is confirmed as Category B in accordance with ADB Safeguard Policy Statement. There are no overriding environmental reasons why the project should not proceed.

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[1] Drunk driving is one of the major causes of crash fatalities in Cambodia according to the report of the National Road Safety Committee (2016). Summaries and recommendations of the Committee are presented in this IEE in the succeeding discussion.

[2] Original number of project provinces until this more recent version of the IEE involving five provinces.

II. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK[3]

A. Policy Framework

12. The hierarchy of legislation in Cambodia is:
    (i) Royal Decree signed by the King
    (ii) Sub-decree signed by the Prime Minister
    (iii) Ministerial Decision signed by a Minister
    (iv) Regulation issued by a Ministry.

13. The major legislation in Cambodia is the Royal Decree which ratifies laws passed by parliament. These can be supplemented by "prakas" or ministerial decisions. These laws allow sub-decrees and regulations to be passed which can stipulate procedures and standards to be met in order to ensure compliance with the law. Many of these sub-decrees and standards have been drafted but have not yet been ratified by parliament.

14. In 1993, the Royal Government of Cambodia confirmed a new Constitution in which environmental considerations were included for the first time. Specifically, Article 59 requires the State to protect the environment and balance of abundant natural resources and establish a precise plan of management of land, water, air, wind, geology, ecological system, mines, energy, petrol and gas, rock and sand, gems, forests and forestry products, wildlife, fish and aquatic resources and it was within this constitutional context that the MOE was established.

15. The Government of Cambodia has established specific laws and regulations for forests, protected areas, and land management to ensure sustainable development. The key elements of the legal and policy framework on environment that are applicable to the project include the following:

- Law on Environmental Protection and Natural Resources Management, enacted by National Assembly, 1996, and promulgated by Preah Reach Kram/NS/RKM-1296/36;
- Law on Natural Protected Areas enacted by National Assembly, 2008 promulgated by Preah Reach Kram/NS/RKM/0208/007;
- Law on Fisheries Management and Administration (1989);
- Law on Forest enacted by National Assembly, 2002 promulgated by Preah Reach Kram/NS/RKM/0802/016;
- Law on Land enacted by National Assembly, 2001 promulgated by Prea Reach Kram/NS/RKM/0801/14;
- Law on Water Resource Management produced by Ministry of Water Resources and Meteorology (MOWRAM); and
- Circular No 01 SRNn issued on 3 February 2012, Royal Government of Cambodia on Cambodia Coastal Zone Development.

16. Key directives in support of the Law on Environmental Protection and Natural Resources Management include:

- Law on Protection of Natural Areas (2008); and
- Sub-decree on Water Pollution Control (1999):
  - Annex 4: Water quality standards for public water and biodiversity and

[3] Adopted from the Initial Environmental Examination (Draft), Cambodia: Road Network Improvement Project (Project No.: 41123-015), June 2017 (as disclosed in the ADB website).

- Annex 5: Water quality standards for public waters and health.

17. Other pertinent regulations, policy, or guidelines for the project are as follows:

- Prime Ministerial Edict. 27 September 1999, entitled “Measures to Eliminate Anarchical Land Grabbing”, declares public land on the verge of roads and railways must not be occupied;
- Directive on Managing Health Wastes in the Kingdom of Cambodia (Ministry of Health, 2008);
- Preach Reach Kept on Creation of Fisheries Communities (2005); and
- Anklets on establishment of protected forests, natural resources conservations, wildlife protection areas, protected forest for biodiversity conservation (2002 and 2004).

B. Legal and Administrative Framework

18. The national agencies that oversee environment and natural resources management are listed below.

- Ministry of Environment;
- Ministry of Agriculture, Forestry and Fisheries;
- Ministry of Water Resources and Meteorology;
- Ministry of Mines and Energy;
- Ministry of Industry and Handicraft;
- Ministry of Land Management and Urban Planning;
- Ministry of Tourism;
- Ministry of Public Works and Transport; and
- National Climate Change Committee.

19. The ministries are represented and supported at the provincial, town, and district/commune levels by counterpart line departments, agencies, and sub-offices. The counterparts are responsible to extend and implement the mandate of their parent ministries to the commune level.

20. The MOE is the primary agency mandated to implement Article 50 of the 1993 Constitution. The MOE is tasked to promote environmental protection and conservation of natural resources, thus, contributing to improvement of environmental quality, public welfare, national culture and the economy. This is embodied in the three pillars of development of the Royal Government of Cambodia. One of the three pillars is the sustainable use of natural resources and sound environmental management to reduce poverty and improve the livelihood of all Cambodians.

21. The EIA Department of the MOE oversees and regulates EIA, and coordinates the implementation of projects in collaboration with project executive agencies and concerned ministries. The MOE has the following responsibilities:

- Review, evaluate, and approve submitted environmental impact assessments
- in collaboration with other concerned ministries; and
- Monitor to ensure a project owner (the executing agency of the project) satisfactorily implements the EMP throughout pre-construction, construction and operational phases of the projects.

22. The Ministry of Agriculture, Forestry, and Fisheries is responsible for the management

and protection of coastal mangrove forests, and wildlife and fisheries.

C. Laws, Regulations, Guidelines, and Standards

1. Law on Environmental Protection and Natural Resources Management

23. In 1996, the Law on Environmental Protection and Natural Resources Management (NS/RKM/1296/36) came into force. The law requires the government to prepare national and regional environmental plans and sub-decrees concerning a wide range of environmental issues, including EIAs, pollution prevention and control, public participation, and access to information. The Law on Environmental Protection and Natural Resource Management (1996) is the enabling legislation which allows the MOE to pass sub-decrees and regulations to protect the environment.

2. Protected Area Law (No. NS/RKM/0208/007)

24. Cambodia has a network of 23 natural protected areas managed through the MOE. These areas cover 2.2 million hectares or 18% of Cambodia's land area and include most of its important habitats. The Forest Administration has also designated protected forests (from cancelled logging concessions) bringing the total area under protection to around 25% which is more than twice the global average. Protected Areas are sites which are protected by Royal Decrees, laws and regulations. Such mandatory stipulations are promulgated in Khmer language. The Khmer version takes precedence over the translated version.

25. In 2008, Cambodia introduced the Protected Area Law (No. NS/RKM/0208/007) which defines:

(i) national parks
(ii) wildlife sanctuaries
(iii) protected landscapes
(iv) multiple use areas
(v) ramsar sites
(vi) biosphere reserves
(vii) natural heritage sites and
(viii) marine parks.

26. These have been referenced to the International Union for Conservation of Nature (IUCN) Categorization list:

(i) National Parks (IUCN Category II) – Natural and scenic area of significance for their scientific, educational, and recreational values.
(ii) Wildlife Sanctuaries (IUCN Category IV) – Natural area where nationally significant species of flora or fauna, natural communities, or physical features require specific intervention for their perpetuation.
(iii) Protected Landscapes (IUCN Category V) – Nationally significant natural and semi-natural landscapes that must be maintained to provide opportunities for recreation.
(iv) Multiple-Use Areas (IUCN Category VIII) – Areas that provide for the sustainable use of water resources, timber, wildlife, fish, pasture, and recreation with the conservation of nature primarily oriented to support these economic activities.
(v) Ramsar Sites – There are two sites in the IUCN Categories IV and VIII above and one site in the middle stretches of the Mekong River between Stung Treng and the border with Lao Peoples Democratic Republic (Lao PDR).
(vi) Biosphere Reserve – The Tonle Sap Multiple-Use Area was nominated as

Cambodia's first Biosphere Reserve in 1997. The Boeung Chmar portion of Tonle Sap Multiple-Use area (28,000 hectares) is designated as a Ramsar site.

27. Under Article 11 of the law, each protected area is divided into four management zoning systems as follows:

- **Core Zone:** management area(s) of high conservation values containing threatened and critically endangered species and fragile ecosystems. Access to the zone is prohibited except the Nature Conservation and Protection Administration's officials and researchers who, with prior permission from the Ministry of Environment, conduct nature and scientific studies for the purpose of preservation and protection of biological resources and natural environment with the exception of national security and defense sectors.
- **Conservation Zone:** management area(s) of high conservation values containing natural resources, ecosystems, watershed areas, and natural landscape located adjacent to the core zone. Access to the zone is allowed only with prior consent of the Nature Conservation and Protection Administration at the area with the exception of national security and defense sectors. Small-scale community uses of non-timber forest products (NTFPs) to support local ethnic minorities' livelihood may be allowed under strict control, provided that they do not present serious adverse impacts on biodiversity within the zone.
- **Sustainable Use Zone:** management area(s) of high economic values for national economic development and management, and conservation of the protected area(s) itself thus contributing to the local community, and indigenous ethnic minorities' livelihood improvement. After consulting with relevant ministries and institutions, local authorities and local communities in accordance with relevant laws and procedures, the Royal Government of Cambodia may permit development and investment activities in this zone in accordance with the request from the Ministry of Environment
- **Community Zone:** management area(s) for socio-economic development of the local communities and indigenous ethnic minorities and may contain existing residential lands, paddy field and field garden or swidden (Chamkar5 or farming. Issuing of land title or permission to use land in this zone shall have prior agreement from the Ministry of Environment in accordance with the Land Law. This management area does not cover the APSARA (Authority for the Protection and Management of Angkor and the Region of Siem Reap) authorities and other authorities designated and management area(s) to which the Royal Government has allocated the tasks.

3. Law on Historical Monuments

28. The Law on Protection of Cultural and National Heritage (1996) is the general law in Cambodia which covers all national monuments. This is supplemented by the "Decision on the Definition of Three Zones to Protect Temple and Surrounding Areas in all Provinces and Municipalities except Angkor Wat" (1996). These laws protect small temples or ancient structures.

4. Law on Wildlife

29. The Joint Prakas of MOE and Ministry of Agriculture, Forestry, and Fisheries on Prohibition of Hunting and Catching Wildlife (1996) specifically bans hunting of wild animals and birds for food, including all species of mammals, reptiles, amphibians, insects, other invertebrates, and their eggs or offspring.

5. Law on Forestry Management

30. The Law on Forestry Management prohibits the hunting of wildlife within protected areas. Aside from maintaining check points and providing rangers, the MOE has an active community education program to promote environmental awareness especially within the rural communities.

6. Subsidiary Laws on Environmental Protection[4]

31. Sub-Decree No. 42 ANRK.BK on Air Pollution Control and Noise Disturbance (July 2000). For dust control, there should no visible emissions from stockpiles of materials, crushers or batching plants. At locations with sensitive receptors, the standard of total suspended particulates should be < 0.33 milligrams/cubic meter at 24-hour average should be met. All vehicles should be well maintained and comply with the air quality regulations. The national air quality standards is less stringent than the World Health Organization (WHO) air quality guideline in terms of the 24-hour averaging period for sulfur dioxide and nitrogen dioxide. The WHO air quality guide was adopted by the World Bank Group' Environment Health and Safety (EHS) Standard. The emission standards for total suspended particulates such as dust are regulated under Cambodia's air quality standard where the maximum 24-hour average is 0.33 milligrams per cubic meter as shown in Table 1.

Table 1. Ambient Air Quality Standard

Parameter	1-Hour Average (mg/m^3)	8-Hour Average (mg/m^3)	24-Hour Average (mg/m^3)	1-Year Average (mg/m^3)
Carbon monoxide	40.0	20.0	-	-
Nitrogen dioxide	0.3	-	0.1	-
Sulfur dioxide	0.5	-	0.3	0.1
Ozone	0.2	-	-	-
Lead	-	-	0.005	-
Total Suspended Particulate	-	-	0.33	0.1

mg/m^3 = milligrams per cubic meter.
Source: https://www.adb.org/sites/default/files/project-documents/41123/41123-015-iee-en.pdf

32. The noise regulations do not stipulate a level of noise from construction sites but refer to mixed commercial and/or industrial and residential property or type of land use in the immediate vicinity that maybe affected by noise. Maximum permissible noise from vehicles passing through public and residential areas is in Table 2, while the maximum permissible ambient noise is in Table 3. However, the sub-decree also does not specify the method for noise measurement.

33. When compared with the World Bank EHS Guidelines, the maximum permissible noise levels that are outlined in the sub-decree are more stringent than the World Bank EHS guidelines. Based on the sub-decree, noise levels in areas in the vicinity of hospitals, libraries, and schools from 0600 to 1800 should not exceed 45 decibels [dB(A)] whereas the World Bank EHS Guidelines specify the maximum allowable limit as 55 dB(A). However, for residential and commercial areas, the World Bank EHS guidelines imposes stricter noise limit of 60 dB(A), respectively, while the sub-decree imposes a limit of 60 dB(A) and 70 dB(A), respectively.

Table 2. Maximum Permitted Vehicle Noise in Public and Residential Area

[4] Adopted from the Initial Environmental Examination (Draft), Cambodia: Road Network Improvement Project (Project No.: 41123-015), June 2017 (https://www.adb.org/sites/default/files/project-documents/41123/41123-015-iee-en.pdf).

Category of Vehicle	Maximum Noise Level Permitted [dB(A)]
Motorcycles, cylinder capacity of the engine does not exceed 125 cm^3	85
Motorcycles, cylinder capacity of the engine exceeds 125 cm^3	90
Motorized tricycles	90
Cars, taxis, passenger vehicle of not more than 12 passengers	80
Passenger vehicle constructed for carriage of more than 12 passengers	85
Truck permitted maximum weight does not exceed 3.5 tons	85
Truck permitted maximum weight does not exceed 3.5 tons	85
Truck engine is more than 150 kilowatt	89
Tractor or any other truck not elsewhere classified or described here	91

Source: https://www.adb.org/sites/default/files/project-documents/41123/41123-015-iee-en.pdf.

Table 3: Maximum Permitted Ambient Noise [dB(A)]

Area	Period of Time (hours)		
	1600–1800	1800–2200	2200–0600
Quiet areas: hospitals, libraries, schools, kindergarten	45	40	45
Residential area: hotels, administration offices, houses	60	50	45
Commercial and service areas and mix	70	65	50
Small industrial factoring intermingling in residential areas	75	70	50

Source: https://www.adb.org/sites/default/files/project-documents/41123/41123-015-iee-en.pdf.

34. **Sub-Decree on Vibration**. There is no standard for vibration in Cambodia, therefore the vibration levels at any vibration sensitive property or location should be less than 1 millimeter/second (mm/s) peak particle velocity (PPV). The level of 1 mm/s PPV is a good "standard" derived from the United States Bureau of Mines publications for avoidance of damage and the United Kingdom Greater London Council standard for avoidance of nuisance.

35. **Sub-Decree on Water Pollution Control (No. 27 ANRK.BK 1999)**. As a minimum, all discharges of liquid wastes from construction camps, work sites or operations, to streams or water courses should conform to the following standards:

Table 4: Selected Effluent Standard for Pollution Sources Discharging Wastewater to Public Water Areas or Sewer Access

Parameter	Unit	Allowable limits for pollutant substance discharging to	
		Protected public water area	Public water area and sewer
Biochemical oxygen demand	mg/l	<30	<80
Chemical oxygen demand	mg/l	<50	<100
Total suspended solids	mg/l	<50	<80
Detergent	mg/l	<5.0	<15
Total dissolved solids	mg/l	<1,000	<2,000
Temperature	°C	<45	<45
pH		6–9	5–9
Oil and grease	mg/l	<5.0	<15
Dissolved Oxygen	mg/l	>2.0	>1.0

Source: https://www.adb.org/sites/default/files/project-documents/41123/41123-015-iee-en.pdf.

36. There is no legal standard for performance of septic tanks but these should be checked for correct operation, i.e. absence of smell, not overflowing, and no surface water logging.

37. **Sub-Decree on Solid Waste Management (No. 36 ANRK.BK 2009)**. Under Article 7 of the Sub-Decree on Solid Waste Management ("the disposal of waste in public sites or anywhere that is not allowed by authorities shall be strictly prohibited". There are no quantitative parameters given but good sensible practice is expected. Such practices would include:

- All general waste and food waste should be removed to a government approved landfill;
- All demolition waste must be removed to a government-approved location;
- All waste oil and grease should be disposed by a registered sub-contractor. The final destination of the oily wastes should be established.

38. **Hazardous Waste Management**. There is no specific regulation for hazardous waste management and substances in Cambodia. However, this aspect is in the Sub-Decree on Water Pollution Control Annex 1, and Sub-Decree on Solid Waste Management, which give details of classifications of what are defined as hazardous wastes and substances. Any hazardous wastes and substances must be stored correctly and only disposed in a manner approved by MOE.

D. International Conventions and Treaties

39. Cambodia has entered into the following international agreements on Environment:

- International Conventions and Agreements Kyoto Protocol ratified – 2002
- United Nations Framework Convention on Climate Change (UNFCCC) ratified – 1995; Initial National Communication – 2000; Second National Communication (2012)
- Convention on Biological Diversity (CBD) – 1995
- Cartagena Protocol on Biosafety – 2003
- UN Convention to Combat Desertification (UNCCD) ratified – 1997
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) – 1997
- World Heritage Convention – 1991
- ASEAN Heritage Convention (National Parks: Bokor and Virakchey) (regional) – 2003
- Convention on the Prevention of Marine Pollution from Ships – 1994
- Measures on prevention of climate change, ozone depletion, on freshwater resource protection and on sustainable forest ASEAN – 1999
- Convention on Wetlands of International Importance (RAMSAR) – 1999
- Basel Convention on Control, Transport and Disposal of Trans-Boundary Hazardous Waste – 2001
- Stockholm Convention on Persistent Organic Pollutants – 2001
- Vienna Convention and Montreal Protocol on Substances that Deplete Ozone Layer – 2001

E. ADB Safeguard Policy Statement

40. **Environmental Assessment.** The ADB Safeguard Policy Statement, along with the Good Practice Safeguard Sourcebook clarify the rationale, scope and content of an environmental assessment. Projects are initially screened to determine the level of assessment that is required according to the following three environmental categories (A, B, or C).

41. Category A is assigned to projects that normally cause significant or major environmental impacts that are irreversible, diverse or unprecedented such as hydroelectric dams (an EIA is required). Category B projects have potential adverse impacts that are less adverse than those

of category A, are site-specific, largely reversible, and for which mitigation measures can be designed more readily than for category A projects (an IEE is required). Category C projects are likely to have minimal or no negative environmental impacts. An environmental assessment for Category C projects is not required but environmental implications need to be reviewed.

42. The project is classified as Category B and an IEE has been conducted as part of project preparation of the national roads in accordance with ADB Safeguard Policy Statement.

43. **Climate Risk and Vulnerability Assessment.** The ADB also requires the identification of climate change risks to proposed project early in the project cycle and to identify actions to screen projects for climate risks, assess these risks, and address them in the project design. Technical guidelines have been developed by the ADB to aid in the climate risk and vulnerability assessment.9 Likewise, the Guidelines on Climate Proofing Investment in the Transport Sector: Road Infrastructure Projects[5]was issued to present a step-by-step methodology to help project teams incorporate climate adaptation into transport sector investment projects. A climate risk and vulnerability assessment was conducted for the project and details are presented in a separate report.

III. DESCRIPTION OF THE PROJECT

A. Type and Category of Project

44. The Project will assist the Government of Cambodia to improve its rural road network by rehabilitating about 359.80 km of unpaved (laterite) rural roads to paved condition (DBST). There will be 22 roads located in five (5) provinces that will pass through 23 districts and 54 communes/Sangkats of Cambodia expected to benefit about 137,491 families or about 601,001 population (including 306,686 female population representing 51% of the total population). The project area traversed by these roads has 21,952 female-headed households or about 16% of the total number of families. Upgrading to paved road standard will be undertaken without widening or realignment.

45. No indigenous peoples and ethnic minority groups live within the proposed road project area. Information was confirmed by the Village and commune leaders within the project area.[6]

46. A total of 10 bridges will be replaced including 13 of the box culverts and 341 of the pipe culverts for efficient drainage during the wet season and increasing discharge capacity against future climate change events.

47. The Project is classified as environment Category B and an initial environmental examination (IEE) was conducted as part of project feasibility study in accordance with ADB Safeguard Policy Statement Safeguard Requirements 1.

B. Need for the Project

48. By the early 1990s, the years of civil war had left the country's road network severely deteriorated. Since 1992, with assistance from the Asian Development Bank (ADB), the World Bank, Korea EXIM Bank and other international financing institutions, the Government focused on rehabilitating core infrastructure to support sustainable economic development. These efforts

[5] https://www.adb.org/sites/default/files/institutional-document/32772/files/guidelines-climate-proofing-roads.pdf.
[6] Revised Draft Indigenous Peoples' Plan, CAM: Rural Roads Improvement Project III, February 2018.

have brought the paved national road network to about 2,700 km in length, about 25% of the total national and provincial road network. However, with rural economy becoming increasingly dependent on the improved national road network, the rural road network continues to deteriorate due to rapidly growing traffic, lack of maintenance financing, poor road maintenance standards, inadequate institutional capacity in road maintenance and management, lack of private contractor capacity, and shortcomings in design and construction methods.

49. The proposed project (RRIP III) aims to continue and expand the initiatives of Loan 2670-CAM (Rural Road Improvement Project), and Loan 3151-CAM Rural Road Improvement Project II) by rehabilitating about 359.80 km of rural roads in the five project provinces under another proposed loan package for this RRIP III. This is a proposed project to be financed by the Asian Development Bank (ADB). It will continue and expand previously approved two projects funded by the ADB, namely the Rural Roads Improvement Project-II (Loan 3151) and RRIP-II-AF (Loan 3151) which also expanded from RRIP initiative Loan 2670. As one activity of implementation supervision consulting services under Loan 2670, it was planned to design the proposed project to enhance ownership and capacity development of MRD, to build upon lessons learned in all outputs, and for a seamless continuation of initiatives between the two projects. Loan 2670-CAM has supported MRD's capacity development in applying road selection criteria, minimizing resettlement impacts, improving procurement efficiency, and strengthening project management.

50. **The project outputs.**[7] The output of the project is road rehabilitation to improve about 359.8 km of rural roads into a paved condition by double bituminous surface treatment and concrete surface.

51. The design of the project roads is based on lessons learned from the upstream two projects of RRIP and RRIP II; (i) the pavement of the project roads consists of at least 20 centimeters (cm) thickness of granular sub-base course layer in order to reinforce subsoil stability; (ii) the aggregate base course layer should be at least 20 cm, which is the same standard as the national roads to adequately support long term road life; and (iii) the surface should be paved DBST, but in flood zones and market areas, a 20 cm thickness of reinforced concrete pavement is proposed together with drainage improvements.

52. RRIP and RRIP II had consulting services to implement the programs of increased awareness and application of road safety for project beneficiaries. The SEO staff of MRD has been strengthening their capacity through implementation of RRIP and RRIP II. With such acquired capacity, SEO plans to use own staff resources with limited inputs from recruited facilitators for, (i) implementing a community-based road safety awareness program including education program for schools, drivers, road users, and the community; (ii) implementing an HIV/AIDS and human trafficking prevention program; and(iii) conducting a sex-disaggregated baseline socioeconomic survey of beneficiaries.

53. The Project will have substantial positive employment and gender impacts in the rural communities. PMU expects to prepare a labor and gender mainstreaming action plan (LGAP) that describes the labor and gender mainstreaming aspects associated with the project outputs. All these activities will be implemented under the output, project management support.

54. As for road asset management, PMU and the Provincial Department of Rural Development (PDRD) have acquired capacity through the projects RRIP and RRIP II. While routine maintenance is being conducted by PDRDs through a systematic series of activities,

[7] Source: Draft Project Concept Paper for RRIP III, December 2017.

budgetary support for maintaining already paved rural roads has been adequately allocated by MRD. The principles of asset management have therefore been effectively adopted and will be enhanced further during RRIP III implementation.

C. Project Location

55. The project roads are located in five provinces of Cambodia are in Figure 1. These are: Kampong Cham, Tboung Khmum, Prey Veng, Svay Rieng, and Kratie. The project roads (22 roads) located in these provinces will pass through 23 districts and 54 communes/sangkats of Cambodia.

D. Current Condition of Project Roads

56. The existing condition of the project roads is variable, ranging from those that have been re-graveled recently and otherwise maintained to a good standard to roads that have not been maintained recently and are in a poor condition with very high road roughness values with very little remaining laterite.

57. The individual roads vary in length from about 5.2 km (in Prey Veng Province) to 61.30 km (in Kratie Province). The roads comprise a mix of well-established and frequently trafficked road links and a number of links that are currently being or have been recently improved to gravel road standard. Some of these roads carry less traffic than others at present. However, they form important links from national roads or provincial roads to new or established community centers. MRD has invested recently to widen existing earth roads to 5.5 meter (m) or 6.0 m and placed laterite on the top. On some project roads, upgrading works are ongoing, but these are expected to be completed before the implementation of the proposed project. Most of the project roads links to a national, provincial road or RRIP roads and provide access to the road network at large.

E. Current Traffic Condition

58. Nearly 80% of the annual average daily traffic (AADT) along the project roads consists of motorcycles. The roads are also used by light 4 wheeled vehicles and some small trucks. Heavy trucks transport rice crops at harvest season. It is also important to recognize the usage of these roads by non-motorized traffic, especially children and poorer people who are either pedestrians or use bicycles or where animal-powered transport is also in use.

59. There were 3,910 crashes and 11,899 casualties reported in 2016[8]. Among them, 1,852 were fatalities and 4,697 were serious injuries (on average, more than 5 people died and almost 13 were injured every day). The number of fatalities decreased by 17% and serious injuries decreased by 14% compared to 2015. Between 2005-2016, there were 4.9 fatalities per 10,000 registered vehicles in Cambodia, the number of which is less than in Lao PDR (5.87) but higher than Vietnam (1.66). For the same period, the fatality rate per 100,000 inhabitants in Cambodia between 2005 and 2016 was 11.9, which was higher than in Vietnam (9.29), but less than Lao PDR (16.49). Over the last 11 years (2005-2016), the number of fatalities has doubled. At the same time, the population has increased by 18% and the number of registered motorized vehicles[9] has risen by 553% (about 88% of all registered vehicles were motorbikes). It is estimated

[8] Overview, 2016 Summary Report – Road Crashes and Casualties in Cambodia, National Road Safety Committee.

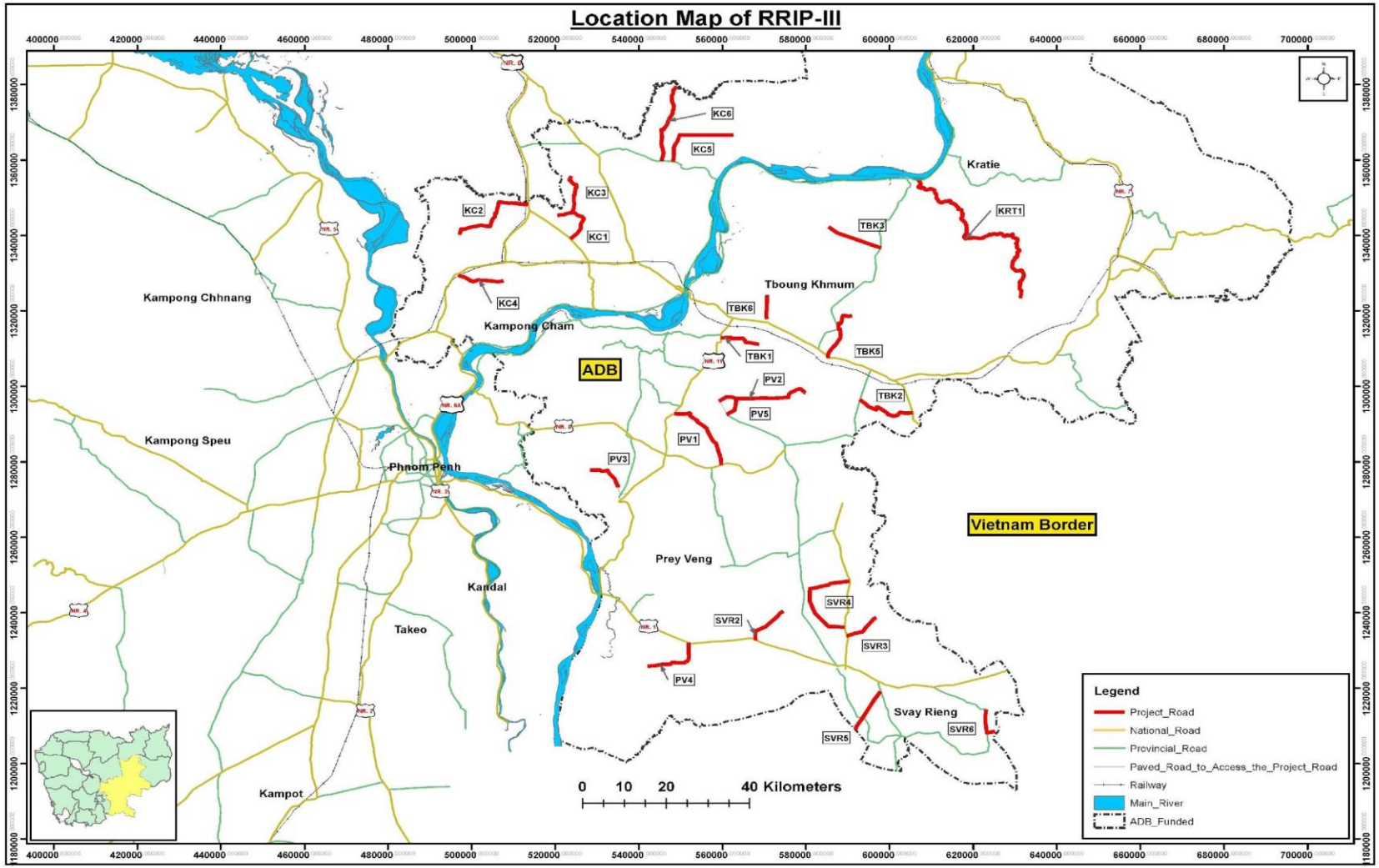
[9] Source: "Statistics of vehicles registered in 2016", Department of Land Transport, Ministry of Public Work and Transport Registered vehicles in Viet Nam since 2000, National Traffic Safety Committee. Lao Vehicle registered in 2016, from HI Lao (according to the 2016 Summary Report – Road Crashes and Casualties in Cambodia, National Road Safety Committee).

that unless additional road safety actions are taken, the number of fatalities in Cambodia will increase up to 3,200 by 2020[10] Therefore, the Royal Government of Cambodia has committed to develop a national road safety action plan 2011-2020 to reduce the number of road fatalities in 2020 by 50% (or reducing it to 1,600 fatalities). This will save 7,350 lives if the target is achieved.[11]

60. According to the 2016 Summary Report – Road Crashes and Casualties in Cambodia of the National Road Safety Committee, 70% of the fatalities happen on national roads. The report also concluded that driving at night time (from 6pm to 6am), driving during weekends and Khmer big festivals were riskier than driving on a normal day. Youths and adults are the most vulnerable groups of road users, the majority of fatalities are farmers (40%) and workers (20%) with students accounting for 10% of the total. The rest of the fatalities are: children (4%); vendors (4%); government employees (4%); motor taxi drivers (2%); car/truck drivers (2%); tourist/expatriates (1%); housekeeping/servants (1%); and others (12%). The report statistics indicated that there was an overall 17% decrease of fatalities in 2016 compared with 2015. However, there were significant increases in fatalities involving motor taxi drivers (24%); children (14%); and others (26%) which were not disaggregated by the report.

[10] Source: “Cambodia census 2008” National Institute of Statistic Ministry of Planning according to the 2016 Summary Report – Road Crashes and Casualties in Cambodia, National Road Safety Committee.

[11] According to the 2016 Summary Report – Road Crashes and Casualties in Cambodia, National Road Safety Committee. These 7,350 lives include all lives that can be saved every year, from 2011 to 2020. The calculation has been conducted by the Institute for Road Safety Research (SWOV), The Netherlands.



Source: Feasibility Study for RRIP III, DDIS, April 2018 (Updated).

Figure 1: Location Map of Project Roads

61. Among student fatalities, university students accounted for 33% followed by primary school students (29%), high school students (23%) and secondary school students (15%). Only 1% of fatalities involved tourists and expatriates. About 73% of the fatalities involved motorbikes (which is most widely used mode of transport in the country). Human error involving over speeding and drunk driving are the major causes of road crash fatalities. However, the report added that other contributing factors also include defective vehicles, road environment; weather; and time it takes to bring crash victims to health facilities.

62. The key recommendations of the report include the following: (i) strengthen the road crash and victim information system (RCVIS) data collection system to ensure its accuracy, especially regarding road environment factors; (ii) education in schools, universities, and communities along national roads and high risk areas; (iii) improvement of blackspot[12] areas; pedestrian infrastructure and set up of slow speed zones and separate lanes for motorbikes; (iv) strengthen traffic law enforcement, particularly on speeding, and helmet wearing; (v) promote road safety and traffic law public awareness campaigns; (vi) improve the effectiveness of and efficiency of the emergency medical services; (vii) promote and integrate road safety policy and action plans into local development plans with adequate resources for the implementation; (viii) strengthen the training and driving license application and introduce demerit system; (ix) seek for other sources of funds to reinforce road safety program education in all aspects and the knowledge on road safety to all levels of road users; and (x) integrate road safety awareness based on concrete planning.

A. Proposed Works

63. The project proposed the upgrading of 359.80 km in five target provinces involving 22 existing rural roads. The list of project road is in Table 5. The location maps of project roads by province are shown in Appendix 3.

Table 5: List of Project Roads

Province	Road No.	Road Name	District Name	Length (km)
Kampong Cham (KC)	KC1	Kor-Tuek Cha	Prey Chhor	13.50
	KC2	Samdaek-Sampong Chey	Batheay -Cheung Prey	23.00
	KC3	Ou Tathok-Bosthlan	Prey Chhor- Chamkar Leu	11.30
	KC4	Phav-Doun Dam	Batheay -Cheung prey	11.20
	KC5	Dei kraham-Areak Tnaot	Stueng Trang	20.10
	KC6	Mer Sar Chrey-Wat lor	Stueng Trang	21.50
	6	**Sub total**		**100.60**
Tboung Khmum (TBK)	TBK1	Tuol Kondaol-RN11	Tboung Khmum	9.90
	TBK2	Trapeang Phlong-Stueng Toch	Ponhea krek	16.00
	TBK3	Chhuk-Sedasenchey	Kroch Chmar.Dambe	13.70
	TBK5	Kondoal chrum-Char Thum	Ponhea krek.Dambe	15.10
	TBK6	Suong-Phnum chan	Suong	6.40
	5	**Sub total**		**61.10**
Prey Veng (PV)	PV1	Lngeun-Boeng Kak	Kanh Chreach, Kamchaymear	20.20
	PV2	Pou Tong-Dountei	Kanh Chreach, Ponhea Kraek	22.50
	PV3	Svay Sokhao-Pou Rieng	Prey Veng Town, Pou Rieng	9.30
	PV4	Kampongtrabek-Preah Sdach	Kampongtrabek, Preah Sdach	15.00

[12] As defined in the report, it is a section of road with 300-meter length, that has 3 crashes with at least one person killed in one-year period.

Province	Road No.	Road Name	District Name	Length (km)
	PV5	Kanh Chreach-Kouk Kongkandal	Kanh Chreach	5.20
	5	**Sub total**		**72.20**
Svay Rieng (SVR)	SVR2	Kroulko-WathSvaypnem	SvayChrum	11.00
	SVR3	PheasaChork-Pongtek	Rumdul	9.10
	SVR4	PreyKearv-KomPongAmpil	Rumdul	24.80
	SVR5	PrasPonlea-SomYong	KomPongRo	11.90
	SVR6	SalaSrokChantrea-Vietnam Border	Chantrea	7.80
	5	**Sub total**		**64.60**
Kratie (KRT)	KRT1	Chhlong-Prama	Chhlong	61.30
	1	**Sub total**		**61.30**
	22	**Total (5 Provinces)**		**359.80**

km = kilometer
Source: Feasibility Study Report of DDIS Consultants, March 2017.

64. The roads will be upgraded from laterite surface to a paved condition by DBST. The provision of a durable paved road with a structural design life of 15 years will improve accessibility and riding quality, thereby reducing road maintenance costs and road user costs. Although it will be more costly to construct paved roads, the whole life costs of the road will be lower. During the design life, the road will require resealing to maintain the integrity and waterproofing function of the bituminous seal. The Project will include placement as necessary of sub-base and road base, using unbound natural aggregate materials for the road pavement. The works also involves replacement or repair of existing bridges and cross drainage structures such as box culverts and concrete pipe culverts. It also involves slope protection and installation of necessary road furniture for safety of vehicle and pedestrians. The existing road width will be maintained without widening to avoid resettlement impacts. The condition survey results and photos are shown in Appendix 2 and Appendix 3.

IV. DESCRIPTION OF THE ENVIRONMENT

A. Physical Resources

65. Cambodia lies in the southwestern part of the Southeast Asian peninsula and has a land area of 181,035 square kilometer ($km^{2)}$. International borders are shared with Thailand to the west, the Lao PDR to the north, and the Socialist Republic of Viet Nam on the east and southeast. The country is bound on the southwest by the Gulf of Thailand and has a coastline of 440 km.

66. **Climate.** Cambodia's climate is dominated by the monsoon which causes distinct wet and dry seasons. The southwest monsoon typically brings the rainy season from May to October. The northeast monsoon brings drier and cooler air from early November to March, then hotter air prevails in April and early May. The southern part of the country typically has a two-month dry season whereas the northern areas have a four-month dry season although weather patterns have been changing. The Project Climate and Disaster Risk Assessment (PCDRA)[13] recently done for the project indicates that annual rainfall may remain unchanged but intense and extreme rainfall will increase more in the wettest months. This will lead to longer dry periods. There may be “mini-droughts” during the wet season; precipitation will increase most in the south-west and

[13] Project Climate and Disaster Risk Assessment, Proposed RRIP 3, Consulting Services for Detailed Design and Implementation Supervision (DDIS), Ministry of Rural Development, ADB Loan 3151-CAM/Grant 0401-CAM/Grant 0402-CAM Rural Roads Improvement Project II, February 2018.

decrease in the north-east; both the maximum 5-day and 1-day storms are expected to increase; the projected increases are 10% for 2030, 20% for 2050 and 30% or more for 2090; the relative increase in rainfall is heavier for short durations; climate change will cause an increase in short term intense rainfall.

67. The annual mean rainfall is 1,400 millimeter (mm) in the central lowland regions and can reach 5,000 mm in coastal areas. However, there are really no reliable rainfall databases for the Project zones and rainfall can vary from a low of less than 1,000 mm to a high of 2,000 mm. The existing pools or ponds which are located close to the rural roads under the development are key sources of water for regular consumption of the people (from example, in all provinces). The relative humidity is high throughout the year, usually exceeding 90%, and even in the dry season rarely falls below 50%.

68. Temperatures are fairly uniform throughout the country, with only small variations from the average annual temperature of around 28°C. January is the coldest month where temperatures as low as 12°C have been recorded and April is the warmest where temperatures reach 42°C. Most of Cambodia's regions have an average wind velocity of less than 3 meters per second (m/s). Maximum wind speeds can reach in excess of 20 m/s during the wet season. During the dry season the maximum wind velocities are lower and are commonly in the range of 6–8 m/s.

69. **Topography.** Cambodia is divided into three distinct topographic regions: the central plains, the flat coastal areas, and the mountain ranges with high plateaus. The central plains form 75% of the country and consist of the alluvial plains of the Mekong River and the Tonle Sap basin where the project roads are located. These are Cambodia's two dominant topographical features and this is where over 90% of the population resides. The road sections are generally in flat terrain.

70. **Air Quality and Noise.** The Project roads traverse primarily agricultural areas and villages/residential areas in rural settings with no industrial development. Currently, main sources of air pollution are dust emission due to passage of vehicles along the unpaved project roads. Sources of noise are community activities (especially near markets) and the existing traffic largely composed of motorcycles.

71. **Surface Water.** The Project roads cross a number of rivers, streams and irrigation canals. Within the Project area, surface run-off on exposed soil and erosion of river embankments cause turbidity in some of the watercourses. Surface water pollution from domestic sewage along sections where densely populated villages are found as well as run-off from surrounding agricultural fields may also be expected.

72. **Flooding.** Several of the project roads are in areas known to be prone to flooding. According to PDRD, recent agricultural developments have changed the patterns of water movements such that culverts at new locations are required. Coordination with the ongoing Climate Change Adaptation Output will continue and Vulnerability Maps produced under that Output will be used to identify areas likely to be vulnerable to flooding in the future due to climate change induced higher flood levels. Based on the PCDRA conducted for this project, the provinces under this project that are most vulnerable to flooding are Prey Veng, and Svay Rieng. The PCDRA report described the flood risk in these provinces as follows:

73. Prey Veng (PV) is also dominated by overland flow from the Mekong river and has many low lying natural water bodies and ponds. The land between Prey Veng and the Vietnam border (via Svay Rieng) is very flat and there is little opportunity for natural drainage other than the

Mekong river, which flows to the south. For this reason, most of the area is classed as being at moderate risk of flooding and this would apply to PV1, 2, 3 and 5. Some roads in the center of the province alongside National Road (NR) 1 are classed as being at very high risk of flooding and PV4 and 6 could come into that class, particularly as PV6 is close to the Mekong river.

74. Svay Rieng (SVR) province forms a border with Vietnam. It is bisected by NR1 which runs from Phnom Penh over the Mekong River to Vietnam Border. Due to the extremely flat terrain this area of Cambodia is basically downstream of all other weather influences and can flood over very large distances on either side of the NR1 alignment. There are areas of free standing water to the north and south of NR1 and local rainfall has no natural drainage escape route. Most of this area is deemed to be at high risk of flooding. NR1 is classed as being at low to moderate risk because of its embankment. All of the roads from SVR1 to 6 can be classed as being at high risk of flooding.

B. Ecological Resources

75. **Flora.**[14] Forests make up a major part of the country's natural resources. Hill evergreen, tropical rain and dry land evergreen forests are found in the humid coastal ranges, humid northeastern uplands, and the very humid to sub-humid low altitude areas. Freshwater. inundated forests are found in the Tonle Sap Lake and in areas of the Mekong River. Mangrove forests are found along the coasts of Kampot and Kohl Kong provinces. In 1960 Cambodia's forests covered 73% of the total land area of the country. By 1998 the forest cover had decreased to 58% and at least until the mid-2000s it was estimated that Cambodia was losing forest cover at the rate of 2% per annum. The reduction has been attributed mainly to commercial logging, illegal logging (both large and small scale), large scale agricultural concessions, fuel wood collection, non-traditional shifting cultivation and the settlement of new villages. Secondary causes include forest fires and infrastructure development. Nevertheless, Cambodia still has substantial forest cover in comparison with other GMS countries apart from the Lao PDR. In the Project provinces, there are some protected forest areas and indigenous tree species (e.g. the *Diptherocarpus* species) that are protected by Cambodia's Forestry Law of 1995. KSP2 in Kampong Speu is 1km from the community zone (management area for socio-economic development of the local communities) of the Phnom Aural Wildlife Sanctuary.

76. Vegetation cover along the project roads largely consists of agricultural crops such as rice, while some sections traverse areas covered with plantation crops such as rubber, black pepper, mangoes, sugarcane, cashew and cassava; and shrubs, grasses, sparse trees and banana. The Project roads are located within or in close proximity to three of Cambodia's agro-ecological zones, which are based on a study of available data, including soil maps, topographic maps and land use maps. In all three zones, lowland rice cropping is the main activity but other crops grown include soybean, cassava, and cashew. Fruit and vegetables crop are also cultivated although primarily for domestic consumption. Large and small livestock are raised and some households during the early dry season once the rice harvest is completed, travel to flood recessed areas of the Tonle Sap to cultivate flood recessed rice and fish.

77. **Fauna.**[15] Cambodia has a rich biodiversity. The forests, wetlands and other habitats support many species of flora and fauna, including 212 species of mammals, 536 species of birds, 240 reptile species, 850 fresh water and 436 marine fish species and more than 2,300 plants (800

[14] Cambodia Journal of Natural history, ISSN 2226-969, August 2013 Vol 2013 No.1 Centre for Biodiversity Conservation, Royal University of Phnom Penh and Fauna and Flora International.

[15] Cambodia Journal of Natural history, ISSN 2226-969, August 2013 Vol 2013 No.1 Centre for Biodiversity Conservation, Royal University of Phnom Penh and Fauna and Flora International.

of these plants are used in for the local manufacture of traditional Khmer medicine).

78. **Fishery.**[16] Fish is the most important source of animal protein in the diet of all **Cambodians, constituting upwards of 75% of total animal** protein input. Fish are also an important source of calcium and Vitamin A, especially for the rural poor. On average the countrywide consumption rate is 65.5 kilograms per capita per year. Each year, Cambodia's combination of subsistence, middle-scale and large- scale commercial fishing harvests produce 300,000 to 430,000 tons of freshwater fish. This production ranks fourth in the world and is worth approximately US$300 million. However, there have been incremental declines in fish catches and it is now estimated that less than 250,000 tons of fish is being caught, consisting of approximately 105,000 tons of household fisheries, 75,000 tons of rice field fisheries and 68,000 tons of middle and large-scale fisheries (marine fisheries production account for an additional estimated 55,000 tons).

79. **Ecologically Protected Areas.** The National Environmental Action Plan 1998 specifies four types of protected areas. These are national park, wildlife sanctuary, protected landscape and multiple-use management areas[17]. Protected areas in relation to the project roads are shown in Figure IV-2. None of the project roads will traverse any of the ecologically and legally protected areas of the country and will not trigger ADB Safeguard Policy Statement policy principle and requirements in respect of legally protected areas[18]. All roads to be improved are existing roads. No new roads will be constructed.

C. Culturally Protected Areas

80. The famous Angkor Protected Landscape (APL) covers about 401 km^2 and was declared a UNESCO World Heritage site in 1992. The different zones of this protected landscape[3] are as follows:

(i) *Zone 1*- Monumental site. This zone is the core zone, monumental sites and protected archaeological reserves. It has the most significant archaeological features and the highest level of protection;
(ii) *Zone 2* - Protected archaeological reserves. This zone acts as buffer zone, around the monumental sites;
(iii) *Zone 3* - Protected cultural landscapes. Preserved for their distinctive traditional physical and cultural features, including historic buildings and land use practices;
(iv) *Zone 4* - Sites of archaeological, anthropological or historic interest. This zone is of less significance than the Zones 1 and 2, but requires protection for research, education and tourism; and
(v) *Zone 5* - The socio-economic and cultural development zone of the Siem Reap-Angkor region. This zone covers the whole of Siem Reap province and broadly corresponds to the catchment area of greater metropolitan Angkor. This zone is to be managed as a multiple-use area with an emphasis on economic and social development through sustainable natural resource use and cultural tourism.

81. There are no proposed project roads within this culturally-protected area.

[16] Integrated Analysis of Data from MRC Fisheries Monitoring program in the Lower Mekong Basin, ISSN: 1683-1489, Mekong River Commission, MRC Technical Paper No.33 August 2013.
[17] Notable designated sites within the project provinces include the Tonle Sap; Phnom Aural Wildlife Sanctuary; Phnom Samkos Wildlife Sanctuary; Kirirom National Park; among others.
[18] Reference: Para 32 of ADB Safeguard Policy Statement (2009.).

D. Social and Economic Development

82. Most people in the Project zone are ethnic Khmer and largely Buddhist although there are Cham households that constitute the second largest ethnic group in Cambodia[19]. According to the Cambodia Socio-economic Survey (CSES) conducted in 2015, the adult literacy rate for the country was 80.5% for both sexes and is highest in Phenom Penh at 93.8% but lowest in the rural areas at 76.8% (while for the rest of the urban areas, it was 87.9%). Adult literacy rates for men were higher than females across all the domains[20].

83. In the project areas covered by RRIP III, the average completion rate in the primary level in rural areas as of school year 2016-2017 is higher (81.98%) compared to lower secondary (41.97%), and even lower (16.41% only) in upper secondary level.[21] The number of girls who completed the primary and lower secondary level is higher than boys with 85.38% for girls and 78.74% among boys in primary level; and 45.88% among girls (38.33% for boys) in lower secondary level in rural areas. The same trend has been observed for the completion rate in upper secondary level, where the girls (16.41%) is slightly higher than boys (15.32%). This could be due to high expectations for boys to help their parents in earning a living which force them to dropout of school or discontinue studies.[22]

84. One major reason for the low completion rate in rural areas in secondary levels could be due to the students' lack of accessibility to schools due to distance and poor road conditions, and low households' income that hinder children from enrolling in secondary levels. Most of the communes have primary schools, however the lower and secondary schools are often located in the commune center or in another commune with large population, and/ or in district centers. The schools for tertiary levels including vocational schools are located mostly in the provincial centers.[23]

85. Housing construction materials in Cambodia range from the use of NTFPs typically belonging to the poorest and most vulnerable households to houses constructed using permanent building materials such as wood, concrete, steel and iron that belong to better off households. About 62% of all households in Cambodia had access to improved facilities in the dwellings, in which all of the improved toilets that the household used were connected to sewerage and septic tank[24]. Most of the major diseases are waterborne such as diarrhea although other diseases include malaria, tuberculosis and upper respiratory infections. HIV/AIDS rates appear to be quite low but there is a reluctance to report on people living with AIDS. In the five provinces covered by the RRIP III, a total of 597 HIV/AIDS cases had been recorded in 2010. Of these cases, the highest was recorded in Kampong Cham Province (188) and Svay Rieng (182) while the lowest was recorded in Kratie (15). There are local health centers in each of the communes, but service provision is problematic, and many people prefer to use private sector providers than such centers. This was confirmed based on the CSES 2015 indicating that 71% for the whole of the country, 80.6% for the other urban areas and 69.5% for the other rural areas private sector providers instead.

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[19] Cambodia Socio-economic Survey (CSES) 2015, National Institute of Statistics, Ministry of Planning, October 2016.
[20] CSES (2015) Domains – Cambodia, Phenom Penh, Other Urban Areas, Other Rural Areas.
[21] Public Education and Statistics. MoEYS, School 2017-2017. Department of Education Management Information System. Phnom Penh, March 2017.
[22] Ibid.
[23] Poverty and Social Analysis, Rural Road Improvement Project III, Consulting Services for Detailed Design and Implementation Supervision (DDIS), Ministry of Rural Development, ADB Loan 3151-CAM/Grant 0401-CAM/Grant 0402-CAM Rural Roads Improvement Project II, February 2018
[24] Cambodia Socio-economic Survey 2015, National Institute of Statistics, Ministry of Planning, October 2016.

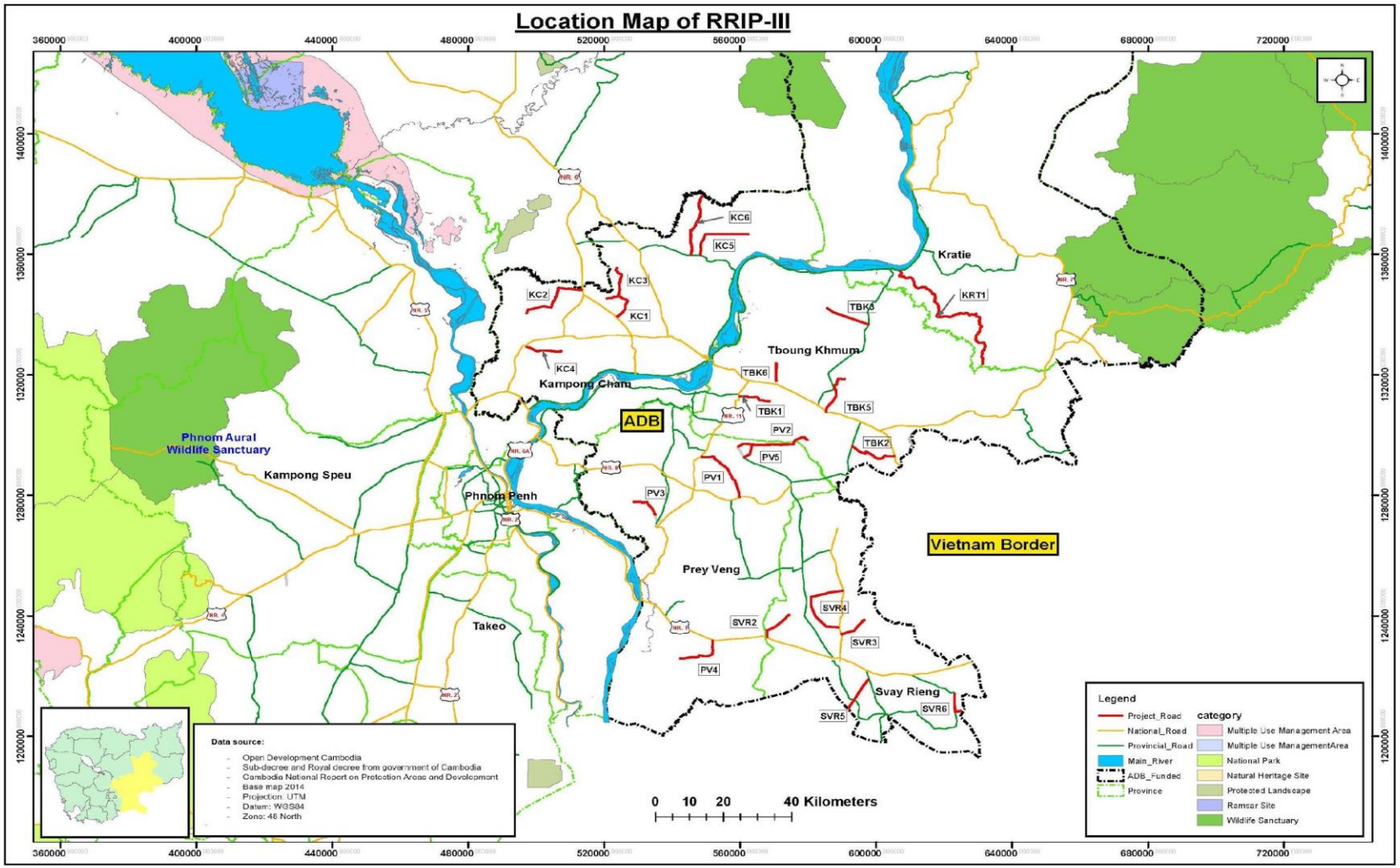


Figure 2: Location of Project Roads with respect to the Protected Areas in Cambodia

86. The economic base in the five provinces covered by the project is mainly agriculture. The primary sources of household income of the rural residents is also agriculture, followed by selling/business which provide the households regular income (in cash) compared to farming where money is made only after each harvest season. The top five major crops grown by rural households in the project areas include rice, corn, cassava and other root crops, vegetables, banana and other fruit-bearing trees. Additional sources of households' income are working as paid laborers in various kinds of jobs, and livestock raising such as cattle and buffaloes, goats, pigs, and poultry (chickens and ducks). Other households are engaged in non-agriculture livelihoods such as managing businesses, selling, construction work, garment factory workers, and service related jobs (i.e., barber shop, beauty parlors, tailoring/ dressmaking, restaurants/ eateries, selling cooked foods and other goods).

87. Poverty level in Cambodia continues to fall, more slowly than in the previous years. In 2014, the poverty rate was 13.5% compared to 47.8% in 2007. About 90% of the poor live in the countryside. Cambodia has achieved the UN MDG of halving poverty in 2009, but the vast majority of families who escaped poverty were only able to do so by a small number, thus around 4.5 million people in the country is still classified as near-poor.[25] Between 2007 to 2014, the poverty rate in the country fell dramatically from about 50% to 13.5%[26] with almost 3 million poor people and over 8.1 million near-poor, and mostly live in the countryside. The areas of health and sanitation, and education are still considered as development priorities in the country. About 42% of children under 5 years old are malnourished and stunted, and more than half of Cambodians do not have access to toilets and appropriate sanitation.[27] Urban poverty rate in Phnom Penh was 16.3% in 2012 and 14.5% in other urban areas, while rural poverty incidence fell from 24.6% in 2009 to 20% in 2012.

88. At the national level, there are more poor people/households in the rural areas than in the urban areas. The per capita daily poverty line in Phnom Penh (as of 2009, in US$) is 1.53 and a monthly per capita poverty line of $46.55, and a poverty rate of 12.8%. In the rural areas, the per capita daily poverty line in the same year is $0.84 and $25.69 per capital monthly poverty line or a poverty rate of 24.6%. Urban poverty rate at the national level in the same year is 19.3%.[28] Cambodia's updated multidimensional poverty index (MPI) estimation was in 2014, where about 33.8% of the population (5,180 people) are multi-dimensionally poor while an additional 21.6% live near multidimensionally poverty (3,306 people), and the average deprivation score experienced by the people of Cambodia in multi-dimensional poverty, is 44.3%. The multi-dimensional poverty index (MPI) is the share of the population that is multi-dimensionally poor, adjusted by the intensity of the deprivations, is 0.150 compared to Lao PDR with an MPI of 0.186.[29] In the five (5) provinces of the project site, Prey Veng has the highest share in percentage of population considered as "vulnerable to poverty" with 23%, followed by Kampong Cham/Tboung Khmum with 22.2%[30]. Detailed discussion of this parameter can be found in the Poverty and Social Assessment Report for the project.

89. As of 2015, the total percent of poor households in Level 1 is 8.3% and 12.56% in Level 2 or average of 10.4% for the combined Level 1 and Level 2 poor households. The data was based on the number and percent of poor households for Level 1 and Level 2 (ID poor as per

[25] World Bank Cambodia website, updated on April 2017.
[26] Ibid.
[27] World Bank. April 2015. Cambodia at a Glance.
[28] ADB. 2014 Cambodia Country Poverty Analysis.
[29] HDI Report 2016. Cambodia. UNDP. 2016.
[30] Source: Poverty and Social Assessment Analysis, RRIP III from OPHI Country Briefing Dec. 2016: Cambodia. Oxford Poverty and Human Development Initiative (OPHI). www.ophi.org.uk.

commune database, 2015) for the 134 communes in 50 districts included in 66 road sections, in the ten (10) provinces with RRIP III proposed project. Kampong Chhnang province has the highest percent of poor households in level 1 and level 2 with 14.08% and 16.87%, respectively or a combined percentage of almost 31% for level 1 and Level 2. Next to Kampong Chhnang is Kratie province with 28.82% and 3rd in rank is Prey Veng with 24.47% for combined poor Level 1 and Level 2 households. The poverty level for (Levels 1 and 2) presented by commune and district in the ten (10) provinces included in RRIP III project area is 20.9%.[31] Detailed project level socio-economic information can be found in the separate Poverty and Social Assessment report for the project.

90. Cambodia has 27 different soil types but the main ones in the Project zone are either soils developed on the old alluvial terraces of the colluvial-alluvial plains. Four types – Prey Khmer, Prateah Lang, Bakan and Tuol Samroung – are where most of the agricultural production occurs although just one, the Toul Samroung, which occupies just 10% of the rice area is really suited to high yielding rice production. Soils developed on the active flood plains – Kabal Po and Krakor – are also highly suited for rice production and occupy approximately 30% of soils where rice production takes place in the Project zone. Such soils respond well to improved ditch and drainage irrigation and judicious application of fertilizers if there is also a timely availability of suitable seed varieties, which unfortunately is not always so in Cambodia. However, yields have increased incrementally over the past two decades with wet season yields averaging 2.4 tons per hectare and dry season yields (only 15% of rice produced) averaging almost 3.7 tons per hectare. These are below regional averages, but the labor-intensive system is currently recording average yields of 3.6 tons per hectare in the wet season. In 2008, Cambodia produced a surplus of 3 million tons although there are still food security problems for rice deficit households.

91. Cambodia's natural mineral resources include gem stones such as sapphires, ruby and zircon; coal, offshore gas and oil; basalt, granite, limestone, dolomite, quartzite; and phosphate deposits. There are no major mineral resources in the vicinity of the project roads, although in close proximity to project roads in Kampong Cham there are white clay and clay for cement non-metallic deposits.

V. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Pre-construction Phase

1. Detailed Engineering Design

92. This pre-construction phase activity shall address among others designing for climate adaptation measures that includes climate resilience-related adjustments to civil works through (i) design of road embankments and roadside ditches which are susceptible to erosion; (ii) using less moisture susceptible materials or hydraulically-stabilized materials within the road structure so that structural layers do not lose significant strength upon flooding and soaking; (iii) bridges and cross-drainage that will ; and (iv) by using green engineering or bio-engineering to improve the water conservation and water retention capacity characteristics of the watershed such as compensatory tree planting for publicly-owned affected trees to minimize flooding and to divert

[31] Source: Poverty and Social Analysis, Rural Road Improvement Project III, Consulting Services for Detailed Design and Implementation Supervision (DDIS), Ministry of Rural Development, ADB Loan 3151-CAM/Grant 0401-CAM/Grant 0402-CAM Rural Roads Improvement Project III, February 2018. Note: Disaggregated information for the recently agreed 26 roads under the project following the exclusion of sub-project roads proposed to be separately funded under the Korea EXIMBANK (EDCF) is not available of this IEE revision. The information presented under this discussion is still based on the 66 roads considered for socio-economic surveys.

runoff water away from the road among other measures. The detailed design for the road and cross-drainage requirements of this project shall be informed by the Project Climate and Disaster Risk Assessment (PCDRA) prepared for this project. Please refer to succeeding discussions on addressing climate change and hydrological impacts below.

2. Climate Change and Hydrological Impacts

93. A Project Climate and Disaster Risk Assessment (PCDRA) was undertaken for the project. Findings indicated that annual rainfall may remain unchanged but rainfall intensity and duration will increase in the wettest months. This will lead to longer dry periods. There may be "mini-droughts" during the wet season. Precipitation will increase most in the south-west and decrease in the north-east. Both the maximum 5-day and 1-day storms are expected to increase. The projected increases are 10% for 2030, 20% for 2050 and 30% or more for 2090. The relative increase in rainfall is heavier for short durations. An increase of 20% on existing IDF curves will allow for a global temperature increase of 2^{o}C. This factor is conservative and is recommended as a design factor. Climate change will cause an increase in short term intense rainfall. An increase of 20% on existing rainfall intensity should be allowed for future events as the PCDRA recommended.

94. The Project Climate and Disaster Risk Assessment (PCDRA) further indicates that most roads are in areas deemed to be of low or moderate risk to climate change. Roads in areas of high risk are those in the foothills of the Cardamon mountains in Kampong Speu which may be subject to flash flooding, those close to the Mekong river in Tboung Khmum and those in very flat gradient land in Prey Veng and Svay Rieng. Raising of embankments, increased drain size and replacement of DBST with concrete should be considered in the detailed engineering design. Provincial and district roads have been recommended to be designed to withstand a 1 in 10-year flood level with 0.25m freeboard. All culverts should be a minimum of 1200mm diameter to facilitate cleaning.

95. To address hydrological impacts, the project shall provide for appropriate design of roadside and cross drainage systems, where necessary, to avoid flooding on project roads as well as in areas surrounding the road embankment. The road embankment, bridges and drainage facilities shall be designed informed of the above. Erosion control and slope stabilization measures shall be included in the design, as appropriate, such as side ditches, berms, stone ripraps, and gabions along the road, tree planting in areas of high erosion risk, cross drainage to accommodate floodwater/run-off in case road sections are on elevated fills that will obstruct natural drainage.

3. Unexploded Ordnance

96. Land mine or UXO risk is widespread in Cambodia including the provinces in which the proposed project roads will be conducted. The works are to upgrade existing roads without widening. Nevertheless, a risk remains since there may be deep seated anti-tank mines that could be exploded by heavy construction equipment and shallow ordnance may be uncovered during the works. For replacement of bridges and drainage structures, these threats are increasing as many of UXO are moved along rivers and streams during flooding time. The DDIS consultant shall engage an UXO Specialist to determine the level of risk for each of the project roads, and advise on the need for clearance. Any clearance that is required will be undertaken through the civil works contracts, by the engagement of qualified local UXO clearance firms. The contractor shall only commence site works after the UXO clearance firm has certified that areas are already cleared.

4. Grievance Redress Mechanism

97. During site preparation and construction phases, there may be complaints related to the environmental performance of the project. To ensure that there will be a mechanism to resolve such complaints, MRD shall undertake the following prior to start of site works:

(i) establish a project specific grievance redress mechanism (GRM)
(ii) make public the existence of the GRM through public awareness campaigns
(iii) ensure that names and contact numbers of representatives of MRD and contractors are placed on the notice boards outside the construction site and at local government offices (e.g. provincial and commune levels) and affected villages.

98. More details are given in Section VII.

5. Updating of the Initial Environmental Examination (IEE) and Environmental Management Plan (EMP)

99. The IEE and EMP for the project will be updated following completion of detailed design to ensure any changes are reflected and addressed. The updated IEE and EMP will be approved by ADB and disclosed on the website prior to bidding. The EMP will be included in the bid documents. The EMP specifies the requirements for Contractors to develop CEMP based on the updated EMP. The CEMPs shall contain the site-specific mitigation plans and monitoring requirements for each construction package. The CEMP shall address requirements that includes location of project facilities such as construction camps, batching plants, borrow areas, quarries, disposal sites, and sensitive receptors. Updating the EMP involves finalization of the mitigation plans to manage potential impact concerns such as erosion, sedimentation of surface waters, noise, dust and air quality, spoil disposal, traffic, and worker and public safety at the project sites among others.

6. Encroachment on Historical/Cultural Areas

100. The Project involves the permanent sealing of existing alignments and none of the project road alignments will be widened or adjusted. Therefore, impacts to cultural relics are not anticipated.

7. Impacts on other Sensitive Receptors

101. The project will impact environmentally sensitive receptors along almost all of the 22 existing roads proposed for DBST improvement. A total of 68 pagodas/places of worship, 46 schools, and 12 hospitals/clinics together with the villages are located along each of the existing road alignments as shown in Table 6.

Table 6: Distribution of Other Sensitive Receptors by Province

Province	Number Roads	Number of Sensitive Receptors[32]		
		Pagodas	Schools	Hospitals/Clinics
Kampong Cham	6	21	8	1
Tboung Khmum	5	10	9	5

[32] In addition to residences in villages dispersed along each of the existing roads.

Province	Number Roads	Number of Sensitive Receptors[32]		
		Pagodas	Schools	Hospitals/Clinics
Prey Veng	5	15	13	3
Svay Rieng	5	20	13	2
Kratie	1	2	3	1
Total	22	68	46	12

Source: DDIS Feasibility Study Engineering Surveys, 2017.

102. The chainage locations of each of these receptors along each roads can be found in Appendix 2 of this report. These sensitive receptors together with the villages along the route are anticipated to be subjected to various kinds of impacts during the construction phase. It is important therefore that during the detailed engineering phase, the horizontal and vertical alignments of each of the roads and the roads' embankments and shoulders, and appurtenant cross-drainage/drainage structures are appropriately located within the existing right-of-way (ROW) to avoid or minimize dislocation of existing structures (such as fences) of these receptors. The IEE and EMP will be updated based on the detailed engineering design and will prescribe specific measures in respect of identified sensitive receptors, which the Contractor will further develop in the site-specific CEMP. Civil works activities shall be scheduled taking account of site specific information on sensitive receptors such as worship (for Pagodas), examination, start/finish (for school) schedules to avoid or minimize disruption and disturbance of key activities. Specific mitigation measures for these receptors are integrated in the discussions below.

8. Disruption to Community Utilities

103. Although the project will not require road widening, some of the site works may require relocation of some utilities. To ensure that there will only be minimal interruptions to affected utilities, the contractor shall re-provision water supply pipelines, irrigation canals and other facilities such as telecommunication and power lines prior to commencement of site works. This will be done in agreement with the local community and the utility management authorities /company.

9. Impacts on Vegetation (Trees and Plants)

104. The Project should also highlight the impacts that may have on privately-owned trees and plants that maybe cut down together with the corresponding mitigation measures in place. Impacts to vegetation have not yet been determined as of this preparatory phase of the project. These will be known with clarity during the detailed engineering design, and actual construction when earthmoving works will commence. Privately owned trees shall be compensated following the entitlement matrix in the Community Participation Framework (February 2018). Compensatory planting shall be required for publicly-owned trees along the ROW. During the detailed engineering design, the bill of quantities for this cost line item shall form part of the contract documents for each of the contract packages that will be tendered.

B. Construction Phase

1. Encroachment/Damage to Culturally Significant, and Ecologically Protected Areas

105. The Project will involve improvements to existing roads by paving with DBST without widening or realignment. There are no roads that are identified to be in culturally protected areas.

106. However, in the event any construction works uncover or reveal archaeological relics along any of the project roads, these shall be deemed a “chance find” and reported as such to the Ministry of Culture and Fine Arts (MCFA). All work on the site must stop until MCFA issues a statement that work may be resumed.

2. Air Quality Impacts

107. Dust from currently unpaved project roads is a major nuisance for roadside residents, especially those in built-up areas. However, during construction the dust nuisance is likely to be greater and people who suffer from upper respiratory illnesses in settlements contiguous to the project roads are likely to experience greater levels of discomfort than would normally be the case during the hot, dusty times of the year. However, this impact is considered temporary and the project will have positive impacts on the quality of life of roadside residents as it will result in significant reduction in dust after completion of the project. During construction, air pollution sources are dust due to earthworks and stockpiling, extraction of fill materials and transport of construction materials such as earth, stone, gravel, sand, and cement; as well as gaseous emissions from construction equipment, vehicles and asphalt mixing plants; extraction of fill materials; etc. Quarries, spoil disposal, and borrow areas shall be identified by the Contractor during the preparation of the Contractor Environmental Management Plan and all necessary approvals obtained prior to civil works. These impacts, however, are considered temporary and localized. Improved air quality due to considerable reduction of dust levels during operation phase is anticipated. The following mitigation measures shall be implemented by the contractors to minimize impacts to air quality:

(i) Construction equipment will be maintained to a good standard. Immediate repairs of any malfunctioning construction vehicles and equipment shall be undertaken.
(ii) Equipment and vehicles not in use shall be switched off.
(iii) Machinery and vehicles causing excessive pollution (e.g., visible smoke) will be banned from construction sites.
(iv) All construction equipment and vehicles shall have valid certifications indicating compliance to vehicle emission standards.
(v) Siting of bitumen plants, concrete mixing plants, crushing plants, quarries and other facilities that cause high dust and/or gaseous emissions should be at least 500 m from settlements and other sensitive receptors (schools, hospitals, etc.).
(vi) Necessary environmental clearance/approval shall be obtained prior to establishment and operation of asphalt mixing plants, crushing plants and other facilities. Contractor(s) are encouraged to use existing areas and facilities for such purposes whenever possible.
(vii) On rainless day undertake watering, at least twice per day (adjust according to conditions, e.g. if significant dust generation or wind), on dusty and exposed areas at construction yards, materials stockpile, construction sites, access roads, quarry areas, borrow sites and other project areas where residential sites and other sensitive receptors are located nearby.
(viii) Tightly cover trucks transporting construction materials (sand, soil, cement, gravel, etc.) to avoid spills and dust emission.
(ix) Impose speed limits on construction vehicles to minimize dust emission along areas where sensitive receptors are located (houses, schools, hospitals, temples, etc.).
(x) Position any stationary emission sources (e.g., portable diesel generators, compressors, etc.) as far as is practical from sensitive receptors;
(xi) Burning of wastes generated at the construction sites, work camps and other project- related activities shall be strictly prohibited.

(xii) Provide temporary covers (e.g., tarpaulins, grass, etc.) on long term materials and spoils stockpiles.
(xiii) Clean road surfaces of debris/spills from construction equipment and vehicles.
(xiv) Install temporary fencing or barriers around particularly dusty activities in vicinity of sensitive receivers.
(xv) Locations for stockpiling spoils, fill and other materials with high dust content shall be at least 500 m from the nearest residential areas and other sensitive receivers.

3. Noise and Vibration Impacts

108. Elevated noise and vibration levels are likely to be experienced during construction phase due to site works and operation of various equipment and vehicles, particular care should be taken to avoid adverse impacts on noise sensitive receptors. To minimize noise and vibration impacts, the following measures shall be implemented by the contractor:

(i) No noisy construction-related activities (e.g., transport of materials along residential areas and other sensitive receptors, piling, use of jackhammer, etc.) will be carried out from 2100 hours to 0600 hours along residential areas, hospitals, schools and other sensitive receptors.
(ii) Noisy construction activities will be avoided during religious or cultural events in close proximity to the roadside such as Friday prayers attended by Muslim Cham, when ethnic Khmer are attending temple festivals or holding weddings, etc.
(iii) All construction equipment and vehicles shall be well maintained, regularly inspected for noise emissions, and shall be fitted with effective muffler and other appropriate noise suppression equipment consistent with applicable national and local regulations.
(iv) Use only vehicles and equipment that are registered and have necessary permits. Truck drivers and equipment operators shall avoid, as much as possible, the use of horns in densely populated areas and where there are other sensitive receptors found such as schools, temples, hospital, etc. are located.
(v) Impose speed limits on construction vehicles to minimize noise emission along areas where sensitive receptors are located (houses, schools, temples, hospitals, etc.).
(vi) Provide temporary noise barriers (3–5 meter high barrier can reduce 5–10 dB(A)), as necessary, if site works will generate high noise levels that could disturb nearby households, hospital, school and other sensitive receptors.
(vii) Avoid noisy construction activities in vicinity of sensitive receivers during night time or other sensitive periods (e.g. during school hours in vicinity of schools)
(viii) Truck drivers and equipment operators shall avoid the use of horns
(ix) Restrict use of vibrating rollers and operation of heavy equipment near vibration sensitive structures

4. Construction and Domestic Waste

109. Various construction activities and operation of workers camps will generate solid wastes. Poor waste management could cause odor and vermin problems, pollution and flow obstruction of nearby watercourses and could negatively impact the landscape. The following mitigation measures to minimize impacts due to waste generation shall be implemented by the contractor:

(i) Segregate and regularly collect wastes at worker camps and offices.
(ii) Construction/workers' camps shall be provided with garbage bins with covers.
(iii) Prohibit disposal of solid wastes into canals, rivers, other watercourses, agricultural fields and public areas.

(iv) There will be no site-specific landfills established by the contractors. All solid waste will be regularly collected and removed from the work camps and disposed to areas approved by local authorities.
(v) Prohibit burning of construction and domestic wastes.
(vi) Recyclables shall be recovered and sold to recyclers.
(vii) Residual and hazardous wastes shall be disposed of in disposal sites approved by local authorities.
(viii) Ensure that wastes are not haphazardly dumped within the project site and adjacent areas.

5. Establishment and Operation of Construction and Workers Camps

110. There will be a need to establish workers camps during construction. The operation of these facilities will generate wastes and if improperly handled, these could cause health problems and pollution. The following mitigation measures shall be implemented by the contractor to minimize impacts that may arise from operation of construction/workers camps:

(i) Workers camp location and facilities shall be located at least 500 m from settlements and agreed with local communities and local officials.
(ii) Drainage shall be provided to facilitate the rapid removal of surface water from all areas and prevent flooding and accumulation of stagnant water.
(iii) Provide adequate housing for all workers at the construction camps and establish clean canteen/eating and cooking areas.
(iv) Portable lavatories (or at least pit latrines in remote areas) shall be installed and open defecation shall be prohibited and prevented by cleaning lavatories daily and by keeping lavatory facilities clean at all times.
(v) Provide separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers.
(vi) Wastewater effluents from contractors' workshops and equipment washing-yards will be passed through gravel/sand beds and all oil/grease contaminants will be removed before wastewater is discharged. Oil and grease residues shall be stored in tightly covered drums. Such wastes shall be disposed consistent with national and local regulations.
(vii) Construction/workers camps shall be cleaned up after use to the satisfaction of MRD/SEO/DDIS and local community. All waste materials shall be removed and disposed to disposal sites approved by local authorities.
(viii) Land used for campsites shall be restored to the original condition as far as practicable and the area shall be planted with appropriate trees/shrubs as soon as practicable after it is vacated and cleaned.

6. Quarry and Borrow Sites

111. The following measures shall be implemented at quarry and borrow sites to minimize impacts on water quality, reduce dust emission during transport, minimize erosion and siltation of nearby water courses and avoid damage to productive land and ecologically sensitive areas:

(i) Sourcing of quarry and borrow materials from existing licensed sites shall be preferred over establishment of new sites, as much as possible.
(ii) Quarries and borrow pits shall not be established in national, provincial, district and village conservation forests and other ecologically sensitive and protected areas.
(iii) Borrow/quarry sites shall not be located in productive land.
(iv) In case the Project will involve new quarry/borrow sites/spoil disposal sites, environmental assessment and approvals will be needed from provincial

Departments of Environment and prior to operation of such sites. ADB should also be notified in case there is a need to update the IEE/EMP. Such sites shall be located over 500 m away from residential, school, hospital and other sensitive receptors.

(v) Prior to extraction, topsoil (about 15 cm) shall be stockpiled, preserved and then refilled after completion of quarry/borrow pit operation for rehabilitation purposes after excavation is over.

(vi) Dust control during excavation and transport (e.g., water spraying on access roads and provision of truck cover) shall be undertaken in areas where there are sensitive receptors such as residential areas, school, hospital, etc.

(vii) Long-term material stockpiles shall be covered to prevent wind erosion.

(viii) During quarry and borrow site operation, provide adequate drainage to avoid accumulation of stagnant water.

(ix) The use of river bed sources shall be avoided, as much as possible. However, if this is unavoidable, the contractor shall minimize use and avoid small rivers and streams. Alluvial terraces or alluvial deposits which lie on the river beds but not covered by water in normal hydrological conditions shall be preferred. Extraction of these materials if necessary, shall have prior approval from MRD, MOE and provincial authorities.

(x) Confine quarrying of river bed materials to less than 20% of river width in any location and keep away from river banks. Extraction of materials shall have prior approval from MRD, MOE and relevant provincial authorities.

(xi) Protect and reinstate river banks if unexpected erosion occurs.

(xii) Quarry and borrow sites must be selected amongst those offering the highest ratio between extractive capacity (both in terms of quality) and loss of natural state.

(xiii) Quarry and borrow sites lying close to the alignment, with a high level of accessibility and with a low hill gradient, are preferred.

(xiv) Upon completion of extraction activities, re-contour borrow/quarry pit wall or fill-up when there are available and suitable materials such as excavation spoils, replace topsoil, and re-vegetate with native species such as grasses and fast- growing shrubs and trees. The Contractor restoration plan shall be submitted as part of the CEMP that shall be approved by MRD and the ADB.

(xv) Upon completion of extraction activities, borrow pits shall be dewatered and fences shall be installed, as appropriate, to minimize health and safety risks.

(xvi) In quarries located in mountainous or hilly areas, or wherever slopes are important, terraces shall be cut after extraction, and drainage system and vegetation cover shall be provided for rehabilitation to enhance slope stability.

(xvii) Implement compensatory planting (at least one to one ratio) if trees will have to be removed at quarry and borrow sites.

(xviii) Borrow pits will be left in a tidy state with stable side slopes and proper drainage in order to minimize soil erosion, siltation of nearby bodies of water and to avoid creation of water bodies favorable for mosquito breeding. The CEMP shall provide for the restoration and planting for borrow pits and spoil disposal areas.

(xix) To avoid or prevent people from drowning when pits become water-filled, measures such as fencing, providing flotation devices such as a buoy tied to a rope, etc. shall be implemented.

(xx) It is possible that villagers may request borrow pits to be left excavated so that they may be used as water reservoirs or fishponds. If this were to be agreed between the contractors and the villagers, all the full safety measures detailed above must be observed. Such agreements would be formalized in writing between the contractors and the villagers after full discussion with all concerned parties.

7. Solid Waste Management and Use of Hazardous Substances

112. Solid wastes will be generated during the construction activities. To properly manage this impact, the following measures shall be complied by the contractor:

- Prohibit disposal of solid wastes into canals, rivers, other watercourses, agricultural field and public areas, and ensure that wastes are not haphazardly dumped within the project site and adjacent areas.
- .There will be no site-specific landfills established by the contractors. All solid waste will be regularly collected and removed from the work camps and disposed to areas approved by local authorities.
- Prohibit burning of construction and domestic wastes.
- Recyclables shall be recovered and sold.
- Residual and hazardous wastes shall be disposed of in disposal sites approved by local authorities.
- Segregate and regularly collect wastes at worker camps and offices.
- Construction/workers' camps shall be provided with garbage bins

113. Pollution and safety risks due to use of hazardous materials and disposal of hazardous wastes shall be prevented through implementation of the following mitigation measures by the contractor:

(i) Store fuel and hazardous substances and wastes on bunded paved area with roof and interceptor traps so that accidental spills do not contaminate the environment. If spills or leaks do occur, undertake immediate clean up.

(ii) Train relevant construction personnel in handling of fuels and other hazardous substances as well as spill control and clean-up procedures.

(iii) Ensure availability of spill clean-up materials (e.g., absorbent pads, etc.) specifically designed for petroleum products and other hazardous substances where such materials are being stored.

(iv) Segregate hazardous wastes (oily wastes, used batteries, fuel drums) and ensure that storage, transport and disposal shall not cause pollution and shall be undertaken consistent with national and local regulations.

(v) Store waste oil, lubricant and other hazardous materials and wastes in tightly sealed containers to avoid contamination of soil and water resources.

(vi) Ensure all storage containers of hazardous substances and wastes are in good condition with proper labeling.

(vii) Regularly check containers for leakage and undertake necessary repair or replacement.

(viii) Store hazardous materials above flood level.

(ix) Storage areas for fuel, oil, lubricant, bitumen and other hazardous substance will be located at least 100 m away from any watercourses.

(x) Storage, transport and disposal of hazardous wastes, including spill wastes, shall be consistent with national and local regulations.

(xi) Wherever possible, refueling will be carried out at a fuel storage area.

(xii) Refueling shall not be permitted within or adjacent to watercourses.

(xiii) Where significant amount of oily wastewater or spill/leakage of oil and grease may occur (e.g., equipment maintenance areas), drainage leading to an oil- water separator shall be provided for treatment of wastewater. The oil-water separator shall be regularly skimmed of oil and maintained to ensure efficiency.

(xiv) Vehicle maintenance and refueling will be confined to designated areas in construction sites designed to contain spilled lubricants and fuel.

(xv) Bitumen shall not be allowed to enter either running or dry streambeds and nor will be disposed of in ditches or small waste disposal sites prepared by the contractor.

(xvi) Bitumen storage and mixing areas as well as storage areas for other petroleum products used in the preparation of the bitumen mixture shall be protected against spills and all contaminated soil must be properly handled according to national and local regulations. As a minimum, these areas must be provided with concrete flooring and surrounded by an embankment to readily contain and clean-up spills.

(xvii) Adequate precaution will be taken to prevent oil/lubricant/hydrocarbon contamination of channel beds. Spillage if any will be immediately cleared with utmost caution to leave no traces.

(xviii) All areas intended for storage of hazardous materials will be quarantined and provided with adequate facilities (e.g., firefighting equipment, sorbent pads, etc.) to combat emergency situations complying with all the applicable statutory stipulation.

8. Blasting

114. Blasting is not anticipated to be undertaken for the project. However, in case this becomes necessary, the following measures shall be implemented by the contractor to ensure safety of workers and the public:

(i) Blasting within 500 m of residences will be carried out only with permission of the concerned authority and the community and after conducting a condition survey of the immediate surroundings especially in regard to the nearest sensitive receptors, using a pre-established schedule.

(ii) All the statutory laws, regulation, rules etc., pertaining to acquisition, transport, storage, handling and use of explosives will be strictly followed.

(iii) The timing will be made available to the local people within 500 m of the blasting site in all directions, depending on the total charge used.

(iv) Under no circumstance will blasting be undertaken at night.

(v) Where possible blasting mats will be used to reduce flying rock.

(vi) No blasting will take place without a condition survey of any buildings within 500 m and permission and monitoring by the DDIS.

(vii) People living near blasting sites will be informed of blasting times prior to the blasting.

(viii) Warning sirens will be sounded before blasting.

(ix) Pre-splitting (controlled blasting technique) shall be undertaken.

(x) Where the vibration from blasting is exceeding the maximum permissible level, or damage occurs to local property, information from the blasting shall be used to modify blasting patterns and calculate a reduced charge for future blasts. Damaged properties shall be compensated following the replacement cost outlined in the Community Participation Framework. Complaints of damages shall be managed through the project Grievance Redress Mechanism (GRM) that will be established prior to construction. The Contractor shall incorporate this GRM in their CEMP.

(xi) Blasting shall be under careful and strict management/supervision of properly trained and licensed personnel. Workers at blasting sites will be trained prior to blast operations and provided with safety equipment and earplugs.

(xii) Observe proper warning and precautionary measures to ensure safety of residents, pedestrians, motorists and structures during blasting.

(xiii) All expenses/costs to address injuries, damage to properties, accidents, etc. due

to blasting shall be assigned to the contractor.

9. Excavation Spoils

115. Improper spoil disposal could cause deterioration of water quality and flow obstruction of water courses. The following measures shall be implemented by the contractor to avoid or minimize such impacts.

(i) Provide grass cover and other suitable slope stabilization measures on road embankment slopes and on long term stockpile of spoils.

(ii) Spoil disposal shall not cause sedimentation and obstruction of flow of watercourses, damage to agricultural land and densely vegetated areas. As several of the roads pass very close to rice paddies, and in fact the road shoulder is contiguous with the rice fields, excess spoil shall not be dumped on rice production land, either temporarily or permanently. If temporary storage space is needed, then work should take place alternately on opposite traffic lanes.

(iii) The spoils disposal site shall be located at least 50m from surface water courses and shall be protected from erosion by avoiding formation of steep slopes, provisions of adequate drainage and grassing.

(iv) Spoils shall only be disposed to areas approved by local authority.

(v) Water courses (rivers, canals, etc.) shall be kept free of excavation spoil and construction debris, floating and submerged.

(vi) Spoil and construction materials stockpile area shall be located away from water stagnation and under no circumstances will these materials be dumped into watercourses.

(vii) Dredged and excavated materials shall be reused or provided to local residents as soon as possible, if they require such materials, for land reclamation. The remaining spoils can be disposed into low elevation sites for road construction.

10. Bridge Works

116. The following measures shall be undertaken by the contractor during bridge repair or replacement to protect water quality and river/stream flow:

(i) Rocks, stones, soil and other materials shall not be dumped onto rivers and streams.

(ii) Ensure bridge works shall not cause obstruction of river flow and flooding of adjacent area.

(iii) At bridge repair and demolition sites, the bridge structure will not be dropped into the river but alternative means will be used to avoid "dropping the bridge" into rivers/streams. This shall be done by "sawing" appropriate sections of the bridge and using cranes to lift these sections away or alternatively by construction of a platform onto which the bridge could be lowered.

(iv) Cofferdams, silt fences, sediment barriers or other devices will be used as appropriate based on the design to prevent migration of silt during excavation and boring operations within streams. If cofferdams are used, these will be dewatered and cleaned to prevent siltation by pumping from cofferdams to a settling basin or a containment unit.

(v) Exposed surfaces shall be provided with native grasses and creepers to reduce runoff as early as possible in construction.

11. Damage to Community Facilities

117. Transport of materials and spoils, operation of construction equipment and various construction activities may damage community facilities. The contractor shall implement the following measures to address this impact:

(i) The contractor shall not allow overloading of trucks used for all project-related activities.

(ii) The contractor shall immediately repair any damage caused by the Project to community facilities such as water supply, power supply, irrigation canals, drainage and the like. Adequate compensation shall be paid to affected parties, as necessary.

(iii) Access roads damaged during transport of construction materials and other project- related activities shall be reinstated upon completion of construction works.

(iv) All affected communities will be made aware of the project grievance redress mechanism and will be provided information in advance on construction activities that may cause public nuisance and disturbance.

12. Water Quality and Drainage in Contractor Campsites and during Civil Works Activities

118. Contractor campsites, bridge works, stockpiling of construction materials and spoils, use of hazardous materials and earthworks if not properly managed are likely to cause deterioration of surface water quality, flooding and flow obstruction of watercourses. These impacts shall be minimized through implementation by the contractor of the following measures:

(i) Camp wastewater shall be fully treated first before discharged to adjacent or nearby waterbodies;

(ii) Firmly consolidate river banks using stones, concrete and other suitable retaining measures at each bridge construction site and ensure that water courses (rivers, canals, etc.) shall be kept free of excavation spoil and construction debris, floating and submerged.

(iii) Spoils, construction wastes and construction materials stockpile area shall be located away from water bodies and under no circumstances will these materials be dumped into watercourses.

(iv) Do not fill up canals and creeks at the construction site. In case filling of local drainage system is necessary, consultation with local authorities shall be undertaken and their permission obtained beforehand. An alternative drainage shall be established before the existing canal is filled-up.

(v) Prohibit placement of construction materials, waste storage areas or equipment in or near drainage channels and water courses.

(vi) Discharge of oily wastewater, fuel, hazardous substances and wastes, and untreated sewage to watercourses/canals and on the ground/soil shall be prohibited.

(vii) Provide adequate drainage at the construction sites and other project areas to avoid flooding of surrounding areas and minimize flow obstruction of existing watercourses.

(viii) Regularly inspect and maintain all drainage channels to keep these free of obstructions.

(ix) Slope stabilization measures (e.g., planting of fast growing native species of grass and shrubs, etc.) shall be implemented on exposed surfaces along river embankments to reduce material wash-away.

(x) Construct retaining structures such as gabion baskets, rip-rap, etc. for riverbank protection.

13. Traffic Disruption and Access Obstruction

119. Road construction works are expected to cause traffic disruption and congestion and obstruction of access to roadside properties and establishments. Lack of proper traffic warning signs and other safety measures (e.g., sufficient lighting at night at construction sites, etc.) could cause accidents. The following measures shall be implemented by the contractor to minimize such impacts:

(i) In cooperation with the local traffic authorities, properly organize transport of materials for the project to avoid congestion.
(ii) Set up clear traffic signal boards and traffic advisory signs at the roads going in and out the road and bridge construction sites to minimize traffic build-up.
(iii) Regularly monitor traffic conditions along access and Project roads to ensure that project vehicles are not causing congestion.
(iv) Provide sufficient lighting at night within and in the vicinity of construction sites.
(v) Implement suitable safety measures to minimize risk of adverse interactions between construction works and traffic flows through provision of temporary signals or flag controls, adequate lighting, fencing, signage and road diversions.
(vi) Provide temporary accesses to properties and establishments affected by disruption to their permanent accesses.
(vii) Reinstate good quality permanent accesses following completion of construction.
(viii) Provide safe vehicle and pedestrian access around construction areas.
(ix) Provide adequate signage, barriers and flag persons for traffic control.
(x) If necessary, traffic will be diverted for safe and smooth movement of vehicles to ensure smooth traffic flow and minimize accidents, traffic hold ups and congestion.
(xi) The diversion signs would be bold and clearly visible particularly at night.
(xii) Temporary by-passes will be constructed and maintained (including dust control) during the construction period particularly at bridge crossings. Location of temporary bypasses shall be agreed with local authorities and such sites shall be reinstated upon completion of works.

14. Soil Erosion

120. The following measures shall be implemented by the contractor to minimize soil erosion that could eventually cause damage to road embankments and deterioration of water quality of nearby river and streams:

(i) On hill slopes and other potentially erodible places along the roadside, appropriate native vegetation that retards erosion will be planted.
(ii) As much as possible, construction activities in hilly areas are to be undertaken during dry season only.
(iii) Road embankments and slopes shall be monitored during construction for signs of erosion, vegetative cover shall be provided on slopes by planting native grass and creepers on erosion prone sections.
(iv) Long-term material stockpiles will be covered with native species of grass or other suitable materials to prevent wind erosion.
(v) Use appropriate erosion control and stabilizing measures such as benching, geotextiles, mats, fiber rolls, soil binders, etc. that are not toxic to the environment, or vegetation measures/temporary landscaping in disturbed areas and on graded slopes.

15. Flora and Fauna

121. As the Project will not involve road widening, only minimal vegetation clearing is expected. However, operation of construction equipment and vehicles as well as improper disposal of spoils may cause damage to existing vegetation. Hunting of wildlife and cutting of trees for fuel may not be undertaken by workers and strict prohibitions should be imposed by the contractor.

(i) Spoils and all types of wastes shall not be dumped into forested areas, agricultural land, densely vegetated areas, and water courses.

(ii) Workers shall be prohibited cutting of trees for firewood and for use in construction-related activities and from hunting wild animals. Contractors for KSP2 will be made aware of the presence of the Phnom Aural Wildlife Sanctuary 1km away.

(iii) As the project will not require road widening, ensure that construction works are carried out without unnecessary clearing of roadside vegetation.

(iv) Construction vehicles will operate within the corridor of impact, i.e., approximately within ROW, to avoid damaging soil and vegetation. It will be most important to avoid soil compaction around trees. Generally, the rule will be to avoid driving heavy equipment or trucks anywhere into the 'drip-line' of a tree (defined as imaginary line around a tree where rainwater falls freely to ground unimpeded by the tree's foliage).

(v) The contractor will not use or permit the use of wood as a fuel for the execution of any part of the Works, including but not limited to the heating of bitumen and bitumen mixtures, and to the extent practicable shall ensure that fuels other than wood are used for cooking, and water heating in all his camps and living accommodations.

(vi) Contractor shall not buy or use wood from the illegal sources (that come from the illegal logging)

(vii) Construction camps, asphalt mixing plants, material storage sites and other project facilities shall not be located in the wildlife sanctuary, forest areas and other densely vegetated sites.

(viii) Contractor will take all precautions necessary to ensure that damage to vegetation is avoided due to fires resulting from execution of the works. The Contractor will immediately suppress the fire, if it occurs, and shall undertake replanting to replace damaged vegetation.

(ix) As much as possible, bridge works will be scheduled in dry season to minimize adverse impacts to fishery, river water quality and other aquatic resources.

16. Health and Safety

122. The main risks during the construction stage may arise from: (a) inadequate sanitation facilities in work camps; (b) failure to implement measures to avoid accidents and injuries involving workers and the public; (c) introduction of sexually transmitted or other diseases by non-local workers, and; (d) outbreaks of diseases such as malaria, diarrhea, etc. in the labor force. In order to minimize these risks, the following measures shall be implemented by the contractor:

(i) Appoint an Environmental Health and Safety Officer (EHSO) who shall be responsible for training, monitoring and reporting on EHS concerns and implementation of CEMP.

(ii) Conduct orientation for construction workers regarding emergency response procedures and equipment in case of accidents (e.g., head injury from falling, burns from hot bitumen, spills of hazardous substances, etc.), fire, etc.; health and safety measures, such as on the use of hot bitumen products for paving of project

roads, etc.; prevention of HIV/AIDS, malaria, diarrhea, and other related diseases.

(iii) Provide drainage at construction sites and workers camps to prevent water logging/accumulation of stagnant water and formation of breeding sites for mosquitoes.

(iv) Provide fire extinguish equipment and appropriate emergency response equipment (based on on-going construction activities) at the work areas and at construction and workers camps.

(v) Provide first aid kits at each camp and working sites that are readily accessible by workers. In addition, the contractor shall prepare emergency procedures detailing arrangements with commune health center(s) or nearest hospital(s) to accommodate emergency cases from the work location.

(vi) At the workers camps, provide adequate housing for all workers at the construction camps, provide reliable supply of potable water, install separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers and establish clean eating areas and kitchen.

(vii) Provide workers with appropriate safety equipment/devices (such as dust mask, safety helmets, safety shoes or boots, goggles, ear plugs, etc.) and strictly require them to use these as necessary.

(viii) Install sign boards, lighting system at the construction sites, borrow pits, or places which may cause accidents for vehicle, people and workers

(ix) Strictly impose speed limits on construction vehicles along residential areas and where other sensitive receptors such as schools, pagodas, hospitals, and other populated areas are located.

(x) Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials by providing covers over transporting dump trucks.

(xi) Barriers (e.g., temporary fence) shall be installed at construction areas to deter pedestrian access to these areas except at designated crossing points.

(xii) Sufficient lighting at night as well as warning signs shall be provided in the periphery of the construction site.

(xiii) The general public/local residents shall not be allowed in high-risk areas, e.g., excavation sites and areas where heavy equipment is in operation.

(xiv) Ensure proper collection and disposal of solid wastes within the construction camps consistent with local regulations.

(xv) Provide fencing on all areas of excavation greater than 2 m deep.

(xvi) Ensure reversing signals are installed on all construction vehicles.

(xvii) Measures to prevent malaria shall be implemented (e.g., provision of insecticide treated mosquito nets to workers, spraying of insecticides, installation of proper drainage to avoid formation of stagnant water, etc.).

(xviii) Discharge of untreated sewage shall be prohibited.

17. Social Conflicts

123. The presence of workers could cause conflicts with local communities. These will be avoided by implementing the following measures:

(i) Regularly inform in advance the local officials and affected residents of the location and schedule of construction activities which may cause impacts on the environment and life of people (e.g., road sections to be constructed; roads used for transport, locations of worker camps etc.)

(ii) Locate construction camps away from communities (at least 500 m away) in order to avoid social conflict in using resources and basic amenities such as water

supply.
(iii) Maximize number of local people employed in construction works.
(iv) Maximize goods and services sourced from local commercial enterprises.

18. Mitigation Measures at Completion Stage

124. The contractor shall comply with contractual obligations in respect of:
(i) Clean up and restoration of each site of general wastes and construction debris, unserviceable equipment, dismantling of contractor camp, proper removal of used oils and lubricants, etc.
(ii) Disposal of dug dirt and rock fragments scattered along the built roads.

125. These requirements shall be addressed in the contractor restoration plan as part of the CEMP.

C. Operation Phase

1. Air Quality and Noise

126. Dust from the currently unpaved project roads is a major nuisance for roadside residents, especially those in built-up areas. The Project will have positive impacts on the quality of life of roadside residents as it will result in a significant reduction in dust and to a lesser extent noise. In addition, with the improved road surface, there will be improved driving efficiency; reduced GHG and pollutant emissions. Measures such as providing signs prohibiting drivers from blowing horns alongside schools, hospitals and other areas with sensitive receptors will help minimize noise from vehicles. Imposition of speed limits in such areas would further reduce noise levels.

2. Road Safety[33]

127. Increased traffic speeds resulting from improved paved road surfaces, can also impose considerable safety risks to rural communities. The project includes a community- based road safety program to increase safety awareness. The program includes education program for schools, drivers, road users, and the community. During operation, traffic signs, markings and other devices used to regulate traffic at appropriate places shall be properly maintained.

128. During project implementation, SEO will monitor the location and collect information from the communities as well as other stakeholders. SEO will also consult commune chiefs, police, commune elders, and monks in nearby pagoda for collecting crash data/locations, consultations and request support for the proposed road safety activities: (i) initiating road safety education program targeting tourists to be implemented at site; (ii) banning alcohol consumption at site and en-route, if necessary declaring the entire zone a religious area free of alcohol; (iii) post information boards at site and en-route regarding intoxication prohibition, and possible impacts to self and family; and (iv) organize surprise visits by priests, elders, police, commune leaders, etc. to socially enforce compliance of tourists in anti-alcohol ethics.

129. The SEO will also establish a social media website within MRD website to focus on the safety issue of this location to attract attention of stakeholders, especially mothers and spouses of potential violators, to encourage compliance for anti-drink drive behavior.

[33] Additional mitigation measures discussed from paras 137 to 139 based on ADB recommendation.

VI. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

130. The MRD invited the PDRD in each of the project provinces to identify the rural roads to be prioritized for improvement of pavement. PDRD consulted with both district level officials and elected members of Commune Councils in those districts selected to be included in this project. Commune Council members who also have links with village leaders informed the PDRDs and sought their opinions, which in most instances were relayed to both district level officials and PDRD. During the feasibility study by the DDIS Consultants, the consultants also disclosed to local people identified to be interviewed on a household basis or invited to participate in focus group discussions (FGD) what the Project would entail and sought their opinion as to whether they would support the Project or not. This information disclosure took place along all the project roads that were surveyed during the socio-economic surveys (please refer to the PSA Report); and during the site visits of the DDIS Consultant Safeguard Specialists (International and National). Documentation of these can be found in Annex 4 of this IEE.

131. Socio-economic surveys and public consultations were undertaken on various dates from September to December 2017 during which 1,219 respondents and households were interviewed[34]. The discussions were semi structured and open ended. Respondents were invited to express their opinions on the following topics:

- Are you aware that the road in your commune/village will be improved?
- Are you in favor of the rural roads improvement project?
- what POSITIVE IMPACTS or benefits will the people/commune get from having improved roads?
- What do you think of women working in road construction?
- Is Dust during road construction an issue?
- Is Noise caused by machines/ equipment (i.e., bulldozers, etc.) an issue?
- Is an increase in road accidents in road sections without road signs/lights an issue?
- Does road experience flooding?

132. In general, the opinions expressed were consistent across all provinces:

- Noise is a problem during construction but if work at night is avoided and all reasonable efforts are made to control it, then given that the construction is temporary, noise is not a nuisance.
- Vibration was not seen as an issue.
- Dust during construction in the dry season is a problem. More water sprays are an effective control measure.
- Dust on roads in the wet season becomes mud and heavy vehicles and equipment of contractors break up the road surface and worsen the situation. Construction in the wet season should be avoided.
- Dust after the road is finished is not an issue as the DBST reduces dust generation.
- After the road is finished, vehicle speeds are expected to increase and local residents are concerned about traffic accidents.

133. Over 50 consultations were conducted by the social/gender, and environment specialists with various stakeholders for the period October to December 2017 with a total of 495 participants

[34] Inclusive of all done when the proposed RRIP III was still considering 66 roads for joint ADB and Korea EXIMBANK (EDCF) financing prior to this IEE revision.

including 200 (40.4%) female within the proposed project area[35]. Separate FGDs were conducted with women within the project area. The total number of ethnic minorities consulted in Themei commune, one commune with ethnic groups in Kratie province is 48 including 24 (50%) female. Likewise, a baseline social survey has been conducted in the project area with 1,219 households (including 541 or 44.40% female) respondents, who were also consulted about their perception on the project, how they will be benefited by the project and their concerns and recommendations related to the project[36].

134. Additional consultations were conducted by a team consisting of the ADB Safeguard Consultant, the MRD SEO and DDIS consultants on road sections in Kratie province (KRT1, KRT2 and KRT3) on 24-25 February 2018 as part of due diligence. A total of 57 (35 or 61.4% females) were consulted during this period, and of which 4 participants are Kuy indigenous peoples including ad village chief in Veal Sambou commune, Themie commune (Kratie province) where there are Kuy indigenous peoples living in the project area. Overall, the total number of people consulted is 1,771 (776 or 44.0% female).

135. More details are given in Appendix 4 – Consultation Documentation; and in Appendix 5 - Socio-economic Data.

136. This IEE and EMP as part of the disclosure requirements shall be made available before project appraisal, in an accessible place, and in a form and language understandable to project-affected people and other stakeholders as per ADB Public Communications Policy (2011).[37] These documents may be uploaded to the MRD website (http://mrd.gov.kh).

VII. GRIEVANCE REDRESS MECHANISM

137. The MRD, through a Grievance Redress Committee (GRC), shall promptly address affected people's concerns, complaints, and grievances about the Project's environmental performance at no costs to the complainant and without fear of retribution. The GRC, which shall be established before commencement of site works, shall be chaired by PMU to be assisted by the SEO. The GRC shall have members from the PDRD, commune councils, local NGO, and women's organization. Grievances can be filed in writing or verbally with the Contractor, or any member of the GRC. If the complaint is directly related to Contractor activities, a formal copy of the complaint or verbal complaint shall be provided to the Contractor who shall record such complaint(s) in a Complaints Register to be submitted as part of the monthly progress report. Contractor is expected to resolve construction-related complaints immediately and corrective action reported accordingly. Contractor shall designate a GRM focal point and provide names and contact numbers.

138. The GRM is in Flow Chart 1. The committee will have 15 days to respond with a resolution. If unsatisfied with the decision, the existence of the GRC shall not impede the complainant's access to the Government's judicial or administrative remedies or to ADB Resident Mission or Southeast Transport Division.

139. Generally, the GRM has four stages to resolve complaints/issues regarding RRIP III implementation. These are: Commune level, District level, Provincial level (GRC). However, as

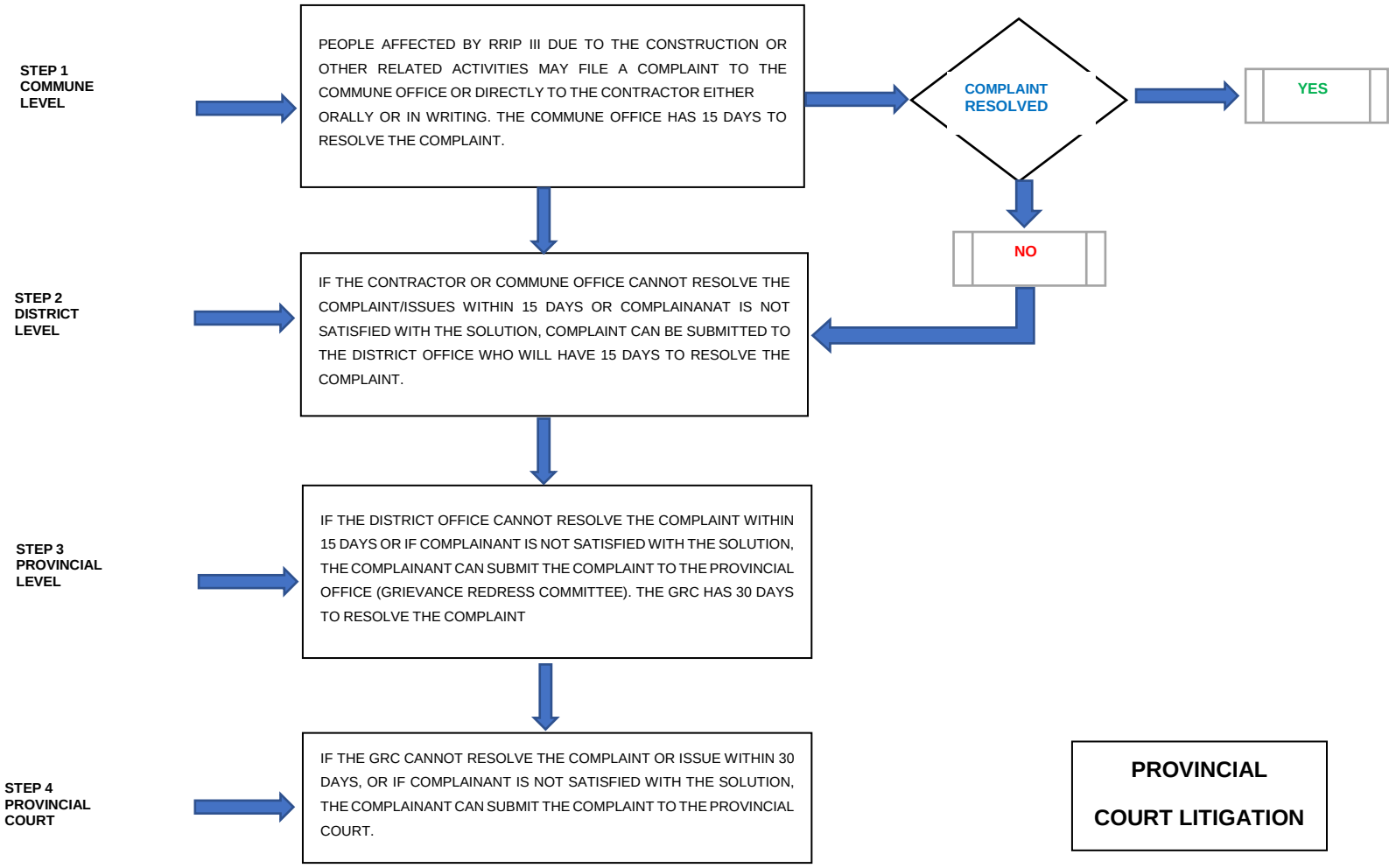
[35] Inclusive of all done when the proposed RRIP III was still considering 66 roads for joint ADB and Korea EXIMBANK (EDCF) financing prior to this IEE revision
[36] Poverty and Social Assessment Report, Feasibility Study, DDIS, March 2018 (Updated).
[37] https://www.adb.org/sites/default/files/institutional-document/32904/files/pcp-2011.pdf

mentioned above, complaints regarding contractor activities maybe also directly forwarded to the Contractor through its site staff who shall record and correct immediately to mitigate further nuisance along the road especially in sensitive receptors. Finally, if complaints are not resolved at the three levels or no solution is found at these stages, people can take the complaint to the Provincial Court or SETC/CARM and via the ADB Accountability Mechanism.[38]

140. The steps are illustrated in the flow chart below.

[38] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp.

Grievance Redress Mechanism Procedural Steps[39]



[39] Adopted from the Environment Impact Assessment Report and Environmental Management Plan for RRIP II-AF, June 2017. Submission of complaints under this GRM shall be at no cost to the complainant.

141. The PMU, through the PDRDs, shall make public the existence of this grievance redress mechanism through public awareness campaigns with flyers posted at the Provincial, District, Commune, and Contractor Site Offices. PMU shall also set-up a hotline for complaints and the hotline shall be publicized through the media and in flyers with names and contact numbers of the Contractor and the PMU placed on the notice boards outside the construction site, and at local government offices (e.g., provincial, district, commune levels) as was done for RRIP II. Locally affected people will still be able to express grievances through the commune councils and these would be referred to PMU through the usual channels in those committees.

142. The GRC, through the SEO, will receive, follow-up and prepare monthly reports regarding all complaints, disputes or questions received about the Project and corresponding actions taken to resolve the issues. The SEO will develop and maintain a database of complaints received related to the Project and will follow up with affected persons to ensure resolution is satisfactory.

143. The contractor will be required to disclose information on project activities in its project site offices, and maintain a dialogue with village representatives throughout works commence and maintain these discussions as an ongoing activity throughout the construction period.

VIII. ENVIRONMENTAL MANAGEMENT PLAN

144. This EMP sets out mitigation and monitoring measures to be taken during Project implementation to avoid, minimize (reduce), and mitigate adverse environmental impacts identified as part of this IEE.

A. Mitigation

145. Table 7 presents the environmental impacts and corresponding mitigation measures discussed in Chapter V. The table also shows responsibilities for implementation of mitigation measures and monitoring. MRD shall ensure that the EMP is included in the tender and contract documents for civil works. The conformity of contractors with environmental contract procedures and specifications shall be regularly monitored by the project management unit (PMU) through the SEO which is already established in MRD.

146. The PMU/SEO shall be assisted by the DDIS consultant to undertake EMP monitoring and to prepare corresponding semi-annual monitoring reports for submission to ADB and the Ministry of Environment for review and comments.

Table 7: Environmental Impacts and Mitigation Measures

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
Pre-construction						
Location of Project roads	Safety risks due to presence of UXO	The DDIS consultant shall engage a UXO specialist to determine the level of risk of the project roads and advise on the need for clearance.	All project roads	Part of project cost	DDIS	MRD/PMU
		Any clearance that is required will be undertaken through the civil works contracts, by the engagement of qualified local UXO clearance firms.	All project roads	Part of project cost	Contractor	DDIS, MRD/ PMU/SEO
		The contractor shall only commence site works after the UXO clearance firm has certified that areas are already cleared.	All project roads	Part of project cost	Contractor	DDIS, MRD/ PMU/SEO
	Mechanism to address environmental complaints	Establish a GRM, as described in Chapter VII of this IEE.	All project roads	No additional cost	MRD/PMU	DDIS
		Make public the existence of the GRM through public awareness campaigns; place flyers in the commune and district offices as well as in all contractor site offices and active construction sites; replace old and non-readable flyers from time to time throughout the construction period.	All project roads	No additional cost	MRD/PMU	DDIS
		Ensure that names and contact numbers of representatives of MRD and contractors are placed on the notice boards outside the construction site and at local government offices (e.g., provincial and commune levels)	All project roads	No additional cost	MRD/PMU	DDIS
Location of quarry and borrow areas	Siting of quarry and borrow areas could cause damage to ecologically sensitive sites, productive land and nuisance to sensitive receptors (residential areas,	Sourcing of quarry and borrow materials from existing sites shall be preferred over establishment of new sites, as much as possible.	Quarry and borrow sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Quarries and borrow pits shall not be established in national, provincial, district and village conservation forests and other ecologically sensitive and protected areas.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Borrow/quarry sites shall not be located in productive land.	ditto	No additional cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
	schools, etc.)	In case the Project will involve new quarry/borrow sites, necessary approvals from environmental authorities shall be obtained prior to operation of such sites. The need to update ADB IEE/EMP will also be considered. Such sites shall be located over 500 m away from residential areas, school, hospital and other sensitive receptors. Contractor encouraged to use existing facilities and sites.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Location of construction camps/workers camps and other project facilities	Siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to dust emission, wastewater generation, etc.	Workers camp location and facilities shall be located at least 500 m from settlements and agreed with local communities and local officials.	All project roads	No additional cost	Contractor	DDIS, PMU/SEO
		Siting of asphalt plants, concrete mixing plants, crushing plants and other facilities that cause high dust and/or gaseous emissions will be at least 500 m from settlements and other sensitive receptors (schools, hospitals, etc.)	All project roads	No additional cost	Contractor	DDIS, PMU/SEO
		Necessary environmental clearance/ approval shall be obtained prior to establishment and operation of asphalt mixing plants, crushing plants and other facilities.	All project roads	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Project design (Detailed Engineering Design)	Climate change and hydrological impacts	Incorporate in the project design the measures that have been recommended in the Project Climate and Disaster Risk Assessment (PCDRA) for the Project (e.g. Provincial and district roads should be designed to withstand a 1 in 10-year flood level with 0.25m freeboard, etc.).	All project roads	Part of project cost	DDIS	MRD/PMU
		Provide for appropriate design of roadside and cross drainage systems, where necessary, to avoid flooding on project roads as well as in areas surrounding the project roads, especially at sections where road embankments will be raised to prevent flooding of roadways.	All project roads	Part of project cost	DDIS	MRD/PMU

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		The road embankment, bridges and drainage facilities shall be designed based on the historical flood data and flood forecasting.	All project roads	Part of project cost	DDIS	MRD/PMU
		Erosion control and slope stabilization measures shall be included in the design, as appropriate, such as side ditches and berms, rock lining and slope walls along the road, shrub buffer strips sites in areas of high erosion risk, cross drainage to accommodate floodwater/run-off in case road sections are on elevated fills that will obstruct natural drainage. Update IEE and EMP to include results of detailed engineering design. Include update information as part of the tender documentation. Contractor required to prepare and submit CEMP addressing environmental requirements in the tender documentation.	All project roads	Part of project cost	DDIS	MRD/PMU
Site preparation	Disruption to community utilities	Prior to commencement of site works, relocate or re-provision water supply pipelines, irrigation canals and other facilities that may be affected by construction works This will be done in agreement with the local community and the utility company.	All project roads	Part of contractor's bid cost	Contractor	DDIS, MRD/PMU
Construction						
Operation of construction equipment excavation works, spoils	Archeological Chance Finds.	In the event of any construction work uncovering or revealing archaeological relics in any of the project roads, these shall be deemed a "chance find" and reported as such to the MCFA.	All project roads where applicable	No additional cost	Contractor	DDIS, PMU/ SEO, MCFA

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
and waste disposal, transport of construction materials		The following 'chance-find' principles will be implemented by the contractor for all Project roads to account for any undiscovered items identified during construction: In coordination with MCFA, workers will be provided orientation in the location of cultural/heritage zones within the construction area and in the identification of potential items of cultural/heritage significance. Upon discovery of any objects of possible archaeological significance that may be uncovered during construction, the site supervisor shall immediately suspend construction activities affecting the area and shall alert MCFA or its provincial or district offices to inspect the site. Work will remain suspended until a site assessment has been made by the concerned authority (MCFA, etc.), an agreement has been reached as to any required mitigation measures (which may include excavation and recovery of the item), and the contractor has been given permission by the concerned authority to proceed with the concerned authority to proceed with the construction activities.	All project roads where applicable	No additional cost	Contractor	DDIS, PMU/SEO, MCFA
Earthworks, excavation activities, transport of materials, operation of construction equipment, and vehicles	Air pollution due to elevated levels of dust and gaseous emissions	Construction equipment will be maintained to a good standard. Immediate repairs of any malfunctioning construction vehicles and equipment shall be undertaken.	All project roads	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Equipment and vehicles not in use shall be switched off.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Machinery and vehicles causing excessive pollution (e.g., visible smoke) will be banned from construction sites.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		All construction equipment and vehicles	ditto	No additional	Contractor	DDIS,

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		shall have valid certifications indicating compliance to vehicle emission standards.		cost		PMU/SEO MOE/PDE
	Elevated noise and vibration levels that could cause nuisance and damage to properties	No noisy construction-related activities (e.g., transport of materials along residential areas and other sensitive receptors, piling, use of jackhammer, etc.) will be carried out from 2100 hours to 0600 hours along residential areas, hospitals and other sensitive receptors.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Noisy construction activities will be avoided during religious or cultural events in close proximity to the roadside such as Friday prayers attended by Muslim Cham, when ethnic Khmer are attending temple festivals or holding weddings, etc.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		All construction equipment and vehicles shall be well maintained, regularly inspected for noise emissions, and shall be fitted with effective muffler and other appropriate noise suppression equipment consistent with applicable national and local regulations.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Use only vehicles and equipment that are registered and have necessary permits.	ditto	No additional cost	Contractor	DDIS, PMU/SEU
		Truck drivers and equipment operators shall avoid, as much as possible, the use of horns in densely populated areas and where other sensitive receptors are found such as schools, temples, hospital, etc. are located.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Impose speed limits on construction vehicles to minimize noise emission along areas where sensitive receptors are located (houses, schools, temples, hospitals, etc.).	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Provide temporary noise barriers (3–5 meters high barrier can reduce 5–10 dB(A), as necessary, if site works will generate high noise levels that could disturb nearby households, hospital,	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		school and other sensitive receptors				
		Avoid noisy construction activities in vicinity of sensitive receivers during night time or other sensitive periods (e.g. during school hours in vicinity of schools)	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Truck drivers and equipment operators shall avoid, the use of horns	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Restrict use of vibrating rollers and operation of heavy equipment near vibration sensitive structures	ditto	No additional cost	Contractor	DDIS, PMU/SEO
Various construction activities, operation of camps for construction and workers	Improper handling and disposal of wastes could cause odor and vermin problems, pollution and flow obstruction of nearby water courses and could negatively impact the landscape.	Prohibit disposal of solid wastes into canals, rivers, other watercourses, agricultural fields and public areas.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		There will be no site-specific landfills established by the contractors. All solid waste will be regularly collected and removed from the work camps and disposed to areas approved by local authorities.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Prohibit burning of construction and domestic wastes.	ditto	o additional cost	Contractor	DDIS, PMU/SEO
		Recyclables shall be recovered and sold to recyclers.	ditto	o additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Residual and hazardous wastes shall be disposed of in disposal sites approved by local authorities.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Ensure that wastes are not haphazardly dumped within the project site and adjacent areas	ditto	o additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Segregate and regularly collect wastes at worker camps and offices.	Construction and workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Construction/workers' camps shall be provided with garbage bins.	Construction and workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Establishment and operation of construction and workers camps	Operation of these facilities will generate solid and liquid wastes and if improperly handled, these could cause health problems and pollution.	Drainage shall be provided to facilitate the rapid removal of surface water from all areas and prevent flooding and accumulation of stagnant water.	Construction/ Workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Provide adequate housing for all workers at the construction camps and establish clean canteen/eating and cooking areas.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Portable lavatories (or at least pit latrines in remote areas) shall be installed and open defecation shall be prohibited and prevented by cleaning lavatories daily and by keeping lavatory facilities clean at all times.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEU
		Provide separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Wastewater effluents from contractors' workshops and equipment washing- yards will be passed through gravel/sand beds and all oil/grease contaminants will be removed before wastewater is discharged. Oil and grease residues shall be stored in tightly covered drums. Such wastes shall be disposed consistent with national and local regulations.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Construction/workers camps shall be cleaned up after use to the satisfaction of MRD/SEO/DDIS and local community. All waste materials shall be removed and disposed to disposal sites approved by local authorities.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Land used for campsites shall be restored to the original condition as far as practicable and the area shall be planted with appropriate trees/shrubs as soon as practicable after it is vacated and cleaned.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
Quarry and borrow site operation	Operation of quarry and borrow sites could cause	Prior to extraction, topsoil (about 15 centimeter) shall be stockpiled, preserved and then refilled after completion of quarry/borrow	All quarries and borrow areas operated for the	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
	adverse impacts to surface water quality, elevated dust emission during excavation siltation of nearby water courses, damage to productive land and ecologically sensitive areas and pose health and safety risks.	pit operation for rehabilitation purposes after excavation is over.	project			
		Dust control during transport (e.g., water spraying on access roads and provision of truck cover) and excavation shall be undertaken in areas where there are sensitive receptors such as residential areas, school, hospital, etc.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Long-term material stockpiles shall be covered to prevent wind erosion.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		During quarry and borrow site operation, provide adequate drainage to avoid accumulation of stagnant water.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		The use of river bed sources shall be avoided, as much as possible, however if this is unavoidable the contractor shall minimize use of river bed for construction materials and sources of fill and quarry materials lying on small rivers and streams shall be avoided. Alluvial terraces or alluvial deposits which lie on the river beds but not covered by water in normal hydrological conditions shall be preferred.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Confine winning river bed materials to less than 20% of river width in any location and keep away from river banks.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Protect and reinstate river banks if unexpected erosion occurs.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Quarry and borrow sites must be selected amongst those offering the highest ratio between extractive capacity (both in terms of quality) and loss of natural state.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Quarry and borrow sites lying close to the alignment, with a high level of accessibility and with a low hill gradient, are preferred.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Upon completion of extraction activities, re-contour borrow/quarry pit wall or fill-up when there are available and suitable materials such as excavation spoils, replace topsoil, and re-vegetate with native species such as grasses and fast- growing shrubs and trees.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Upon completion of extraction activities, borrow pits shall be dewatered and fences and warning signs shall be installed, as appropriate, to minimize health and safety risks.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		In quarries in mountainous or hilly areas, or wherever slopes are important, terraces shall be cut after extraction, drainage system and vegetation cover shall be provided for rehabilitation to enhance slope stability	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Implement compensatory planting (at least one is to one ratio) if trees will have to be removed at quarry and borrow sites.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Borrow pits will be left in a tidy state with stable side slopes and proper drainage in order to minimize soil erosion, siltation of nearby bodies of water and to avoid creation of water bodies favorable for mosquito breeding.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		To avoid drowning when pits become water-filled, measures such as fencing, providing flotation devices such as a buoy tied to a rope, etc. shall be implemented.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		It is possible that villagers may request borrow pits to be left excavated so that they may be used as water reservoirs or fishponds. If this were to be agreed between the contractors and the villagers, all the full safety measures detailed above must be observed. Such agreements would be formalized in writing between the contractors and the villagers after full	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		discussion with all concerned parties.				
Solid waste management and use of hazardous substances such as fuel, oil, bitumen, etc.	Pollution and safety risks due to use of hazardous materials and disposal of hazardous wastes	Prohibit disposal of solid wastes into canals, rivers, other watercourses, agricultural fields and public areas and ensure that wastes are not haphazardly dumped within the project site and adjacent areas. No site-specific landfills will be established by the Contractors. All solid waste will be regularly collected and removed from the work camps and disposed to areas approved by local authorities. Prohibit burning of construction and domestic wastes; recyclables shall be recovered and sold; residual and hazardous wastes shall be disposed of in sites approved by local authorities; segregate and regularly collect wastes at worker camps and offices; construction/workers' camps shall be provided with garbage bins. Store fuel and hazardous substances and wastes on bunded paved area with roof and interceptor traps so that accidental spills do not contaminate the environment. If spills or leaks do occur, undertake immediate clean up.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Train relevant construction personnel in handling of fuels and other hazardous substances as well as spill control procedures.	All project roads	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Ensure availability of spill cleanup materials (e.g., absorbent pads, etc.) specifically designed for petroleum products and other hazardous substances where such materials are being stored.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Segregate hazardous wastes (oily wastes, used batteries, fuel drums) and ensure that storage, transport and disposal shall not cause pollution and shall be undertaken consistent with national and local regulations.	Designated storage sites	No additional cost	Contractor	DDIS, PMU/SEO
		Store waste oil, lubricant and other hazardous materials and wastes in tightly sealed containers to avoid contamination of soil and water resources.	Designated storage sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Ensure all storage containers of hazardous substances and wastes are in good condition with proper labeling.	Designated storage sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Regularly check containers for leakage and undertake necessary repair or replacement.	Designated storage sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Store hazardous materials above flood level.	Designated storage sites	No additional cost	Contractor	DDIS, PMU/SEO
		Storage areas for fuel, oil, lubricant, bitumen and other hazardous substance will be located at least 100 m away from any watercourses.	Designated storage sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Storage, transport and disposal of hazardous wastes, including spill wastes, shall be consistent with national and local regulations.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Wherever possible, refueling will be carried out at a fuel storage area.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Refueling shall not be permitted within or adjacent to watercourses.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Where significant amount of oily wastewater or spill/leakage of oil and grease may occur (e.g., equipment maintenance areas), drainage leading to an oil-water separator shall be provided for treatment of wastewater. The oil- water	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		separator shall be regularly skimmed of oil and maintained to ensure efficiency. Discharge of oil-contaminated				
		Vehicle maintenance and refueling will be confined to areas in construction sites designed to contain spilled lubricants and fuel.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Bitumen shall not be allowed to enter either running or dry streambeds and nor will be disposed of in ditches or small waste disposal sites prepared by the contractor.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Bitumen storage and mixing areas as well as storage areas for other petroleum products used in the preparation of the bitumen mixture shall be protected against spills and all contaminated soil must be properly handled according to national and local regulations. As a minimum, these areas must be provided with concrete flooring and surrounded by an embankment to readily contain and clean-up spills.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Adequate precaution will be taken to prevent oil/lubricant/ hydrocarbon contamination of channel beds. Spillage if any will be immediately cleared with utmost caution to leave no traces.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		All areas intended for storage of hazardous materials will be quarantined and provided with adequate facilities (e.g., fire-fighting equipment, sorbent pads, etc.) to combat emergency situations complying with all the applicable statutory stipulation.	Designated storage sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Blasting	Safety risks to workers and the public	Blasting will be carried out only with permission of the concerned authority, using a pre-established schedule.	All areas where blasting will occur	No additional cost	Contractor	DDIS, PMU/SEO
		All the statutory laws, regulation, rules etc.,	Throughout	Part of	Contractor	DDIS,

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		pertaining to acquisition, transport, storage, handling and use of explosives	project sites	contractor's		PMU/SEO
		The timing will be made available to the local people within 500 m of the blasting site in all directions, depending on the total charge used.	All areas where blasting will be undertaken	No additional cost	Contractor	DDIS, PMU/SEO
		Blasting will be held only during day time and shall be carried out not using high powered explosives. Under no circumstance will blasting be undertaken at night.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Where possible blasting mats will be used to reduce noise levels when blasting is carried out to reduce flying rock.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		No blasting will take place without condition survey of the buildings/residential/institutional structures within 500 m and permission and monitoring by the DDIS.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		People living near blasting sites will be informed of blasting times prior to the blasting.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Warning sirens will be sounded before blasting.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Pre-splitting shall be undertaken.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Where the vibration from blasting is exceeding the maximum permissible level, or damage occurs to local property information from the blasting shall be used to modify blasting patterns and calculate a reduced charge for future blasts.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Blasting shall be under careful and strict management/ supervision of properly trained and licensed personnel. Workers at blasting sites will be trained prior to blast operations and provided with safety equipment and earplugs.	ditto	No additional cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Observe proper warning and precautionary measures to ensure safety of residents, pedestrians, motorists and structures during blasting.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		All expenses/costs to address injuries, damage to properties, accidents, etc. due to blasting shall be shouldered by the contractor.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Earthworks/ excavation	Improper spoils disposal could cause deterioration of water quality, damage to productive land and flow obstruction of water courses.	Provide grass cover and other suitable slope stabilization measures on road embankment slopes and on long term stockpile of spoils.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Spoil disposal shall not cause sedimentation and obstruction of flow of watercourses, damage to agricultural land and densely vegetated areas. As several of the roads pass very close to rice paddy, and in fact the road shoulder is contiguous with the rice fields, excess spoil shall not be dumped on rice production land, either temporarily or permanently. If temporary storage space is needed then work should take place alternately on opposite traffic lanes.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		The spoils disposal site shall be located at least 50 m from surface water courses and shall be protected from erosion by avoiding formation of steep slopes, provisions of adequate drainage and grassing.	ditto	Part of	Contractor	DDIS, PMU/SEO MOE/PDE
		Spoils shall only be disposed to areas approved by local authority.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Water courses (rivers, canals, etc.) shall be kept free of excavation spoil and construction debris, floating and submerged.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Spoil and construction materials stockpile area shall be located away from waterbodies and under no circumstances will these materials be dumped into water courses	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Dredged and excavated materials shall be reused or provided to local residents as soon as possible, if they require such materials, for land reclamation. The remaining spoils can be disposed into low elevation sites for road construction.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
Bridge works	Bridge repair and replacement could cause obstruction of river flow and deterioration of water quality due to siltation	Rocks, stones, soil and other materials shall not be dumped onto rivers and streams.	All bridge repair and replacement sites	No additional cost	Contractor	DDIS, PMU/SEO/PD RD
		Ensure bridge works shall not cause obstruction of river flow and flooding of adjacent area.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		At bridge repair and demolition sites, the bridge structure will not be dropped into the river but alternative means will be used to avoid "dropping the bridge" into rivers/streams. This shall be done by "sawing" appropriate sections of the bridge and using cranes to lift these sections away or alternatively by construction of a platform onto which the bridge could be lowered.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Cofferdams, silt fences, sediment barriers or other devices will be used as appropriate based on the design to prevent migration of silt during excavation and boring operations within streams. If cofferdams are used, these will be dewatered and cleaned to prevent siltation by pumping from cofferdams to a settling basin or a containment unit.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Exposed surfaces shall be provided with native grasses and creepers to reduce runoff as early as possible in construction.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Transport of materials and spoils, operation	Damage to community utilities such as	The contractor shall not allow overloading of trucks used for all project- related activities.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
of construction equipment and various construction activities	water supply pipes, irrigation canals, drainage, etc. may occur during construction activities.	The contractor shall immediately repair any damage caused by the Project to community facilities such as water supply, power supply, irrigation canals, drainage and the like. Adequate compensation shall be paid to affected parties, as necessary.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Access roads damaged during transport of construction materials and other project-related activities shall be reinstated upon completion of construction works.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Bridge works, stockpiling of construction materials and spoils, use of hazardous materials and earthworks	Deterioration of Surface water quality, flooding and flow obstruction of watercourses	Firmly consolidate river banks using stones, concrete and other suitable retaining measures at each bridge construction site and ensure that water courses (rivers, canals, etc.) shall be kept free of excavation spoil and construction debris, floating and submerged.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Spoils, construction wastes and construction materials stockpile area shall be located away from water bodies and under no circumstances will these materials be dumped into watercourses.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Do not fill up canals and creeks at the construction site. In case filling of local drainage system is extremely necessary, consultation with local authorities shall be undertaken and their permission obtained beforehand. An alternative drainage shall be established before the existing canal is filled-up.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Prohibit placement of construction materials, waste storage areas or equipment in or near drainage channels and water courses.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Discharge of oily wastewater, fuel, hazardous substances and wastes, and untreated sewage to watercourses/canals and on the ground/soil shall be prohibited.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Provide adequate drainage at the construction sites and other project areas to avoid flooding of surrounding areas and minimize flow obstruction of existing watercourses.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Regularly inspect and maintain all drainage channels to keep these free of obstructions.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Slope stabilization measures (e.g., planting of fast growing native species of grass and shrubs, etc.) shall be implemented on exposed surfaces along river embankments to reduce material wash-away.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Construct retaining structures such as gabion baskets, rip-rap, etc. for river bank protection.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Road and bridge works	Traffic disruption and obstruction of access to roadside properties	In cooperation with the local traffic authorities, properly organize transport of materials for the project to avoid congestion.	All project roads and access roads	No additional cost	Contractor	DDIS, PMU/SEO
		Set up clear traffic signal boards and traffic advisory signs at the roads going in and out the road and bridge construction sites to minimize traffic build-up.	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Regularly monitor traffic conditions along access and Project roads to ensure that project vehicles are not causing congestion.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO
		Provide sufficient lighting at night within and in the vicinity of construction sites.	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Implement suitable safety measures to minimize risk of adverse interactions between construction works and traffic flows through provision of temporary signals or flag controls, adequate lighting, fencing, signage and road diversions, as necessary.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Provide safe temporary accesses to properties and establishments affected by disruption to their permanent accesses.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Reinstate good quality permanent accesses following completion of construction.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Provide safe vehicle and pedestrian access around construction areas.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Provide adequate signage, barriers and flag persons for traffic control.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		If necessary, traffic will be diverted for safe and smooth movement of vehicles to ensure smooth traffic flow and minimize accidents, traffic hold ups and congestion.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		The diversion signs would be bold and clearly visible particularly at night.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Temporary bypasses will be constructed and maintained (including dust control) during the construction period particularly at bridge crossings. Location of temporary bypasses shall be agreed with local authorities and such sites shall reinstated upon completion of works.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Earthworks, stockpiling and roadworks	Soil erosion	On hill slopes and other potentially erodible places along the roadside, appropriate native vegetation that retards erosion will be planted.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		As much as possible, construction activities in hilly areas are to be undertaken during dry season only.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		Road embankments and slopes shall be monitored during construction for signs of erosion, vegetative cover shall be provided on slopes by planting native grass and creepers on erosion prone sections.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Long-term material stockpiles will be covered with native species of grass or other suitable materials to prevent wind erosion.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
		Use appropriate erosion control and stabilizing measures such as benching, geotextiles, mats, fiber rolls, soil binders, etc. that are not toxic to the environment, or vegetation measures/ temporary landscaping in disturbed areas and on graded slopes.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO
Operation of construction equipment and vehicles, site works, spoils disposal and presence of workers	Impacts to flora and fauna	Hunting of wildlife and cutting of trees for fuel shall not be undertaken by workers, and strict prohibitions shall be imposed by the contractor. Spoils and all types of wastes shall be disposed at approved sites,	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Workers shall be prohibited from collecting firewood and construction materials from surrounding forests, and from hunting wild animals.	ditto	No additional cost	Contractor	DDIS, PMU/SEO
		As the project will not require road widening, ensure that construction works are carried out without unnecessary clearing of roadside vegetation.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		The contractor shall prohibit cutting of trees for firewood and for use in for construction-related activities	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Construction vehicles will operate only within the right-of-way, to avoid damaging soil and vegetation on adjacent areas. It will be most important to avoid soil compaction around trees. Generally, the rule will be to avoid driving heavy equipment or trucks anywhere into the 'drip-line' of a tree (defined as imaginary line around a tree where rainwater falls freely to ground unimpeded by the tree's foliage)	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		The contractor will not use or permit the use of wood as a fuel for the execution of any part of the Works, including but not limited to the heating of bitumen and bitumen mixtures, and to the extent practicable shall ensure that fuels other than wood are used for cooking, and water heating in all camps and living accommodations.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Contractor shall not buy or use wood from the illegal sources (that come from the illegal logging).	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Construction camps, asphalt mixing plants, material storage sites and other project facilities shall not be located in forest areas and other densely vegetated sites.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Contractor will take all precautions necessary to ensure that damage to vegetation is avoided due to fires resulting from execution of the works. The Contractor will immediately suppress the fire, if it occurs, and shall undertake replanting to replace damaged vegetation.	ditto	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		As much as possible, bridge works will be scheduled during the dry season to minimize adverse impacts to fishery, river water quality and other aquatic resources.	ditto	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
Construction works, operation of workers' camps	Health and safety risks to workers and the public	Conduct orientation for construction workers regarding emergency response procedures and equipment in case of accidents (e.g., burns from hot bitumen, spills of hazardous substances, etc.), fire, etc.; health and safety measures, such as on the use of hot bitumen products for paving of Project roads, etc.; prevention of HIV/AIDS, malaria, diarrhea, and other related diseases.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Provide drainage at construction sites and workers camps to prevent water logging/ accumulation of stagnant water and formation of breeding sites for mosquitoes.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Provide fire-fighting equipment and appropriate emergency response equipment (based on on-going construction activities) at the work areas and at construction and workers camps.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Provide first aid facilities that are readily accessible by workers.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		At the workers camps, provide adequate housing for all workers at the construction camps, provide reliable supply of potable water, install separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers and establish clean eating areas and kitchen.	Workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Provide workers with appropriate safety equipment/devices (such as dust mask, hard hats, safety shoes, goggles, ear plugs, etc.) and strictly require them to use these as necessary.	Throughout project sites	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Install sign boards, lighting system at the construction sites, borrow pits, or places which may cause accidents for people and workers	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Strictly impose speed limits on construction vehicles along residential areas and where other sensitive receptors such as schools, hospitals, and other populated areas are located.	Throughout project sites, where appropriate	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		Barriers (e.g., temporary fence) shall be installed at construction areas to deter pedestrian access to these areas except at designated crossing points.	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Sufficient lighting at night as well as warning signs shall be provided in the periphery of the construction site.	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		The general public/local residents shall not be allowed in high – risk areas, e.g., excavation sites and areas where heavy equipment is in operation.	Throughout project sites, where appropriate	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Ensure proper collection and disposal of solid wastes within the construction camps consistent with local regulations.	Construction/ workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Provide fencing on all areas of excavation greater than 2 m deep.	Throughout project sites, where appropriate	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Ensure reversing signals are installed on all construction vehicles.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Measures to prevent malaria shall be implemented (e.g., provision of insecticide treated mosquito nets to workers, spraying of insecticides, installation of proper drainage to avoid formation of stagnant water, etc.).	Construction/ workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Discharge of untreated sewage shall be prohibited.	Construction/ workers camps	Part of contractor's bid cost	Contractor	DDIS, PMU/SEO MOE/PDE

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
Operation of construction/ workers camps	Social conflicts	Regularly inform in advance the local officials and local residents on the location and schedule of construction activities which may cause impacts on the environment and life of people (e.g., road sections to be constructed; roads used for transport, locations of worker camps etc.). The contractor will be encouraged to establish discussions with the village representatives before works commence and maintain these discussions as an ongoing activity through the life of the project.	Throughout project sites	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Locate construction camps away from communities (at least 500 m away) in order to avoid social conflict in using resources and basic amenities such as water supply.	Construction/ workers camps	No additional cost	Contractor	DDIS, PMU/SEO MOE/PDE
		Maximize number of local people employed in construction works.	Throughout project sites		Contractor	DDIS, PMU/SEO MOE/PDE
		Maximize goods and services sourced from local commercial enterprises.	Throughout project sites		Contractor	DDIS, PMU/SEO MOE/PDE
Operation						
Increased number of vehicles	Elevated noise levels	Along schools, hospitals, etc., provide traffic signs prohibiting blowing of horns and impose speed limits	All project roads	Part of project cost	PDRD, Local traffic authority	MRD/PMU
	Road safety risks	Implementation of a community-based road safety program under the Project to increase safety awareness. The program includes education program for schools, drivers, road users, and the community.	All project roads	Part of project cost	PDRD	MRD/PMU
		Proper maintenance of traffic signs, markings and other devices used to regulate traffic at appropriate places.	All project roads	Part of project cost	PDRD, Local traffic authority	MRD/PMU

Project Activity	Potential Environmental Impacts/Concern	Proposed Mitigation Measures	Location	Estimated Cost	Responsibility	
					Implementation	Monitoring
		SEO will also consult commune chiefs, police, commune elders, and monks in nearby pagoda for collecting crash data/locations, consultations and request support for the proposed road safety activities: (i) initiating road safety education program targeting tourists to be implemented at site; (ii) banning alcohol consumption at site and en-route, if necessary declaring the entire zone a religious area free of alcohol; (iii) post information boards at site and en-route regarding intoxication prohibition, and possible impacts to self and family; and (iv) organize surprise visits by monks, elders, police, commune leaders, etc. to socially enforce compliance of tourists in anti-alcohol ethics. SEO will also establish a social media website within MRD web to focus on the safety issue of project road locations to attract attention of stakeholders, especially mothers and spouses of potential violators, for compliance for anti-drinking driving behavior.	All project roads	Part of project cost	PDRD, Local traffic authority	MRD/PMU/ SEO

B. Monitoring

147. Table 8 presents the environmental monitoring activities to be undertaken during various project phases. Monitoring of the contractor's environmental performance in terms of implementation of mitigation measures for pre-construction and construction phases shall be undertaken by the DDIS consultant. and shall assist the MRD in preparing semi-annual environmental monitoring reports for submission to ADB and the Ministry of Environment. The monitoring reports shall describe progress with the implementation of the EMP and compliance issues and corrective actions, if any.

Table 8: Environmental Monitoring Measures

Aspects/Parameters to be Monitored and Applicable Standards	Location	Means of Monitoring	Schedule/ Frequency	Responsible to Undertake Monitoring
Pre-construction				
Completion of detailed design in accordance with EMP requirements to address climate change and hydrological impacts (see IEE Table 7)	Phnom Penh	Review of detailed design documentation	Prior to approval of detailed design	MRD/PMU
Implementation of all mitigation measures specified in IEE Table 7 on the following:				
(i) UXO clearing	All project roads	Confirm UXO removal certified by authorized UXO clearing firm	Prior to start of site works	DDIS, MRD/PMU
(ii) Establishment of grievance redress mechanism (GRM)	All project roads	Confirm GRM is established and disclosed to the public; flyer posted in the commune and district offices; as well as in the contractors' site offices.	Prior to start of site works; and posted all throughout the construction period (flyer to be replaced when already old and non-readable).	DDIS/SEO/ PMU/MRD
(iii) Siting of quarry and borrow areas consistent with EMP	All project roads	Check contractor's construction materials plans, site visit	Prior to establishment of quarry and borrow areas	DDIS, MRD/PMU
(iv) Siting of various project facilities (workers / construction camps, crushing plants, bitumen plants, etc.) consistent with EMP	All project roads	Check contractor's facilities location plans, site visit	Prior to establishment of contractor's facilities	DDIS, MRD/PMU
(v) Relocation of community facilities (e.g., water supply pipelines, irrigation canal, etc.)	All project roads	Site visit, confirm with local officials	Prior to start of site works	DDIS, MRD/ PMU
Construction				
Implementation of	Locations	Site visit,	Monthly (on a	DDIS,

Aspects/Parameters to be Monitored and Applicable Standards	Location	Means of Monitoring	Schedule/ Frequency	Responsible to Undertake Monitoring
construction phase environmental mitigation measures specified in IEE Table 7	indicated in IEE Table 7 for specific mitigation measures	interviews with local residents, coordination with concerned agencies (e.g., local traffic authorities, etc.)	regular basis) Random checks and to validate complaints	MRD/PMU/ SEO, PDRDs/ MOE-PDE

DDIS = detailed design and implementation supervision; EMP = environmental management plan; IEE = initial environmental examination; MOE = Ministry of Environment; MRD = Ministry of Rural Development; PDE = Provincial Department of Environment; PDRD = Provincial Department of Rural Development; PMU = project management unit; SEO = social and environmental office; UXO = unexploded ordnance.

148. The estimated costs for implementing the EMP are provided in Table 9:

Table 9: Estimated Costs for EMP Implementation (3 years)[a]

Item	Estimated Total Cost (USD)
1. Environmental monitoring to be undertaken by DDIS environment specialists[b]	
a. International (1 person for 6 months USD20,000/month)	120,000
b. National (1 person for 20 months @ USD 2,000/month)	40,000
2. Environmental management capacity building program/training to be undertaken by DDIS for SEO staff (estimates only, to be determined during Project implementation)[c]	22,000
3. Construction phase mitigation measures (included in civil work costs)	N/A
Sub-total	**182,000**
4. Contingency (10%)	18,200
Total	**200,200**

DDIS = detailed design and implementations supervision; N/A = not application; SE = social and environmental office.

[a] Tentative Proposed as per Person-months in the Project Administration Manual.

[b] Person-months based on Project Administration Manual.

[c] Proposed to cover the following indicative training activities: induction training for CEMP preparation; adjustment and implementation; Grievance Redress Mechanism; and Environmental monitoring; and others that the SEO may require in relation to environmental concerns. This amount is part of the USD budget proposed for SEO capability building activities in the amount of USD 170,000.00 under recurrent costs.

[d] Tentative, based on PAM requirements and unidentified costs that maybe included in the DDIS cost during tendering for consultancy.

C. Implementation Arrangements

149. Table 10 below shows the institutional responsibilities for implementation of the EMP.

Table 10: Responsibilities for EMP Implementation

Project Implementation Organizations	Management Roles and Responsibilities
Ministry of Rural Development (MRD), Executing Agency	(i) reinforce existing PMU with the required staffing; (ii) provide agreed counterpart funds for project activities in a timely manner; (iii) comply with all loan covenants (social and environmental safeguards, economic, and others); and (iv) ensure project's sustainability during post implementation stage and report to ADB on assessed development impacts.

Project Implementation Organizations	Management Roles and Responsibilities
MRD/Project Management Unit (PMU), implementing agency	(i) conduct overall project implementation, management, and coordination; (ii) initiate and coordinate effective communication between all stakeholders of the Project; (iii) recruit consultants; (iv) finalize surveys, detailed design, bidding documents, and contract awards; (v) monitor and evaluate project activities and outputs, including periodic review, preparation of review reports reflecting issues and time-bound actions taken (or to be taken); (vi) involve beneficiaries and civil society representatives in all stages of project design and implementation; (vii) disclose project outputs in public; (viii) assure quality of works, and services of consultants and counterpart staff; (ix) establish strong financial management system and submit timely withdrawal applications to ADB, conduct timely financial audits as per agreed timeframe and take recommended actions; and (x) establish project grievance redress mechanism in accordance with loan covenants and ensure regular monitoring and reporting in quarterly progress reports and semi-annual monitoring reports.
Provincial Department of Rural Development (PDRD), implementing agency	(i) execute and/or monitor civil works in the respective provinces; (ii) provide effective coordination between all the stakeholders of the project at the provincial level including: PMU, consultants, local authorities and project beneficiaries; (iii) coordinate with the SEO and local authority and villagers to carry out their task especially on social and gender, as well as resettlement issues; (iv) assist project technical officers to monitor and evaluate the progress and performance of consultants and contractors; and (v) receive instructions from and reports to the project manager.
Social and Environment Office (SEO)	(i) in charge of implementation and monitoring social safeguards, road safety and gender elements; (ii) implement programs to increase awareness and application of road safety to project beneficiaries; (iii) implement HHTPP and labor gender action plan and provide monitoring reports; and (iv) monitor environmental activities of the project; and (v) coordinate project safeguards grievance redress mechanism, undertake regular consultation with key stakeholders and affected persons, and ensure reporting on project grievance redress mechanism in quarterly progress reports and semi-annual monitoring reports.
Asian Development Bank (ADB)	(i) assist MRD and its PMU in providing timely guidance at each stage of the project for smooth implementation in accordance with the agreed implementation arrangements; (ii) review all the documents that require ADB approval; (iii) conduct periodic loan review missions, a midterm review, and a project completion mission; (iv) ensure compliance of all loan covenants; (v) review and monitoring of project implementation activities and compliance with loan covenants (sector reforms, social and environmental safeguards, economic, and others); (vi) timely process withdrawal applications and release eligible funds; (vii) ensure the compliance of financial audits recommendations; (viii) regularly update the project performance review reports with the assistance of MRD; and

Project Implementation Organizations	Management Roles and Responsibilities
	(ix) regularly post on ADB web the updated project information documents for public disclosure, and the safeguards documents as per disclosure provision of the ADB Public Communication Policy (2011).
DDIS Consultant[40]	(i) The consultant will be responsible for detailed design, construction supervision, implementation monitoring, as well as project performance monitoring and evaluation. (ii) The consultant will also be responsible for the support of the SEO at MRD. The unit will work in close association with MEF, for resettlement and other social issues and with the MOE and with the Ministry of Culture and Fine Arts for environment issues. (iii) ensuring minimum disruption/damage to the environment and local settlements by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to MRD and ADB in the monthly progress reports; (iv) providing advice to ensure there is no permanent acquisition of land and any impacts (temporary or unanticipated impacts) will be addressed in accordance with the agreed Community Participation Framework and Safeguard Policy Statement; (v) Incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design/pre- construction stage; (vi) Assist PMU/SEO to ensure that all environmental requirements and mitigation measures from the IEE and EMP are incorporated in the bidding documents and contracts; (vii) Prior to start of site works, assist MRD in establishing a grievance redress mechanism as described in the IEE; (viii) Implement all mitigation and monitoring measures for various project phases specified as DDIS' tasks in the EMP; (ix) Undertake environmental management capacity building activities for SEO as required in the EMP; and (x) Undertake regular monitoring of the contractor's environmental performance as scheduled in the EMP.
Contractor	(i) Designate and Environment Health and Safety Officer for the assigned contract project; (ii) Prepare and submit a CEMP for review by the DDIS Consultant for approval by the MRD/PMU and the ADB; (iii) Provide sufficient funding and human resources for implementation of the EMP; (iv) Ensure proper and timely implementation of required pre-construction and construction mitigation measures in the EMP; and (v) Implement additional environmental mitigation measures, as necessary
MOE and PDE of 5 Provinces	(i) Issue necessary approvals to the Project prior to implementation; and (ii) Undertake environment monitoring of the Project based on their mandate during construction

ADB = Asian Development Bank; CEMP = contractor's environmental management plan; CSC = consultant selection committee; DDIS = detailed design and implementation supervision; EMP = environmental management plan; HHTPP = HIV/AIDS and human trafficking awareness and prevention program; IEE = initial environmental examination; PMU = project management unit; MOE = Ministry of Environment; MRD = Ministry of Rural Development, PDE = Provincial Department of Environment; PSC = procurement selection committee; SEO = social and environmental office.

[40] Terms of Reference of the Consultant. Project Administration Manual.

D. Capacity Building

150. There are currently 9 staff within SEO: 1 chief, 1 vice chief, 1 for resettlement, 2 for environment and 4 social and gender specialists.

151. Despite the maturity of experience of the staff of MRD assigned to the SEO over years of implementation of RRIP I and RRIP II, there may still be a need for further practical training which may be provided both locally, regionally and internationally. Thus, study tours may be undertaken to develop the in-depth knowledge required to be able to function as an effective SEO for MRD. The SEO will then provide social and environmental safeguards training and pro-poor approaches on rural transport issues to each of the PDRD. The provision of this capacity building support is included under this project.

152. In addition, the capacity-building shall also extend to site construction engineers of both the PMU and the Contractor. Recent RRIP II semi-annual environmental monitoring interviews with the PMU DDIS Resident and Assistant Engineers including several of the Contractor Project Managers confirmed the absence of designated Environment Officers[41] (with the exception for the Siem Reap subprojects that has an Environmental Coordinator[42]) as required in each of the civil works packages. The absence of this staff in the Contractor organization does not only constitute contract non-compliance but also impacts on the proper implementation of the CEMP that was required to be prepared and submitted; and adherence to the environmental protection requirements of all the civil works contracts.

153. The main reason presented for this absence is the difficulty of finding qualified candidates to fill up this position. Given this very limited in-country human resource, it is recommended that each of the Contractors assign one of its Engineers to handle environmental management responsibilities and given basic orientation specific to the requirements of the contract. The basic orientation shall focus on explaining the details of the environmental management plan and its Annexes: (a) Matrix of the EMP; (b) Environmental Monitoring Plan; and (c) Checklist of EMP Implementation. This orientation is important in order for Contractor staff, and PMU DDIS site engineers to have common understanding of the environmental management requirements of the project. It can be handled by the SEO of MRD that has already matured with experience in the implementation of rural road projects in Cambodia. The PMU DDIS Environment Specialists (both International and National) may assist for a training that may be organized for this purpose. This would then be an opportunity also for sharing of experiences.

IX. CONCLUSION

154. Results of the IEE show that only minor environmental impacts are anticipated. Such impacts will be experienced during site works mainly due to dust and noise emissions as well as potential occupational and community health and safety risks. But all these can be mitigated with strict compliance of the environmental requirements as stipulated in the environmental management plan and enforced through the contract. None of the project roads are anticipated to have impacts on ecologically protected areas or habitats of conservation significance.

155. The Project proposes upgrading of 22 existing rural roads from graveled (laterite) roads

[41] Recently informed by Team Leader for DDIS CW5A that CW5A Contractor had already designated Environmental Manager from its staff for their contract.
[42] Information provided by the Resident Engineer 2 in his email to the International Environmental Specialist.

to permanently paved roads with a total length of about 360.0 km. The roads are located in five (5) provinces and will pass through 23 districts and 54 communes/Sangkats of Cambodia expected to benefit about 137,491 families or about 601,001 population (including 306,686 female population representing 51% of the total population). The project area traversed by these roads has 21,952 female-headed households or about 16% of the total number of families. These roads serve primarily rural communities and comprise a mix of well-established and frequently trafficked road links and a number of links that are currently being or have been recently improved to gravel road standard. As the Project will only upgrade roads within existing widths, no land or other physical assets will be acquired, and hence there are no resettlement issues. No indigenous peoples and ethnic minority groups live within the proposed road project area.

156. The Project Climate and Disaster Risk Assessment (PCDRA) recently prepared for the project indicates that annual rainfall may remain unchanged but rainfall will increase more in the wettest months by being of stronger duration. This will lead to longer dry periods. There may be “mini-droughts” during the wet season; precipitation will increase most in the south-west and decrease in the north-east; both the maximum 5-day and 1-day storms are expected to increase; the projected increases are 10% for 2030, 20% for 2050 and 30% or more for 2090; the relative increase in rainfall is heavier for short durations; climate change will cause an increase in short term intense rainfall; and an increase of 20% on existing rainfall intensity should be allowed for future events.

157. None of the proposed roads for improvement under this Project are located in either the core, buffer or transition zones of the Tonle Sap Biosphere Reserve or any other protected areas under the Protected Area Law (No. NS/RKM/0208/007) of the country.

158. Vegetation cover along the project roads largely consists of agricultural crops such as rice, while some sections traverse areas covered with plantation crops such as rubber, black pepper, mango, sugarcane, cassava, cashew; and shrubs, grasses and sparse trees. No extensive removal of vegetation or tree cover is anticipated.

159. Condition surveys have been carried out of every road. Environmentally sensitive locations such as schools, pagodas, clinics, utilities, water courses and trees etc. have been identified and the chainage given for each location (See Appendix 2 and Appendix 3 for results). These items will be drawn to the attention of the contractor and extra care demanded of the contractor when they are operating in these vicinities.

160. Only minor environmental impacts are anticipated during construction and these are considered temporary. To avoid or mitigate negative impacts arising from the Project, an EMP detailing mitigation measures and monitoring activities has been prepared as part of the IEE. Proper and timely implementation of EMP provisions will avoid or minimize environmental impacts concerning location of project roads and construction facilities, safety risks due to potential presence of UXO, potential encroachment to culturally protected areas, disruption and damage to community facilities, dust and noise emission, damage to vegetation and loss of wildlife, soil erosion, waste disposal and other issues associated with construction works. During operation phase, the Project will have over-all positive impacts such as on the quality of life because the permanently paved roads will result in significant reductions in dust levels. A few potential adverse impacts during operation are also addressed in the EMP, such as those pertaining to traffic noise and road safety from increased traffic volume. These impacts can be mitigated through implementation of the EMP.

161. Public consultations involving affected people and local officials have been conducted

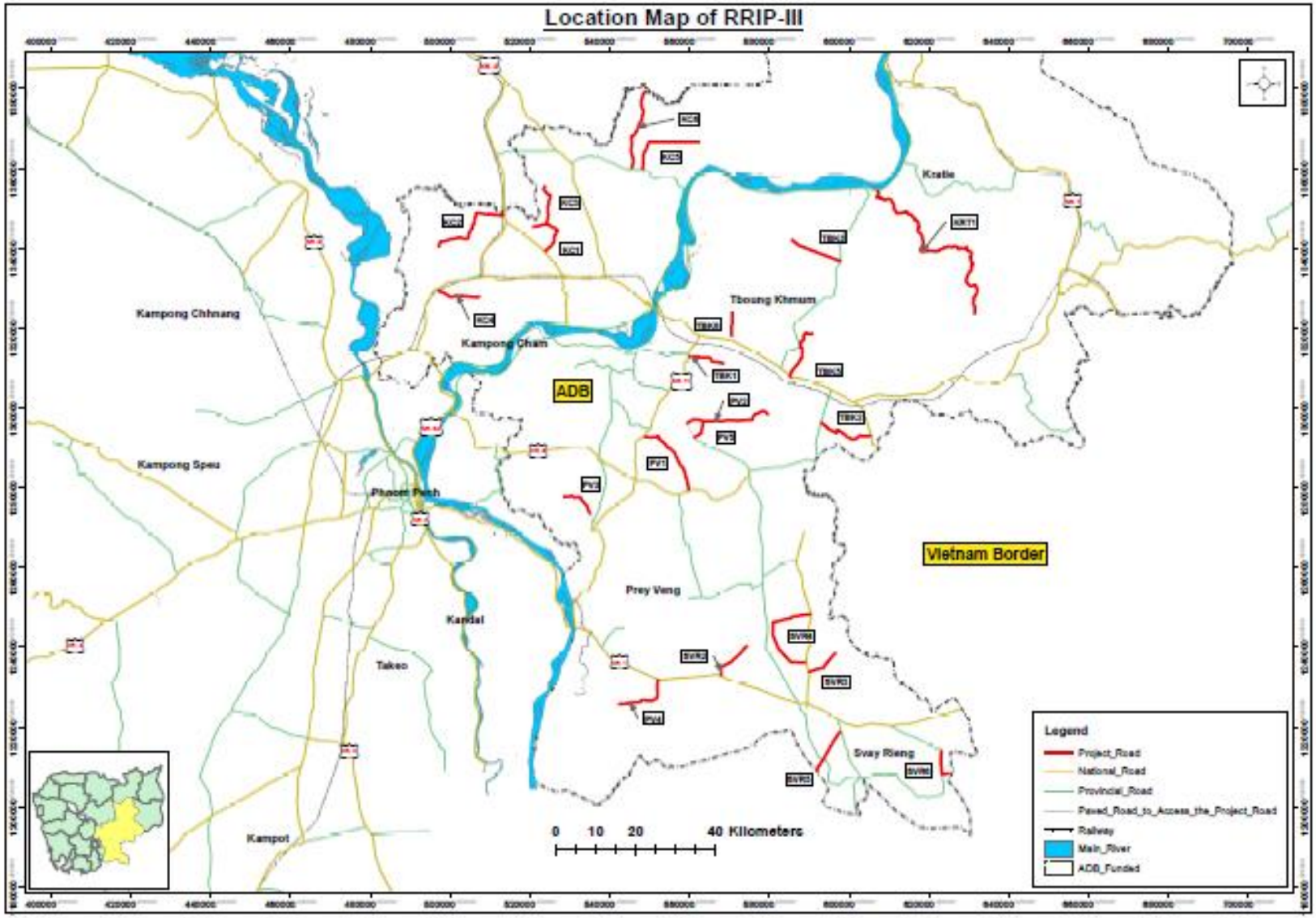
through focus group discussions and individual interviews in all of the five provinces during the preparation of the IEE in compliance with ADB's information disclosure and consultation requirements. No major issues have been identified.

162. A grievance redress mechanism has been established by MRD for RRIP II and will be followed just the same for RRIP III. Prior to start of site works, this will be disseminated to the communities to ensure that affected people's concerns, complaints, and grievances about the Project's environmental performance are promptly addressed. To ensure that Project is carried out consistent with the EMP requirements, MRD will specify in the tender documents and civil works contracts that implementation of the EMP is compulsory. MRD will be assisted by the DDIS consultant in monitoring the environmental performance of contractors. The DDIS consultant will also continue environmental management capacity building of the SEO in MRD during implementation.

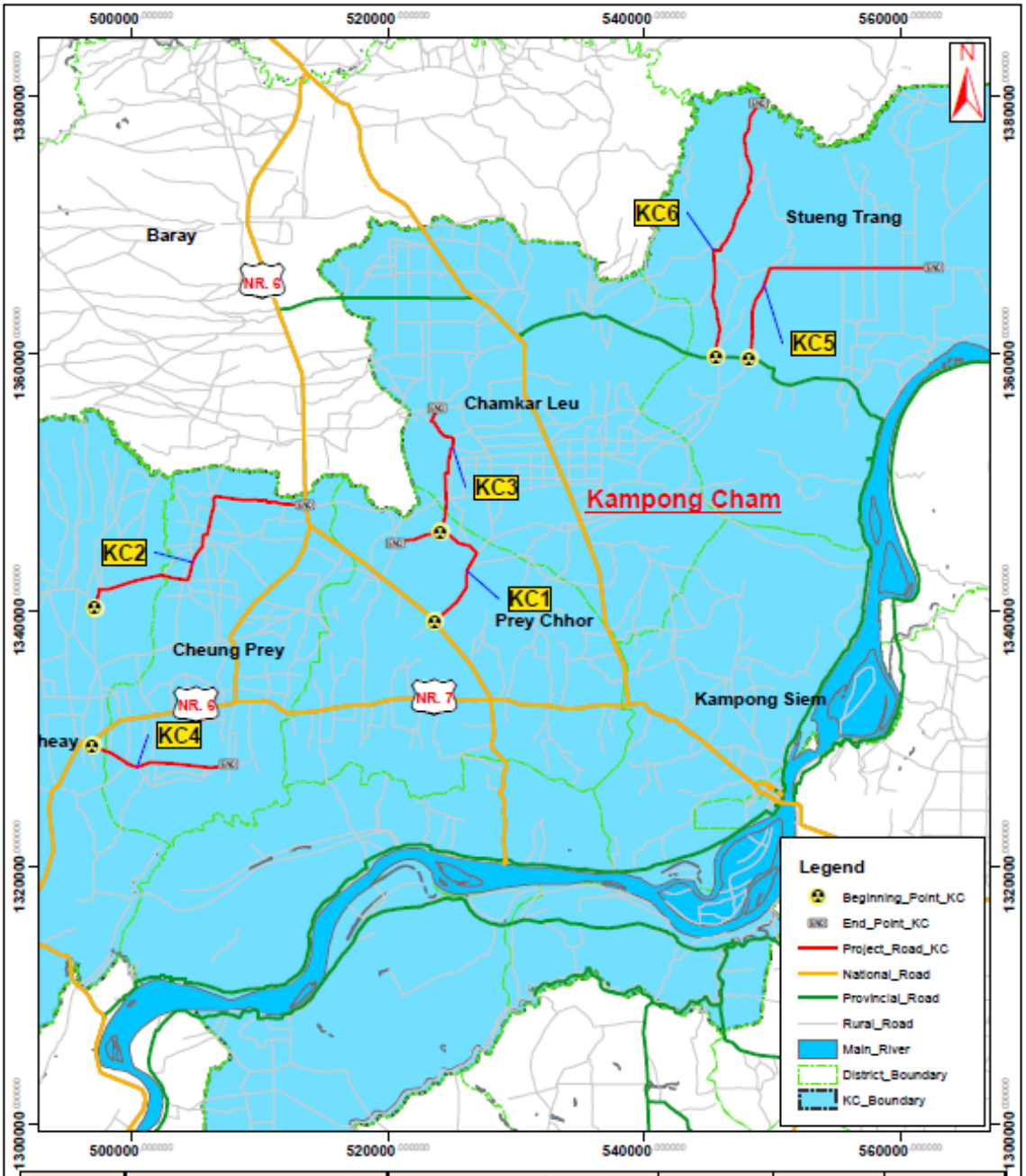
163. The project is confirmed as Category B in accordance with ADB Safeguard Policy Statement. There are no overriding environmental reasons why the project should not proceed.

APPENDIX 1

Location Map of Project Roads by Province

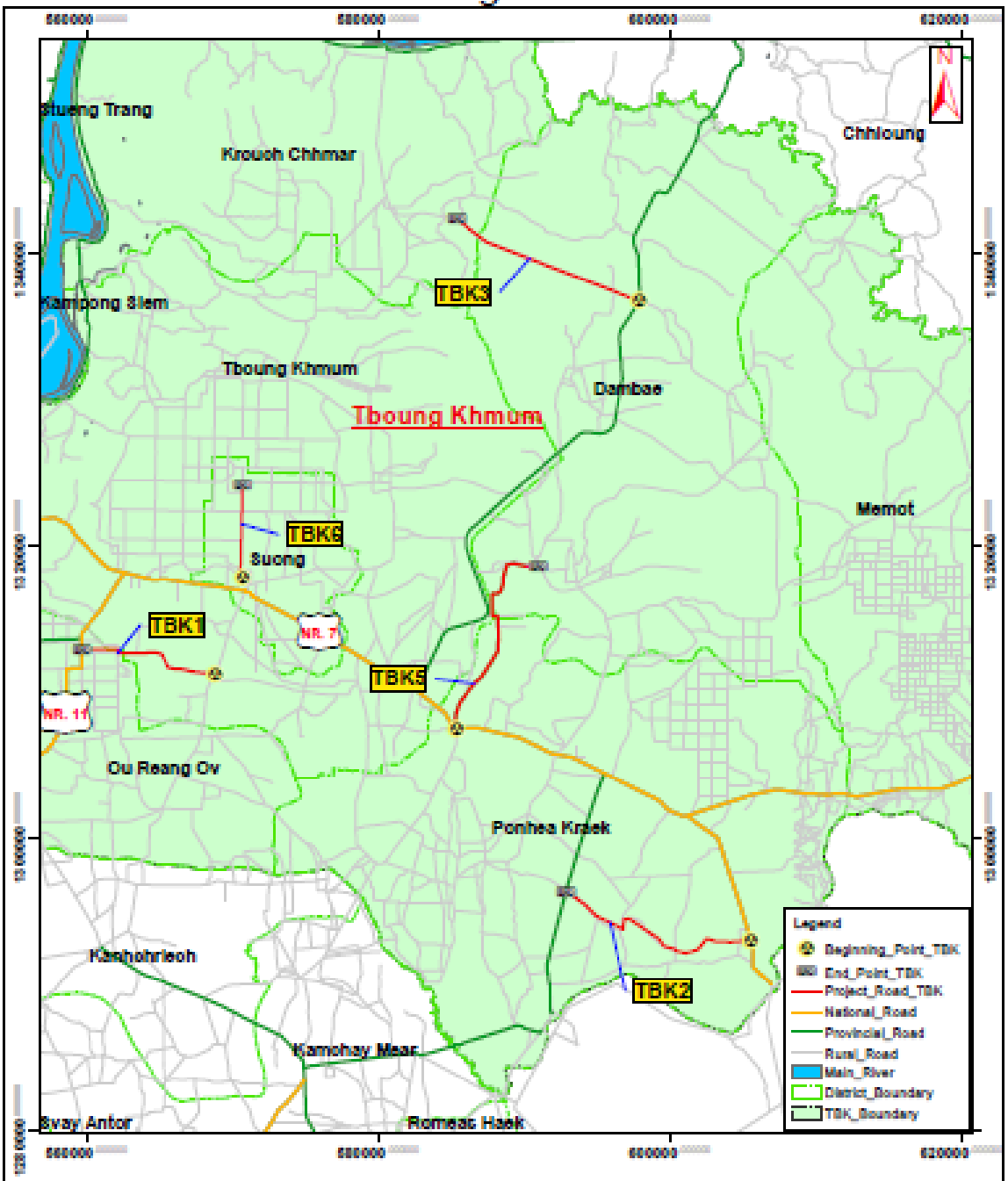

Location Map of RRIP-III
Kratie
Tboung Khmum
Kampong Chhnang
Kampong Cham
ADB
Kampong Speu
Phnom Penh
Vietnam Border
Prey Veng
Kandal
Takeo
Svay Rieng
Kampot
0 10 20 40 Kilometers
Legend
Project_Road
National_Road
Provincial_Road
Paved_Road_to_Access_the_Project_Road
Railway
Main_River
ADB_Funded

Kampong Cham



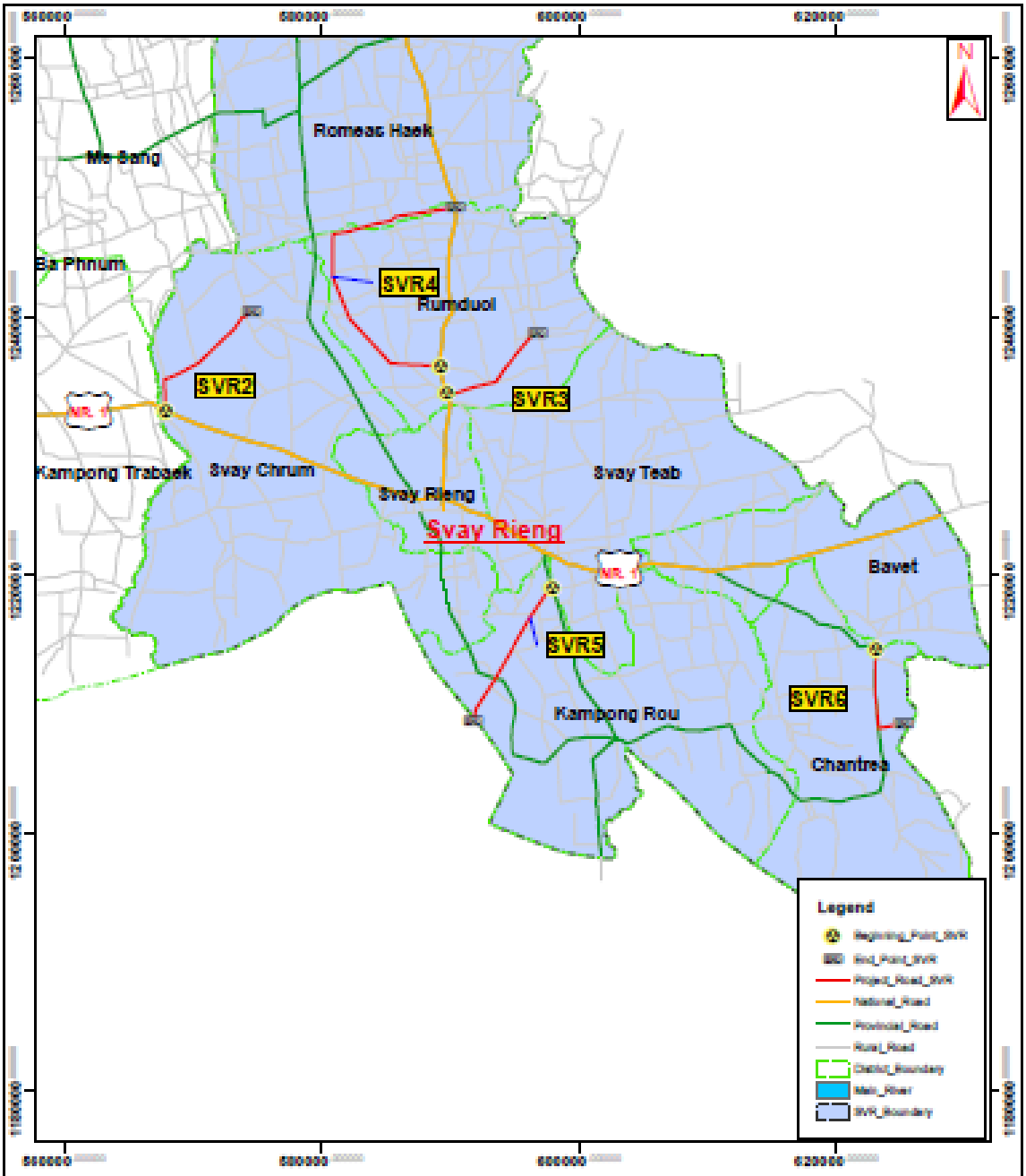
Road ID	District	Road Section		Length(km)	Proposed Width(m)	Proposed Pavement
		Beginning	Ending			
KC1	Prey Chhor	Kor	Tuek Cha	13.50	8	DBST
KC2	Batheay -Cheung Prey	Samdaek	Sampong Chey	23.00	7	DBST
KC3	Prey Chhor- Chamkar Leu	Ou Tathok	Bosthlan	11.30	8	DBST
KC4	Batheay -Cheung prey	Phav	Doun Dam	11.20	8	DBST
KC5	Stueng Trang	Del kraham	Areak Tnaot	20.10	8	DBST
KC6	Stueng Trang	Mer Sar Chrey	Wat lor	21.50	8	DBST
Total	6 Roads			100.60		

Tboung Khmum



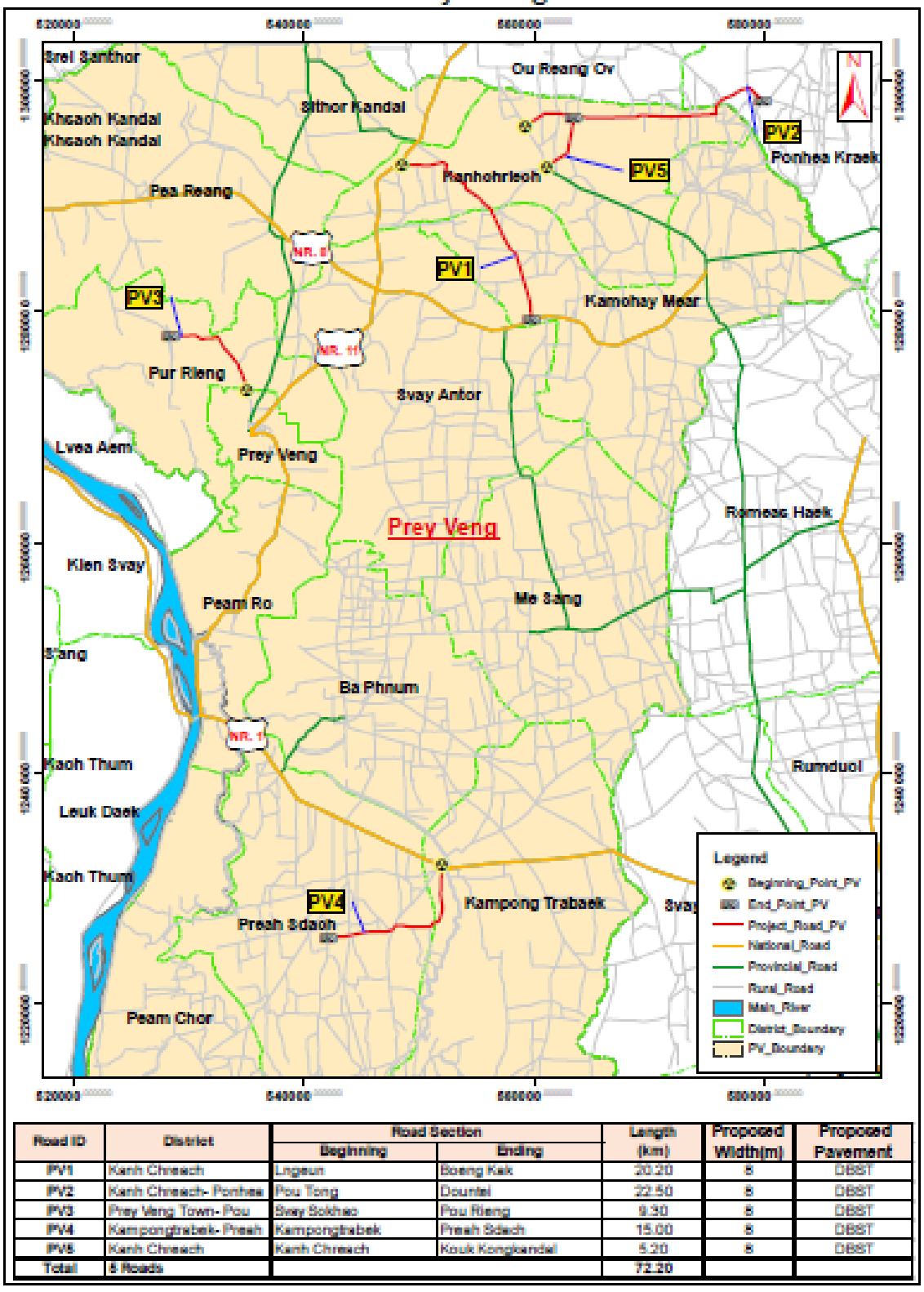
Road ID	District	Road Section		Length (km)	Proposed Width(m)	Proposed Pavement
		Beginning	Ending			
TBK1	Tboung Khmum	Tuol Kondeol	RN.11	9.90	8	DBST
TBK2	Ponhea krek	Trapeang Phlong	Stueng Toch	16.00	7	DBST
TBK3	Kroch Chmar - Dambe	Chhuk	Sedasenchey	13.70	8	DBST
TBK5	Ponhea krek - Dambe	Kondoal chrum	Char Thum	15.10	8	DBST
TBK6	Suong	Suong	Phnum chen	6.40	8	DBST
Total	5 Roads			61.10		

Svay Rieng



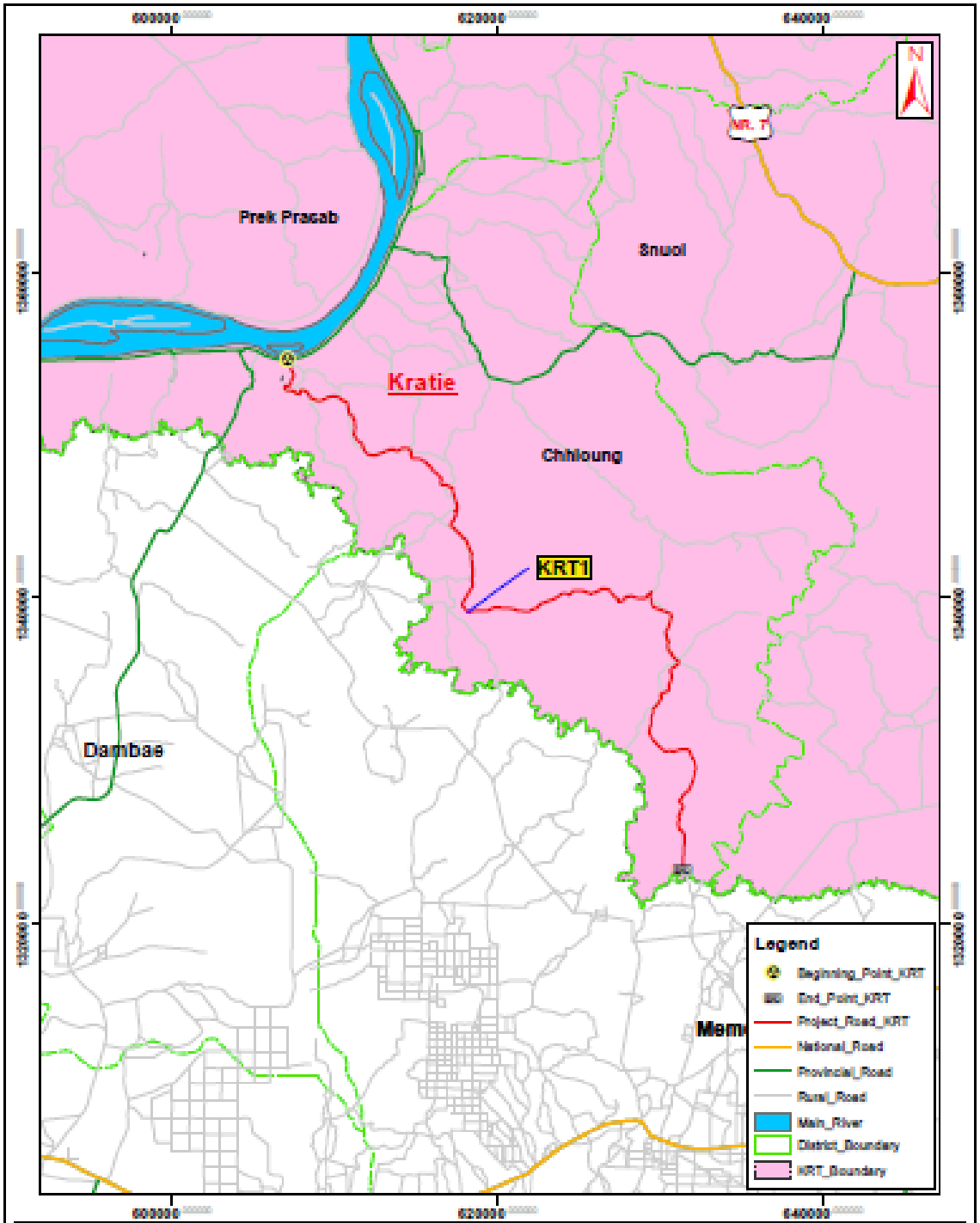
Road ID	District	Road Section		Length (km)	Proposed Width(m)	Proposed Pavement
		Beginning	Ending			
SVR2	Svay Chrum	Krouko	WatKSwaypnem	11.00	8	DBST
SVR3	Rumdul	PheasaChork	Pongtek	9.10	8	DBST
SVR4	Rumdul	PreyKeerv	KomPongAmpil	24.80	8	DBST
SVR5	Kom Pong Ro	PneaPonlea	SomYong	11.90	7	DBST
SVR6	Chantrea	SalaSrok Chantrea	VietnamBorder	7.80	8	DBST
Total	5 Roads			64.60		

Prey Veng



Road ID	District	Road Section		Length (km)	Proposed Width(m)	Proposed Pavement
		Beginning	Ending			
PV1	Kanh Chreach	Lngeun	Boeng Kak	20.20	8	DBST
PV2	Kanh Chreach- Ponhea	Pou Tong	Dountei	22.50	8	DBST
PV3	Prey Veng Town- Pou	Svay Sokhac	Pou Rieng	9.30	8	DBST
PV4	Kampongtrabek- Preah	Kampongtrabek	Preah Sdach	15.00	8	DBST
PV5	Kanh Chreach	Kanh Chreach	Kouk Kongkandal	5.20	8	DBST
Total	5 Roads			72.20		

Kratie



Road ID	District	Road Section		Length (km)	Proposed Width(m)	Proposed Pavement
		Beginning	Ending			
KRT1	Chhlong	Chhlong	Prama	61.30	8	DBST
Total	1 Road			61.30		

APPENDIX 2

Environment Condition Survey Details

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	Date	
Road ID	KC1	Time	
Length of Road	13.5 Km	Width of Road	6.0- 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
1+400	Pipe Culvet				
4+100	Pipe Culvet				
4+500	Pagoda			✓	
4+700	School				
4+800	Pipe Culvet				
5+200	Hospital			✓	
5+400	Pipe Culvet				
6+400	Turn Left				
6+600	Pipe Culvet				
8+200	Pipe Culvet				
8+800	Pipe Culvet				
8+900	Pagoda	✓			
9+000	Pipe Culvet				
9+900	Pipe Culvet				
10+000	Cannot Pass				
10+300	Pipe Culvet				
11+400	Pipe Culvet				
12+300	Pipe Culvet				
12+500	Pipe Culvet				
12+700	Pipe Culvet				
12+900	School	✓			
13+500	Bridge				
13+500	End Point				
Summary	Pipe Culvet	14			
	Box Culvet	0			
	Bridge	1			
	Pagoda	2			
	School	2			
	Hospital	1			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	**Date**	
Road ID	KC2	**Time**	
Length of Road	23 Km	**Width of Road**	4.0 - 5.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+200	Pipe Culvet				
0+500	Pipe Culvet				
0+800	Pipe Culvet				
1+000	Pipe Culvet				
1+300	Pagoda			✓	
1+400	Turn Right				
1+800	Cannot Pass				
3+300	Pipe Culvet				
3+800	Pipe Culvet				
4+700	Pipe Culvet				
5+100	Pipe Culvet				
5+500	Pipe Culvet				
5+800	Pipe Culvet				
6+000	Pipe Culvet				
6+200	Box Culvet				
6+400	Box Culvet				
6+800	Pipe Culvet				
7+200	Pipe Culvet				
7+700	Pipe Culvet				
8+100	Pipe Culvet				
8+300	Pipe Culvet				
8+500	Turn Left				
8+900	Pipe Culvet				
10+300	Box Culvet				
10+500	Box Culvet				
10+700	Box Culvet				
11+000	Box Culvet				
11+300	Pipe Culvet				
11+400	Turn Left				
12+000	Box Culvet				
12+200	-				
12+800	Pagoda	✓			
12+900	Pipe Culvet				
13+000	-				
13+300	Pipe Culvet				
13+900	Box Culvet				
14+200	Pipe Culvet				
14+800	Box Culvet				
15+400	Pipe Culvet				
15+500	Pipe Culvet				
15+500	-				

15+800	Box Culvet				
15+800	Turn Right				
15+800	Pagoda	✓			
16+000	-				
16+200	Pipe Culvet				
16+700	Pipe Culvet				
16+900	Pipe Culvet				
17+100	Pipe Culvet				
17+500	Pipe Culvet				
17+800	Pipe Culvet				
18+100	Pipe Culvet				
18+400	Box Culvet				
18+600	Box Culvet				
19+200	Pipe Culvet				
19+400	Box Culvet				
19+700	Pipe Culvet				
19+700	Pagoda	✓			
19+800	Pipe Culvet				
19+900	School			✓	
20+000	Box Culvet				
21+000	Box Culvet				
21+100	-				
21+400	Box Culvet				
21+600	Pipe Culvet				
21+700	-				
21+800	Pipe Culvet				
22+300	Pipe Culvet				
22+400	Pipe Culvet				
22+600	-				
22+900	Pipe Culvet				
23+000	End Point				
Summary	**Pipe Culvet**	**38**			
	Box Culvet	**16**			
	Bridge	**0**			
	Pagoda	**4**			
	School	**1**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	**Date**	
Road ID	KC3	**Time**	
Length of Road	**11.3 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
1+200	-				
4+800	Pipe Culvet				
5+000	Pagoda			✓	
5+500	-				
6+400	Turn Left				
7+400	Pipe Culvet				
7+800	Turn Left				
7+800	Pagoda			✓	
7+980	Pagoda			✓	
8+000	Turn Left				
8+500	Cannot Pass				
8+700	Pipe Culvet				
9+100	Pipe Culvet				
9+500	Pipe Culvet				
9+600	Pipe Culvet				
10+000	Box Culvet				
10+050	Box Culvet				
10+300	Water Gate				
10+600	Pipe Culvet				
10+800	Pipe Culvet				
11+000	Pipe Culvet				
11+250	Pipe Culvet				
11+300	End Point				
Summary	**Pipe Culvet**	**10**			
	Box Culvet	**2**			
	Bridge	**0**			
	Pagoda	**3**			
	School	**0**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	**Date**	
Road ID	KC4	**Time**	
Length of Road	**11.2 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+50	Pipe Culvet				
2+200	Pipe Culvet				
3+000	Pagoda	✓			
3+100	Turn Left				
3+900	Turn Left				
4+100	Pipe Culvet				
4+500	Pipe Culvet				
4+700	Pipe Culvet				
5+000	Pagoda	✓			
5+000	School				
5+300	Pagoda			✓	
5+600	Pipe Culvet				
6+000	Pipe Culvet				
6+400	Pipe Culvet				
6+500	Pipe Culvet				
6+600	Pagoda	✓			
6+800	Cannot Pass				
7+100	Pipe Culvet				
7+400	Pagoda			✓	
8+800	Pipe Culvet				
9+100	Pipe Culvet				
9+800	School	✓			
9+900	Pipe Culvet				
10+100	Bridge				
10+300	Pipe Culvet				
10+600	Pagoda	✓			
11+200	End Point				
Summary	**Pipe Culvet**	**14**			
	Box Culvet	**0**			
	Bridge	**1**			
	Pagoda	**6**			
	School	**2**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	**Date**	
Road ID	KC5	**Time**	
Length of Road	**20.1 Km**	**Width of Road**	7.0 - 8.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+300	Pipe Culvet				
1+000	-				
3+800	-				
4+100	Pipe Culvet				
5+100	Pipe Culvet				
7+300	Turn Right				
8+700	Pipe Culvet				
9+100	Pipe Culvet				
9+700	Pipe Culvet				
9+750	Pagoda	✓			
11+000	-				
13+000	Pagoda	✓			
13+200	School	✓			
14+200	-				
15+400	School	✓			
17+000	-				
17+500	Pagoda			✓	
17+700	Pipe Culvet				
20+100	End Point				
Summary	**Pipe Culvet**	**7**			
	Box Culvet	**0**			
	Bridge	**0**			
	Pagoda	**3**			
	School	**2**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kampong Cham	**Date**	
Road ID	KC6	**Time**	
Length of Road	**21.5 Km**	**Width of Road**	5.0 - 6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
1+100	Pipe Culvet				
1+200	Pipe Culvet				
2+200	-				
2+400	Pipe Culvet				
3+000	-				
3+600	Box Culvet				
4+700	Pipe Culvet				
6+200	Pipe Culvet				
6+800	Box Culvet				
8+000	Pipe Culvet				
8+300	Turn Right				
10+400	Turn Right				
11+500	Pipe Culvet				
12+200	School	✓			
12+300	Pagoda			✓	
14+000	Turn Left				
14+000	Pagoda			✓	
15+000	Pipe Culvet				
15+900	Pipe Culvet				
16+300	-				
17+500	Pipe Culvet				
17+700	Cannot Pass				
18+600	Pipe Culvet				
21+300	Pagoda			✓	
21+500	End Point				
Summary	**Pipe Culvet**	**11**			
	Box Culvet	**2**			
	Bridge	**0**			
	Pagoda	**3**			
	School	**1**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Tboung Khmum	**Date**	
Road ID	TBK 1	**Time**	
Length of Road	**9.9 Km**	**Width of Road**	6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+100	School			✓	
0+300	Pipe Culvet				
0+600	Pipe Culvet				
1+100	Pipe Culvet				
1+200	Pipe Culvet				
1+800	Pagoda	✓			
1+900	Pipe Culvet				
2+200	Pipe Culvet				
2+300	Pipe Culvet				
2+500	Pipe Culvet				
2+900	Pipe Culvet				
3+200	Pipe Culvet				
4+000	Pipe Culvet				
4+800	School			✓	
5+200	Pipe Culvet				
5+300	Pipe Culvet				
6+200	Pipe Culvet				
6+400	Pipe Culvet				
6+500	Pagoda	✓			
6+800	Pipe Culvet				
7+100	Pipe Culvet				
7+300	-				
9+900	End Point				
Summary	**Pipe Culvet**	**17**			
	Box Culvet	**0**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**2**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Tboung Khmum	**Date**	
Road ID	TBK 2	**Time**	
Length of Road	**16 Km**	**Width of Road**	5.0 - 6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+80	Pipe Culvet				
0+100	Pipe Culvet				
0+300	Pipe Culvet				
0+500	Cannot Pass				
0+700	Cannot Pass				
1+100	Pipe Culvet				
1+300	Pipe Culvet				
1+500	Pipe Culvet				
1+600	Pipe Culvet				
1+900	Pipe Culvet				
2+000	Pipe Culvet				
2+100	Pipe Culvet				
2+900	-				
4+700	Pipe Culvet				
5+100	Pipe Culvet				
5+600	-				
5+700	Pagoda			✓	
5+700	-				
6+000	School	✓			
6+300	Pipe Culvet				
7+700	Pipe Culvet				
9+800	Pipe Culvet				
10+100	Pipe Culvet				
10+400	-				
11+200	-				
12+100	Pipe Culvet				
12+300	Pipe Culvet				
12+400	Pipe Culvet				
12+800	Pipe Culvet				
13+100	Cannot Pass				
13+300	Pipe Culvet				
13+700	Pipe Culvet				
15+700	Pagoda	✓			
15+700	-				
16+000	End Point				
Summary	**Pipe Culvet**	**22**			
	Box Culvet	**0**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**1**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Tboung Khmum	**Date**	
Road ID	TBK 3	**Time**	
Length of Road	**13.7 Km**	**Width of Road**	7.0 - 8.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+100	Pipe Culvet				
0+500	Pipe Culvet				
1+400	Bridge				
1+700	Pagoda	✓			
1+700	School	✓			
2+100	Cannot Pass				
2+700	Pipe Culvet				
2+800	Pipe Culvet				
3+500	Pipe Culvet				
3+700	Pipe Culvet				
4+400	Pipe Culvet				
4+450	Pipe Culvet				
5+900	Pipe Culvet				
6+000	Pipe Culvet				
6+900	School	✓			
7+300	Pipe Culvet				
8+400	Pagoda	✓			
8+500	Pipe Culvet				
9+600	-				
11+000	Pipe Culvet				
11+500	-				
13+700	End Point				
Summary	**Pipe Culvet**	**13**			
	Box Culvet	**0**			
	Bridge	**1**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**2**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Tboung Khmum	Date	
Road ID	TBK 5	Time	
Length of Road	15.1 Km	Width of Road	5.0 - 6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
1+000	-				
1+050	Pipe Culvet				
1+500	Pipe Culvet				
1+900	Pipe Culvet				
2+100	Pipe Culvet				
2+700	Pipe Culvet				
3+050	-				
3+100	School			✓	
3+200	Pipe Culvet				
3+200	-				
3+500	Pipe Culvet				
3+700	Pagoda	✓			
4+800	Pipe Culvet				
5+000	Pipe Culvet				
5+200	Pipe Culvet				
5+300	-				
5+350	Pipe Culvet				
5+600	Pipe Culvet				
5+700	Pagoda			✓	
6+100	Pipe Culvet				
6+800	School	✓			
7+500	Pagoda	✓			
7+800	Cannot Pass				
7+900	Pipe Culvet				
8+000	Pipe Culvet				
8+300	Pipe Culvet				
8+500	Turn Left				
8+600	Pipe Culvet				
8+900	Turn Right				
9+300	Pipe Culvet				
10+100	Pipe Culvet				
12+900	Pipe Culvet				
13+000	Pipe Culvet				
13+100	-				
13+300	Pagoda			✓	
13+300	School	✓			
13+400	-				
13+700	Pipe Culvet				

13+800	Pipe Culvet				
14+300	School			✓	
14+300	-				
14+500	Hospital			✓	
15+100	Pipe Culvet				
15+100	End Point				
Summary	Pipe Culvet	24			
	Box Culvet	0			
	Bridge	0			
	Water Gate	0			
	Pagoda	4			
	School	4			
	Hospital	1			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Tboung Khmum	Date	
Road ID	TBK 7	Time	
Length of Road	19.3	Width of Road	5.0 - .6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+50	-				
0+400	Pipe Culvet				
0+800	Pipe Culvet				
0+900	Pipe Culvet				
1+500	Pipe Culvet				
1+600	Pipe Culvet				
1+700	Pipe Culvet				
2+000	-				
3+100	Pipe Culvet				
3+300	-				
3+400	-				
4+600	Box Culvet				
4+700	Pipe Culvet				
4+900	Box Culvet				
5+200	Box Culvet				
5+300	Pipe Culvet				
5+600	Pipe Culvet				
5+800	Pipe Culvet				
6+000	-				
6+200	-				
6+500	-				
6+600	Pipe Culvet				
7+200	Pipe Culvet				
7+400	Pipe Culvet				
7+500	Pipe Culvet				
7+900	-				
8+700	-				
9+000	-				
10+100	-				
11+100	-				
11+700	Pipe Culvet				
12+000	Pipe Culvet				
12+500	Pipe Culvet				
12+700	-				
13+000	Pipe Culvet				
13+000	-				
14+000	Pipe Culvet				
14+500	-				

16+200	-				
16+400	Pipe Culvet				
16+500	-				
17+400	-				
17+900	-				
19+300	End Point				
Summary	Pipe Culvet	21			
	Box Culvet	3			
	Bridge	0			
	Water Gate	0			
	Pagoda	0			
	School	0			
	Hospital	0			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Prey Veng	**Date**	
Road ID	PV1	**Time**	
Length of Road	**20.2 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+100	School	✓			
0+300	Pipe Culvet				
1+000	Pipe Culvet				
1+300	Pagoda			✓	
1+500	Pipe Culvet				
2+100	Pipe Culvet				
3+000	School			✓	
3+100	Pipe Culvet				
3+500	Turn Right				
4+300	Turn Left				
4+500	Pipe Culvet				
4+800	Pipe Culvet				
5+800	Pipe Culvet				
6+000	Pipe Culvet				
6+300	Pagoda	✓			
6+300	Turn Left				
6+500	Turn Right				
6+500	Pipe Culvet				
6+700	Pipe Culvet				
6+700	School			✓	
6+800	Pagoda			✓	
7+900	Pipe Culvet				
8+000	Pipe Culvet				
8+100	Pipe Culvet				
8+500	Pipe Culvet				
8+800	Pagoda	✓			
8+800	Cannot Pass				
8+900	Pipe Culvet				
9+000	Pipe Culvet				
10+200	Pipe Culvet				
10+300	Cannot Pass				
10+500	School	✓			
10+500	Pipe Culvet				
11+300	Pipe Culvet				
11+600	Pipe Culvet				
12+100	Pagoda			✓	
12+200	Pipe Culvet				
12+500	Pipe Culvet				
12+800	Pipe Culvet				
13+500	Pipe Culvet				
14+100	Pipe Culvet				

14+900	Pipe Culvet				
15+500	Pipe Culvet				
15+600	Pagoda			✓	
15+600	School	✓			
16+000	Hospital			✓	
16+400	Pipe Culvet				
16+900	Pipe Culvet				
18+000	Box Culvet				
18+100	Box Culvet				
18+300	Pipe Culvet				
18+500	Pipe Culvet				
19+100	Pipe Culvet				
19+300	Pipe Culvet				
20+200	End Point				
Summary	**Pipe Culvet**	**34**			
	Box Culvet	**2**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**6**			
	School	**5**			
	Hospital	**1**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Prey Veng	**Date**	
Road ID	PV2	**Time**	
Length of Road	**22.5 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+000	Pipe Culvet				
0+900	Pagoda	✓			
2+000	School	✓			
2+000	Pagoda	✓			
2+700	Pipe Culvet				
3+000	-				
3+100	Pipe Culvet				
3+100	Cannot Pass				
4+000	School	✓			
4+300	School			✓	
4+300	Pagoda			✓	
4+500	Cannot Pass				
5+800	-				
6+200	Pipe Culvet				
6+300	Pipe Culvet				
6+400	Bridge				
7+100	Pipe Culvet				
8+000	-				
8+800	Bridge				
9+200	Pipe Culvet				
10+000	-				
10+200	Pipe Culvet				
10+600	Pipe Culvet				
11+300	Pipe Culvet				
11+400	Box Culvet				
11+700	Pipe Culvet				
12+700	Box Culvet				
13+300	Pipe Culvet				
14+000	Pipe Culvet				
14+200	Pipe Culvet				
14+600	Pagoda			✓	
14+700	School			✓	
14+800	Pipe Culvet				
14+850	Pipe Culvet				
15+200	Pipe Culvet				
15+700	Pipe Culvet				
15+800	Box Culvet				
16+600	Pipe Culvet				
16+800	Turn Left				
17+500	Pipe Culvet				
18+100	Pipe Culvet				

19+100	Box Culvet				
19+200	Box Culvet				
19+300	-				
19+500	Box Culvet				
19+600	Box Culvet				
20+200	Box Culvet				
20+400	Pagoda			✓	
20+600	-				
20+670	Hospital	✓			
20+900	Turn Right				
21+000	School			✓	
21+200	-				
21+800	Pipe Culvet				
22+100	Box Culvet				
22+200	Pipe Culvet				
22+400	Pipe Culvet				
22+500	End Point				
Summary	**Pipe Culvet**	**24**			
	Box Culvet	**9**			
	Bridge	**2**			
	Water Gate	**0**			
	Pagoda	**5**			
	School	**5**			
	Hospital	**1**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Prey Veng	**Date**	
Road ID	PV3	**Time**	
Length of Road	**9.3 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+700	-				
0+700	Bridge				
2+100	Pipe Culvet				
2+300	Turn Right				
2+300	Pipe Culvet				
2+600	Pipe Culvet				
3+200	Pipe Culvet				
4+200	Pipe Culvet				
4+400	Pipe Culvet				
5+100	Pipe Culvet				
5+700	Bridge				
6+900	Pipe Culvet				
7+800	Pipe Culvet				
8+500	Pipe Culvet				
8+800	Pipe Culvet				
9+300	End Point				
Summary	**Pipe Culvet**	**11**			
	Box Culvet	**0**			
	Bridge	**2**			
	Water Gate	**0**			
	Pagoda	**0**			
	School	**0**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Prey Veng	Date	
Road ID	PV4	Time	
Length of Road	15 Km	Width of Road	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+600	Pipe Culvet				
0+800	Pipe Culvet				
1+000	Pipe Culvet				
1+500	Pipe Culvet				
1+800	Box Culvet				
1+900	Pipe Culvet				
2+400	Pipe Culvet				
3+300	Pipe Culvet				
3+600	Pipe Culvet				
3+800	Pipe Culvet				
4+200	Pipe Culvet				
5+000	Bridge				
5+500	School	✓			
5+700	Turn Right				
6+400	Pipe Culvet				
6+700	Pipe Culvet				
7+300	Pipe Culvet				
7+600	Pipe Culvet				
8+600	Pipe Culvet				
8+800	Turn Left				
9+000	Pipe Culvet				
9+300	Turn Right				
9+300	Hospital			✓	
10+200	Box Culvet				
10+300	Pipe Culvet				
10+600	Pipe Culvet				
11+300	Pipe Culvet				
12+100	School			✓	
12+150	Pagoda			✓	
12+400	Pipe Culvet				
13+100	Box Culvet				
13+400	Pipe Culvet				
13+800	Pipe Culvet				
14+000	Pipe Culvet				
14+500	Pipe Culvet				
15+000	End Point				
Summary	Pipe Culvet	25			
	Box Culvet	3			
	Bridge	2			
	Water Gate	0			
	Pagoda	1			
	School	2			
	Hospital	1			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Prey Veng	**Date**	
Road ID	PV5	**Time**	
Length of Road	**5.2 Km**	**Width of Road**	8.0 - 10.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+200	Pipe Culvet				
0+500	Pipe Culvet				
0+900	Pagoda	✓			
1+000	Pipe Culvet				
2+100	School	✓			
2+100	Pagoda			✓	
2+100	Turn Left				
2+100	-				
2+700	Pipe Culvet				
2+700	-				
3+000	Pipe Culvet				
3+200	Pipe Culvet				
4+000	Pipe Culvet				
4+300	Pipe Culvet				
4+700	Pipe Culvet				
5+100	Pagoda	✓			
5+150	Pipe Culvet				
5+200	End Point				
Summary	**Pipe Culvet**	**10**			
	Box Culvet	**0**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**3**			
	School	**1**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Svay Rieng	**Date**	
Road ID	SVR 2	**Time**	
Length of Road	**11 Km**	**Width of Road**	5.0 - 6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+600	Pipe Culvet				
0+800	Pipe Culvet				
1+400	Pipe Culvet				
2+100	Pipe Culvet				
2+300	Turn Right				
3+100	Pipe Culvet				
3+600	Pipe Culvet				
3+900	Pipe Culvet				
4+200	Pipe Culvet				
4+500	Pipe Culvet				
5+000	Pagoda			✓	
5+100	School	✓			
5+500	Pipe Culvet				
5+700	Pipe Culvet				
5+900	Pipe Culvet				
6+400	Pipe Culvet				
6+900	Pipe Culvet				
7+100	Box Culvet				
8+000	Pipe Culvet				
8+000	Pipe Culvet				
8+300	School	✓			
10+200	Pagoda	✓			
10+300	School	✓			
10+500	Pipe Culvet				
11+000	End Point				
Summary	**Pipe Culvet**	**17**			
	Box Culvet	**1**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**3**			
	Hospital	**0**			

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INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Svay Rieng		**Date**	
Road ID	SVR 3		**Time**	
Length of Road	**9.1 Km**		**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond				
Schools				
Village/Town/Market				
Health Centers				
Forest/Orchard				
Road Inventory: Bridges/Culverts- Pipe/Box				

PK	Inventory	No.	Direction			Remarks
			LHS	Center	RHS	
0+000	Beginning Point	1				
0+200	-	1				
0+200	Pipe Culvet	1				
0+400	Pipe Culvet	1				
0+900	Pipe Culvet	1				
1+200	Pipe Culvet	1				
1+800	Bridge	1				
3+100	Pipe Culvet	1				
3+500	Pagoda	1	✓			
3+900	Pipe Culvet	1				
4+100	Pipe Culvet	1				
4+400	Pipe Culvet	1				
4+900	Pipe Culvet	1				
4+950	Pipe Culvet	1				
5+400	Pipe Culvet	1				
5+700	Pipe Culvet	1				
6+100	Pipe Culvet	1				
6+500	Pipe Culvet	1				
7+300	Pipe Culvet	1				
7+600	Pipe Culvet	1				
8+200	Pipe Culvet	1				
8+300	School	1	✓			
8+300	Hospital	1			✓	
8+300	-	1				
8+500	School	1			✓	
8+700	Pipe Culvet	1				
9+100	End Point	1				
Summary	**Pipe Culvet**		**18**			
	Box Culvet		**0**			
	Bridge		**1**			
	Water Gate		**0**			
	Pagoda		**1**			
	School		**2**			
	Hospital		**1**			

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INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Svay Rieng	**Date**	
Road ID	SVR 4	**Time**	
Length of Road	**24.8 Km**	**Width of Road**	7.0 - 8.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+100	Pipe Culvet				
0+700	Pipe Culvet				
1+500	Pipe Culvet				
1+700	Pipe Culvet				
2+000	School			✓	
2+000	Pagoda			✓	
2+300	Pagoda	✓			
3+200	Pipe Culvet				
3+500	School			✓	
4+000	Pagoda	✓			
4+200	Pipe Culvet				
4+600	Pipe Culvet				
5+100	Pagoda	✓			
5+800	Box Culvet				
6+100	Pagoda			✓	
6+500	Pipe Culvet				
6+700	Pipe Culvet				
6+900	Pipe Culvet				
7+200	Pipe Culvet				
7+700	Pipe Culvet				
7+800	Pipe Culvet				
8+100	Pipe Culvet				
8+200	Pipe Culvet				
8+300	Pipe Culvet				
8+600	Pagoda			✓	
9+100	Pipe Culvet				
9+500	Pipe Culvet				
9+900	Pagoda	✓			
9+900	School			✓	
10+100	Pipe Culvet				
10+600	Pipe Culvet				
10+800	Box Culvet				
11+600	Pipe Culvet				
11+800	Cannot Pass				
11+800	Box Culvet				
12+200	Pagoda			✓	
12+400	Pipe Culvet				
12+500	Pipe Culvet				
13+000	Pipe Culvet				
14+100	Pipe Culvet				
15+100	Box Culvet				

15+200	-				
15+400	Pipe Culvet				
15+700	Pipe Culvet				
16+000	Pagoda	✓			
16+100	School	✓			
17+400	Pipe Culvet				
17+500	Pipe Culvet				
17+900	Pipe Culvet				
18+300	Pipe Culvet				
18+600	Pipe Culvet				
18+700	Pipe Culvet				
20+300	Pagoda	✓			
20+500	Pipe Culvet				
20+800	Pipe Culvet				
21+400	Box Culvet				
22+000	Pagoda	✓			
22+300	Box Culvet				
22+900	Pipe Culvet				
24+100	Pipe Culvet				
24+200	Pipe Culvet				
24+500	Pagoda	✓			
24+800	End Point				
Summary	**Pipe Culvet**	**38**			
	Box Culvet	**6**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**12**			
	School	**4**			
	Hospital	**0**			

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INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Svay Rieng	**Date**	
Road ID	SVR 5	**Time**	
Length of Road	**11.9 Km**	**Width of Road**	5.0 - 6.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+50	Pipe Culvet				
0+700	Box Culvet				
1+300	Pipe Culvet				
1+800	Pipe Culvet				
2+300	Pagoda			✓	
2+700	School			✓	
3+100	Pipe Culvet				
3+400	Pipe Culvet				
4+300	Box Culvet				
4+500	Bridge				
5+500	Pipe Culvet				
5+800	Pagoda	✓			
6+200	Pipe Culvet				
7+000	Pipe Culvet				
7+700	Box Culvet				
8+200	Cannot Pass				
8+400	Hospital			✓	
9+000	School			✓	
9+000	Cannot Pass				
9+100	Pipe Culvet				
9+800	Pipe Culvet				
10+400	Pipe Culvet				
11+000	Pipe Culvet				
11+900	End Point				
Summary	**Pipe Culvet**	**12**			
	Box Culvet	**3**			
	Bridge	**1**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**2**			
	Hospital	**1**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Svay Rieng	**Date**	
Road ID	SVR 6	**Time**	
Length of Road	**7.8 Km**	**Width of Road**	6.0 - 7.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+300	Pipe Culvet				
0+800	Pipe Culvet				
1+300	Pipe Culvet				
1+700	Pipe Culvet				
1+800	Pipe Culvet				
1+900	Pipe Culvet				
1+980	Pipe Culvet				
2+030	Pipe Culvet				
2+080	Pipe Culvet				
2+700	Pipe Culvet				
3+500	Pipe Culvet				
3+550	Pipe Culvet				
3+550	Pagoda	✓			
4+000	Pipe Culvet				
4+100	Pagoda	✓			
4+600	School	✓			
5+000	Pipe Culvet				
5+300	Pipe Culvet				
5+600	-				
5+600	Pagoda			✓	
5+800	School	✓			
6+400	Pipe Culvet				
7+000	-				
7+400	-				
7+800	End Point				
Summary	**Pipe Culvet**	**16**			
	Box Culvet	**0**			
	Bridge	**0**			
	Water Gate	**0**			
	Pagoda	**3**			
	School	**2**			
	Hospital	**0**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

INVENTORY OF SENSITIVE RECEPTORS/OTHER LAND USES (RRIP III)

Province	Kratie	**Date**	
Road ID	KRT1	**Time**	
Length of Road	**61.3 Km**	**Width of Road**	7.0 - 8.0
Pagoda/Temple/Mosques/Graves/River/Lake/Pond			
Schools			
Village/Town/Market			
Health Centers			
Forest/Orchard			
Road Inventory: Bridges/Culverts- Pipe/Box			

PK	Inventory	Direction			Remarks
		LHS	Center	RHS	
0+000	Beginning Point				
0+100	Pagoda	✓			
0+600	Box Culvet				
0+900	Pipe Culvet				
1+800	Bridge				
3+600	Pipe Culvet				
3+900	Pipe Culvet				
4+600	Pipe Culvet				
4+700	Pipe Culvet				
4+800	Pipe Culvet				
5+000	Pipe Culvet				
5+300	Pagoda	✓			
5+600	Pipe Culvet				
5+900	Pipe Culvet				
6+100	School	✓			
6+200	Pipe Culvet				
6+700	Box Culvet				
7+100	Box Culvet				
12+500	Pipe Culvet				
15+900	Pipe Culvet				
16+000	-				
16+700	Bridge				
16+900	Cannot Pass				
17+000	Pipe Culvet				
17+100	-				
17+300	Bridge				
17+400	Pipe Culvet				
17+800	Bridge				
18+400	-				
18+800	Bridge				
19+000	School	✓			
19+100	Hospital	✓			
19+200	-				
19+800	Pipe Culvet				
20+200	Pipe Culvet				
20+300	Pipe Culvet				
21+300	-				
24+000	Bridge				
24+800	Pipe Culvet				
25+500	Bridge				
25+600	-				
26+900	Box Culvet				

33+000	Box Culvet				
36+500	Box Culvet				
38+800	-				
41+000	Box Culvet				
42+000	Box Culvet				
43+000	Pipe Culvet				
43+400	Pipe Culvet				
44+500	Pipe Culvet				
44+800	Pipe Culvet				
46+000	Box Culvet				
47+300	Pipe Culvet				
48+000	Pipe Culvet				
48+100	School			✓	
48+200	Cannot Pass				
48+400	Box Culvet				
48+800	Pipe Culvet				
49+000	-				
49+400	-				
49+600	Pipe Culvet				
51+500	-				
60+600	Pipe Culvet				
61+300	End Point				
Summary	**Pipe Culvet**	**27**			
	Box Culvet	**10**			
	Bridge	**7**			
	Water Gate	**0**			
	Pagoda	**2**			
	School	**3**			
	Hospital	**1**			

Notes: Settlements of varying degrees of densities are present along both sides of of the alignment. In between these settlements are cultivated agricultural lands.

APPENDIX 3

Environment Condition Photos

Appendix 3
Environmental Condition Pictures of Sample Roads under RRIP III

1. Kampong Cham Province

The existing environmental and other receptors along road KC1

The existing environmental and social receptors along road KC2

The existing environmental and social receptors along road KC3

Existing rural road and environmental condition along road KC4

Cultural resources (pagodas) setting near-along road KC4

The existing environmental and social receptors on road KC5

The existing environmental and social receptors on road KC6

2. Tboung Khmum Province

The existing environmental and social receptors along road TBM1

The existing environmental and other receptors along road TBM2

Existing road and environmental condition along road TBM3

Existing road and environmental condition along road TBM4

The existing environmental and social receptors along road TBM5

Existing road and environmental condition along road TBM6

The existing environmental and other receptors along road TBM7

The existing environmental and social receptors along road TBM 8

3. Prey Veng Province



Kbeung Reay Commune office, on PV1 | Existing road and environmental condition on Road PV1



Existing environmental and social resources on road PV2



Existing environmental and social resources on road PV3



Existing road and environmental condition on road PV4.



Existing road and environmental condition on road PV5

Existing road and environmental condition on road PV6

4. Svay Rieng Province

Existing road and environmental condition on road SVR1

Health center and pagoda on/near SVR1

Existing road and environmental condition of SVR2

Existing road, pagoda, school and social condition on SVR2

Existing environmental and social resources SVR3

Existing environmental and social resources SVR4

Existing road and environmental condition of SVR5.

Existing road, pagoda, environmental and social receptors on SVR6

Existing road and environmental condition on SVR6

5. Kratie Province

Exististing environmental and social resources KRT1

Existing road and environmental condition on road KRT2

Pagoda on Road KRT3	Condition of Road KR3	Svay Chras Commune, Snoul District

APPENDIX 4

Public Consultation Documentation

Appendix 4- Consultation Documentation

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

A. Background

1. Introduction

The ADB's Environment Policy mandates the procedural requirements for effective public consultation and information disclosure in the EA process. The purpose of this report is to provide practical guidance on adequate public consultation and suggest approaches on how to achieve it. Regarding to ADB's Guideline, the EMP should include a plan for public consultation activities during the finalization and implementation of the EMP. The degree of consultation will depend on the project and local situation, (Environmental Assessment Guideline, ADB 2003).

Public Participation: is the participation of all stakeholders concerned with the development project including ministries/institutions, local authorities, relevant departments, project owners, consulting companies, representatives of affected people and non-governmental Organizations concerned with the project areas (Declaration of General Guideline for Developing IEE and full EIA Report, MoE, 2009). The Ministry of Environment, following a request from the public, shall provide information on its activities, and shall encourage public participation in environmental protection and natural resource management. (Article 16, Law on Environmental Protection and Natural Resources Management, MoE, 1996)

The Ministry of Rural Development (MRD) is the Executing Agency (EA) of this project assisted by a Project Management Unit (PMU) responsible for the overall project implementation, management and coordination. A Detailed Design and Implementation Supervision Consultant (DDIS) shall be selected to incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design/pre-construction stage. Qualified contractor(s) shall be selected through a transparent procurement process to properly implement the project on a timely basis in an environmentally-responsible manner. The PDRD shall be responsible for the operation and maintenance of the project roads. The Ministry of Environment (MOE) shall issue necessary approvals prior to project implementation and undertake monitoring based on their mandate.

2. The Geography and Project Locations

The RRIP III is a proposed project to be co-financed by the Asian Development Bank (ADB) and Korea Export and Import Bank (KEXIM). It will continue and expand previously approved two projects funded by the ADB, namely the Rural Roads Improvement Project-II (Loan 3151) and RRIP-II-AF (Loan 3151) which also expanded from RRIP initiative Loan 2670. The project aims to rehabilitate 855.60 kilometers (km) of rural roads in ten (10) provinces namely: 1) Kampong Cham 2) Tboung Khmum, 3) Prey Veng, 4) Svay Rieng, 5) Kratie, 6) Kampong Chhnang, 7) Kandal, 8) Kampong Speu, 9) Takeo, and 10) Kampot to paved condition with double bituminous surface treatment (DBST). This will traverse 50 districts and 132 Communes/Sangkat benefitting a total of close to 300,000 families or more than 1.39 million people.

3. Objective of the Public Consultation

The main objectives of the public consultation include

- Providing information about the project, its location, and activities;

- Discussions with Commune Chiefs for the preparation requirements of meetings and information that are relevant to the proposed projects, especially sensitive resources;
- Conducting participatory meetings with Village Chiefs, Commune Chiefs and other representatives from the local communities;
- Receiving issues, feedback, comments, and information from stakeholders that concerns the project;
- Addressing potential issues and concerns from stakeholders;
- Informing the communities of the conduct of surveys in the project site.

4. Discussion Guides

Some open-ended questions and information requests will be presented to guide discussions or presentation to the stakeholders.

1. The project areas, project planning, and benefits of the project (negative and positive).
2. The project designs or operations to prevent negative environmental, or community (social) impacts
3. Any environmental and social concerns or impacts of the project activities.
4. Any environmental concerns/impacts with project activities: before construction, during construction, and after construction (road operation stage).
5. Climate change condition or any disaster risk issues.

B. Identification of Stakeholders

1. Stakeholders and Schedule

On 03 to 06 October 2017, consultants of project preparation study team conducted site visits and consultation meetings with local authorities (village and commune), and community members along the proposed rural roads of RRIPIII for some of the provinces, namely: Takeo, Kampong Speu, Kandal and Kampong Chhnang. The involved team was composed of the following:

- Mr. Yim Chamnan National Environmental Specialist
- Mr. Pen Thay National Social and Gender Specialist
- Mr. Joselito P. Losaria International Environmental Specialist

The stakeholders in these meetings were identified by commune chiefs/commune authorities and project consultants during the conduct of the field visits, and discussion with commune chiefs or village chiefs. The following stakeholders attended these consultation meetings:

- Village and commune authorities along the road project sites;
- Community residents living near the roads who will benefit from the project, and who have an interest in identifying measures to enhance or maximize the benefits;
- Female residents of the communities who are living along/near these roads, that may be directly and indirectly affected/impacted or adversely impacted by the project
- Vulnerable and/or marginalized groups to the extent that they may be present in the area along the roads who have an interest in the identification and implementation of measures that support and promote their involvement and participation in the projects.

The attendance lists of participants are noted in the tables below in this report.

2. Field Consultations Schedule

Schedule of field consultations and field visiting, RRIP-III (Period: 03-06 October 2017)

Date-time	Activities	Participants		
		Planned	Actual	
			Attended	Female
03 Oct, 017 (Tue)				

7:30am - 11:30am	-Traveling to **Takeo.** Field visits of road sites in Bati and Samraong District, Takeo. - Consultation meetings on road **TK7**	15	49	10
2:00pm - 5:30pm	- Field visit road sites in Samraong and Tramkok District, Takeo. - Consultation meetings on road **TK2.** **- Overnight in Takeo**	15	57	23
04 Oct, 017 (Wed)				
7:30am – 11:30am	Traveling to Kg Speu. Field visits of road sites in Samraong Tong District, Kampong Speu. -.Consultation meetings on road **KSP8.**	15	30	15
2:00pm – 5:30pm	Field visits of road sites in Phnom Srouch District, Kampong Speu. - Consultation meetings on road **KSP6** **- Overnight in Kampong Speu**	15	35	10
	- Additional Road site visit for KSP4			
05 Oct 2017 (Thu)				
7:30am – 11:30am	- Traveling to Kandal. Field visits of road sites Ang Snoul District, Kandal Province. - Consultation meetings on roads **KD5**	15	23	3
2:00pm – 5:30pm	-.Consultation meetings on roads **KD4-KD14** - Visited roads KD4 and KD14 - Traveling to Kampong Chhnang. **- Additional Road site visits for KCH 2; KCH 2a** **- Overnight in Kampong Chhnang**	15	30	12
06 Oct 2017 (Fri)				
7:30am - 2:00am	- Field visits of road sites in Rolea Bier and Teuk Phos District, Kampong Chhnang. -.Consultation meetings on roads **KCH3**	15	38	10
	- Consultation meetings on roads **KCH9.** **- Additional Road site visits for KCH 4; KCH 10; KCH 8; KCH 5; KCH 6; and KCH 7**	15	18	8
2:00pm – 5:30pm	- Travelling from field to Phnom Penh			

Field Team:

- Mr. Yim Chamnan National Environmental Specialist
- Mr. Pen Thay National Social and Gender Specialist
- Mr. Joselito P. Losaria International Environmental Specialist

C. Summary of the Results of Consultations and Pictures

1. Bati District, Takeo Province

Road Identification: TK7 and TK2

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
TK7, Meeting at Chambork Commune, Bati District, on 03 October 2017			
- We have been having difficulty with the rural road for a long time already with dust and potholes. There are some small impacts on trees, air, and noise during construction, but are not big problems. Our people will be happy to support with project. - The road should be provided with enough culverts for control of flood over the road.	- Mr. Chan Yem Chief of Chambork Commune	The engineer will conduct survey and design for bridge and culvert. - When people donate, they	The suggestion is referred to all participants

- For any effects to private properties or small structures, I think the people will support and make donation to the project. - The road is in a very difficult condition for people to travel anywhere especially to school, market, and hospital. And it is even more difficult during the rainy season. - Now, we are very happy with a new DBST road. It can be used for a long time with good environment and health of the people. However, provide watering on dusty road during construction. - There is a problem with dust during construction but it will be only for a short time. We need a good road. - After construction, it should be kept maintained and limit loading of heavy trucks. - Should identify which old culverts or bridges will be built new. - The local people are willing to work during the road construction.	- Ms. Yok Sary - Ms. Ich Sohun - Mr. Long Phy - Mr. Tol Heng	should be prepared with agreement letter of donation. - The contractor will implement the dust control and any impacts under control by MRD and DDIS consultant.	
TK2, Meeting at Trapeng Krasaing and Krang Leav Commune, Bati District, on 03 October 2017			
- This road is important for our people (for economic activities and children to go to schools. The road onnects from NR2 to NR3 and passes some communes. - This road is very difficult to travel especially during the rainy season (many potholes and muddy). - Village Chiefs and Commune Chiefs have been informed already of the ROW and any land use. - If there will be impacts to the structures or houses by the road project, the people will move out. - Please build the culverts and drainages for some road section that are usually flooded during heavy rainfall. - This road had been making difficulties for our people for a long time already. So we need a good road. I think the good road will give good sanitation (not dust and not muddy), and improve our local business. - No issues on a few impacts on trees or any land use on the ROW. We will support the road project. - I think the road width 06 m is not a problem in this area or there is a few problem for some sections. - Some people want to work for the road project.	- Mr. Phin Sarum (Trapeng Krasaing Commune Council) - Mr. Sam Reun (Commune Clerk) - Ms. Sam Phat - Ms. Theng Pum - Mr. Kheun Von - Mr. Sam Pich	- This road project is under study stage. The engineer will construct survey and design where culverts can be installed to provide drainage. - For support trees or structures, there should be documentation signed by affected people and authority.	

Consultation meeting in Chambork Commune, TK7

The environmental, social, and road condition, TK7

Consultation meeting in Trapeng Krasaing and Krang Leav Commune, TK2

The existing environmental condition on the proposed road, TK2

2. Phnom Srouch District, Kampong Speu Province

Road Identification: KSP6 and KSP8

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KSP6: Meeting at Moha Saing Commune, Phnom Srouch District, on 04 October 2017			
- The present rural road is very poor and difficult to go anywhere for social activities: markets, schools, and hospitals, especially during the rainy season that is usually slippery and where some parts of the road are flooded by run-off. - The communities spend more time and spend more money for traveling or transport products to markets (dusty in the dry season and muddy in raining season). - The improvement of the rural road to BBST is very good for safe travelling and for improving local economic activities of our people.	- Mr. Long Bunheng - Ms. Lay Cahnsour - Mr. Sem Seun - Mr. Hang Chhon	-The engineer will conduct survey and design for bridge and culvert. - When people donate, should be prepared agreement letter of donation	The suggestion is referred to all participants

- This road improvement project is important for local people to transport agricultural products, to markets (save time and money). Increasing economic of local communities. - Please provide some enough/suitable culverts for control of flood over the road. - For any effects to private properties or small structures, I think the people will support/donate to the project. - There is no problem with dust during construction because it is only for a short time. We need a good road. - The local people are willing to work during road construction. - Will the road be widened in same and both sides of the road?			
KSP8: Meeting at Kaheng and Tang Krouch Commune, Samraong Tung District, on 04 Oct 2017			
- This road is important for our people (for economic) and children to go to schools. The road connects from NR2 to NR3 and passes some communes. - Village chiefs and commune chiefs have been informed already about the ROW and any land use there. - If there will be impacts to structures or houses along the road project, the people will move out. - Please provide culverts/drainages because some road sections are usually flooded during heavy rain. - This road had made life difficult for our people for a long time already so we need good road. I think good road will give good sanitation (not dust and not muddy), and increase our local business. DBST road is good for social safety, with no more dust pollution. We have been waiting for this for long time already. I think, the impacts of project on land use, crops on the road side or RoW are very small. It is not a problem because our people will support and contribute their loses. - Noise and air pollution from construction machines is small only during the construction stage. - I think the road width 06 m is not a problem in this area or if there will be, it will be limited only to a sections of the road. - Please try to study as soon as possible for construction. We need this road very badly.	- Mr. Leok Chim - Mr. Kang Phai - Mr. Yim Vy - Ms. Muth Sareth - Ms. Kang Dara - Ms. Moy Sokly	- This road project is under study stage. The engineer will construct survey and design, when can build culverts and where will provide drainage. - For support trees or structures, next time, should be have documentation sign by affected people and authority. We try to study, but don't sure ADB/MRD will select this road or not. Hope will be ok.	

Consultation activities in Ponro Pagoda, Mohasaing Commune, KSP6

Existing environmental, social, and road condition, KSP8

Consultation activities in Kahai and Kang Kroch Commune, KSP8 | Road condition KSP8

The existing environmental and social condition road KSP8

The existing condition of road KSP4

3. Ang Snuol District, Kandal Province

Road Identification: KD4, KD14 and KD5

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KD4 & KD14: Meeting at Prey Pouch and Lom Hach Commune, Ang Snuol District, on 54 Oct 2017			
- We are very happy with the planned improvement of the rural road in this area. - Our people will support this project. If project needs or if there will be any small impacts to private properties, they will donate/support the project. Our people in this area are very happy to hear about this road improvement project. We are supporting 100% because we need it.	Mr. Dy Thong Mr. Nguon Sroy Ms. Sok Sokhom	- Now it is being studied but we don't know yet if this road will be constructed or not. - The engineer will conduct	

- The local authorities had informed the people already of the ROW and land use on the ROW. - There are no forest areas or conservation forest resources that are located near the road project. - There are a few impacts on trees, vegetation or land use on the ROW, but these are small. The people will donate. - We need DBST road, so the impacts of dust, noise during construction will not become big issues. - Please provide drainage for some sections to reduce flood. - The good road is very important for us: economic, environment, and health of the people. - Prepare all documents for selection and construct this road to DBST condition.	Ms. Meoung Siem Ms. Ny An	survey and design for the bridge, culvert, and drainage.	
KD5: Meeting at Peuk and Samraong Leu Commune, Ang Snuol District, on 05 October, 2017			
- This existing road has more width, so the road improvement has no impact or very minor impact to any resources on the ROW. -The people are very happy with the project. They will support the project even if there will be affected properties. - For very long time, we have very difficulty travelling on this road (potholes, muddy, and very dusty). - Please help us to study, design, and construct this road to DBST. - We have been waiting for a DBST road for a long time in this area (this is only laterite road). - When the road construction will start? - Please put some culverts or bridges for open water flow and reduce flood. - The impacts of project on land use, crops on the RoW are very small. This will not be a problem. We we will support and contribute the small impacts or loses. - Noise and vibration are not issues for our people. But air pollution from dust can be small impacts for a short time during construction. We think it is not a problem. Our people are used to this for a long time already (dust and muddy). - Please provide the standards for heavy trucks (maximum load) on this rural road because there are many trucks passing on this road.	Mr. Sok Sath Mr. Moa Savy Mr. Soung Song Ms. Phim Phearum	- Now is study, we don't know this road will construct or not. - The engineer will conduct survey and design for bridge, culvert, and drainage.	

Consultation meeting activities for KD4 and KD14

Existing road condition, KD4

The existing road and environmental condition of KD4

The existing road and environmental condition on KD14

Consultation meeting activities for KD5 | Road condition, KD5

The existing road and environmental condition on KD5

4 Rolear Bie, Teuk Pos, and Kampong Trach District, Kampong Chhnang province

Road Identification: KCH3 and KCH9

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KCH3: Meeting at Chheung Kreav and Tang Krasaing Commune, Rolea Bie and Teuk Pos District, on 06 October 2017			
- There is a problem of an existing road in this area, especially in rainy season. So improving this road to DBST is very important for our people to connect from rural to urban or towns (transport of products, going to school, hospital). - There are many important benefits from the good road (DBST road) as same as in another province for economic, environmental, and health. No dust and muddy road. - They are waiting for the DBST road in their commune.	Mr. Tam Him Mr. Sorn San Mr. Sor Senn Ms. Tea Mas Ms. Mat Nop	Now is studied, we don't know this road will construct or not. We try to prepare any needed documents.	

- The laterite road, have many potholes, muddy and dusty, difficult to travel, especially during the rainy season. - The existing or old culvert is not available for runoff during heavy rain. - Please study and build enough bridges or culverts (size or length) on these roads for reducing flood upstream and downstream. - Please study for approving the construction process of this road to DBST road as soon as possible.			
KCH9: Meeting at Chreas Commune, Kampong Tralach District, on 06 October 2017			
- There are many important benefits from the good road (DBST road) as same as in another province for economic, environment, and health. No dust and muddy road. - The people are very happy with this road project. They will support and donate any affected properties to the project. - Every year in September when there is heavy rain, flash flood occurs in this area that takes 2-3 days, so the culverts and bridges should be considered to avoid or minimize flooding on the road. - Noise and vibration is small and temporary impacts, and only during construction that is not considered a problem in the community. - Air pollution from dust will occur during construction but truck watering should be provided on construction sections. - There are not protected forest and wildlife resources located near the road project areas. - Most people are happy to work for rural road construction if the project needs male and female workers. - They are not concerned with the impacts of project. All they asked for is a good road, and when road will start construction.	- Mr. Prak Horn - Mr. Pen Phan - Mr. Sem Sovan - Ms. Chap Im - Ms. Prum Chheun	Now is study, we don't know this road will construct or not. We will inform to contractor to use local forces for road construction when construction starts	

The consultation meeting activities for KCH3

The existing road and environmental condition on KCH3

The consultation meeting activities for KCH9 | social condition on KCH9

The existing road and environmental condition on KCH9

The existing road and environmental condition on KCH 4

The existing road and environmental condition on KCH2a and KCH2

D. Attendance Lists of Participants

Table D-1: Attendance List of the Meetings at Takeo Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation Meeting at Cham Bork Commune, Bati district. road TK7					
1	Mr. Chham Ngeth	M	Chambork Commune	Deputy village chief	096 380 0985
2	Ms. Meng Phy	F	-	Village chief	097 564 3137
3	Mr. Toy Anth	M	-	Village member	
4	Mr. Yim Phy	M	-	Villager	012 729 581
5	Mr. Peang Chon	M	-	-	
6	Mr. Yok Ravy	M		-	
7	Mr. Prum Eap	M	-	-	
8	Mr. Sam Ly	M	-	-	
9	Mr. Oung Touch	M	-	-	
10	Mr. Pheuk Chhorn	M	-	Deputy village chief	
11	Mr. Prum Than	M	-	-	
12	Mr. Ban Sambok	M	-	-	

13	Mr. Khan Ra	M	-	-	
14	Mr. Eay Vong	M	-	-	
15	Mr. Ngeal An	M	-	-	
16	Mr. Sam Ly	M	-	-	
17	Mr. Prum Eam	M	-	-	
18	Mr. An Ra	M	-	-	
19	Mr. Hei Theun	M	-	-	
20	Mr. Chhit Chheun	M	-	-	
21	Ms. Mech Meth	F	-	-	
22	Ms. Eay Sohon	F	-	-	
23	Ms. Than Moch	F	-		
24	Ms. Mei Raim	F			
25	Ms. Phon Ouk	F			
26	Ms. Chhun Sem	F			
27	Ms. Henh Thouch	F			
28	Ms. Phon Ngeng	F			
29	Mr. Keng Toy	M			
30	Mr. Mao Than	M			
31	Ms. Phon Yung	F			
32	Mr. Tol Heang	M			
33	Mr. Sok Veng	M			
34	**Mr. Meun Mon**	M	Chambork Commune	Chief of Run village	
35	Ms. So Sovann	F	-	Village member	
36	Mr. Tit Tim	M	-	Villager	
37	Ms. Hal Thim	F	-	-	
38	Mr. Tin Kosal	M	-		
39	Ms. Samreth Keun	F	-	-	
40	Ms. Sarim Sikhan	F			
41	Ms. Touch Mel	F			
42	Ms. Nup Kan	F			
43	Ms. Van Nary	F			
44	Ms. Mao Arm	F			
45	Ms. Chea Saveun	F			
46	Ms. Dol Keun	F			
47	Mr. Tep Khim	M			
48	Mr. Sem Lim	M			
49	Chan Yem	M			
(2) Consultation Meeting at Trapeng Krasaing and Kraing Leav Commune, Bati district. road TK2					
1	Mr. Pin Sarun	M	Trapeng Krasaing Commune	Commune council	012 813 314
2	Mr. Kheun Vann	M	Trapeng Krasaing Commune	Village chief	
3	Ms. Sam Pich	F	Trapeng Krasaing Commune	Deputy village chief	
4	Mr. Ban Vann	M	-	Villager	
5	Mr. Chan Chorn	M	-	-	
6	Mr. Phos Phoun	M	-	-	
7	Mr. Leng Chork	M	-	-	
8	Mr. Som Phat	M	-	-	
9	Mr. Ham Eang	M	-	-	
10	Ms. Tep Tom	F	-	-	
11	Ms. Phat Moa	F	-	-	
12	Ms. Sim Nget	F	-	-	
13	Ms. Chheun Pak	F	-	-	

14	Ms. Sok Soth	F	-	-	
15	Ms. Sim Sy	F	-	-	
16	Ms. Eath Phan	F	-	-	
17	Ms. Ham Bin	F	-	-	
18	Ms. Eang Khon	F	-	-	
19	Ms. Theng Pum	F	-	-	
20	Ms. Ear Khav	F	-	-	
21	Ms. Meong No	F	-	-	
22	Ms. Yin Eoum	F	-	-	
23	Mr. Sam Reun	M	-	Commune Clerk	
24	Mr. Cheung Choun	**M**	**Kraing Leav Commune**	**Commune Council**	**012 318 722**
25	Mr.Svay Chhoun	M	-	Commune Council	093 475 400
26	Mr. Leang Laong	M	-	Village chief	
27	Mr. Sin Ngam	M	-	Village chief	017 320 720
28	Mr. Chheng Seun	M	-	Village chief	
29	Mr. Prak Leng	M	-	Deputy village chief	
30	Mr. Duong San	M	-	Deputy village chief	
31	Mr. Soung Kheun	M	Kraing Leav Commune	Village chief	092 682 043
32	Mr. Sok Pen	M	-	Villager	
33	Mr. Keo Buntheun	M	-	Commune member	087 733 857
34	Ms. Sar Yeoth	F	-	Villager	
35	Ms.Van Touch	F	-	-	
36	Ms. Oun Phem	F	-	-	
37	Ms. Koa Khon	F	-	-	
38	Ms. Oun Khei	F	-	-	
39	Ms. Oung Sarim	F	-	-	
40	Mr. Chhim Chem	M	-	-	
41	Mr. Meas Horn	M	-	-	
42	Mr. Hak Chheun	M	-	-	
43	Mr. Hout Kheng	M	-	-	
44	Ms. Sam Phat	F	-	-	
45	Mr. Seak Srun	M	-	-	
46	Ms. Kao Keang	F	-	-	
47	Mr. Te Sor	M	-	-	
48	Mr. Son Rotha	M	-	-	
49	Mr. Houl Dara	M	-	-	
50	Mr. Noav Sim	M	-	-	
51	Mr. Nup Pho	M	-	-	
52	Mr. Soy Pha	M	-	-	
53	Mr. Noun Sarum	M	-	Village Chief	
54	Ms. Duong Sary	F	-	Village member	
55	Mr. Sar Sean	M	-	Villager	
56	Mr. Chea Mom	M	-	-	
57	Mr. Ven Seng	M	-	-	

Table D-2: Attendance List of the Meetings at Kampong Speu Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation Meeting at Mohasaing Commune, Phnom Sruoch district. road KSP6					
1	Mr. Long Bunheng	M	Mohasaing Commune	Commune Chief	015 620 473
2	Mr. Sao Chheun	M	-	Commune official	096 617 2052
3	Mr. Hang Chhon	M	-	Village chief	097 586 6350
4	Mr. Teang Kheoun	M	-	Deputy village chief	
5	Mr. Soun Veth	M	-	Villager	

6	Ms. Hong Veun	F	-	-	
7	Ms. Touch Mon	F	-		
8	Mr. Sim Vutha	M			
9	Mr. Soung Nat	M	-		
10	Mr. Yang Leag Sun	M	-	Village chief	017 965 769
11	Mr. Sang Borey	M	-	Deputy village chief	
12	Mr. Sang Lon	M	-	Villager	
13	Mr. Chhun Sokha	M	-	-	
14	Mr. Teang Tol	M	-	-	
15	Mr. Teang Sous	M	-	-	
16	Mr. Kan Kheun	M	-	-	
17	Mr. Ma Chanmakara	M	-	-	
18	Ms. Moung Yeun	F	-	-	
19	Mr. Teang Preos	M	-	-	
20	Mr. Sar Reun	M	-	-	
21	Mr. Top Seng	M	-	-	
22	Mr. Om Phal	M	-	-	
23	Mr. Sem Seun	M	-	-	
24	Mr. You Leav	M	-	-	
25	Ms. Phuong Rim	F	-	-	
26	Mr. Chap Mat	M	-	-	
27	Mr. Mom Him	M	-	-	
28	Mr. Me Phat	M	-	Village chief	
29	Ms. Lam Seang	F	-	Deputy village chief	
30	Mr. Kim Sareth	M	-	Villager	
31	Mr. Him Kim An	M	-	-	
32	Mr. Sok Sam On	M	-	-	
33	Ms. Lay Chanthou	F	-	-	
34	Ms. Lay Chansou	F	-	-	
35	Ms. Lay Chankeuon		-	-	
(2) Consultation Meeting at Kaheng and Kang Kruoch Commune, Samraong Tong District. road KSP8					
1	Mr. Leok Chhim	M	Kaheng Commune	Deputy commune chief	096 662 4551
2	Mr. Kang Nib	M	-	Deputy commune chief	016 367 726
3	Mr. Kang Nim	M	-	Villager	015 637 075
4	Mr. Chey Thearith	M	-	-	
5	Mr. Kou Sovannarath	M	-	-	
6	Mr. Ngem Ngorn	M	-	-	
7	Mr. Yim Vy	M	-	-	
8	Mr. Saing Sokha	M	-	-	
9	Mr. Sam Rain	M	-	-	
10	Mr. Douch Thol	M	-	-	
11	Mr. Say Kimrin	M	Tang Kruoch commune	Villager	088 585 1788
12	Mr. Tes Phean	M	-	Commune Council	
13	Mr. Seon Vannak	M	-	Commune police	
14	Mr. Touch Hing	M	-	Village chief	
15	Mr. Chouk Teng	M	-	Villager chief	
16	Ms. Muth Sameth	F	-	Villager	
17	Ms. Kang Dara	F	-	-	
18	Ms. Moy Sokly	F	-	-	
19	Ms. Son Sim	F	-	-	
20	Ms. Yeay San	F	-	-	
21	Ms. Chhum Sarun	F	-	-	

22	Ms. Kang Thay	F	-	-	
23	Ms. Chhin Saroth	F	-	-	
24	Ms. Neang Mom	F	-	-	
25	Ms. Mey Yim	F	-	-	
26	Ms. Eam Oun	F	-	-	
27	Ms. Chay Thearith	F	-	-	
28	Ms. Ou Sovanroth	F	-	-	
29	Ms. Yeay Seon	F	-	-	
30	Ms. Sim Sophorn	F	-	-	

Table D-3: Attendance List of the Meetings at Kandal Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation Meeting at Prey Pruoch and Lomhach Commune, Ang Sbuol District, KD4 & KD14					
1	Mr. Dy Thong	M	Prey Pruoch Commune	Deputy commune chief	097 800 7117
2	Mr. Ngor Eam	M	-	Village chief	099 620 868
3	Mr. Touch Phat	M	-	Village chief	
4	Mr. On Sokhom	M	-		
5	Ms. Meung Siem	F	-		
6	Mr. Pou Phin	M			
7	Ms. Ny Ann	F			
8	Ms. Meang Lay	F			
9	Ms. San Khon	F			
10	Mr. Khan Kim	M			
11	Ms. Chamreun Sokha	F			
12	Ms. Meang Meoun	F			
13	Ms. Try Dy	F			
14	Mr. Kheang Sav	M			
15	Ms. Yeay Mean	F			
16	Ms. Yeay Mai	F			
17	Ms. Chea Sareth	F			
18	Ms. Yeay Phin	F			
19	Mr. Pheng Sophy	M	Lomhach Commune	Monk	
20	Mr. Ngoun Sroy	M	Lomhach Commune	Commune chief	095 254 401
21	Mr. Sek Reun	M	-		
22	Ms. Chhup Youn	F	-	Commune council	099 800 4501
23	Mr. Hong Kimsean	M	-	Pagoda council	012 907 181
24	Mr. Klot Kan	M	-	Villager	
25	Mr. Thaong Mom	M	-	Village chief	
26	Mr. Chum Choun	M	-	Villager	
27	Mr. San Touch	M	-	-	
28	Mr. Chhom Sokhan	M	-	-	
29	Mr. Nup	M	-	-	
30	Mr. Pen Soban	M	-	-	
(2) Consultation Meeting at Peuk and Samraong Leu Commune, Ang Sbuol District, KD5					
1	Mr. Sok Sath	M	Peuk Commune	Commune chief	016 353 247
2	Mr. Mao Savy	M	-	Villager	
3	Mr. Eak Ny	M	-	Commune council	
4	Mr. Soung Song	M	-	Village chief	012 305 481
5	Mr. Thol Kheng	M		Deputy village chief	
6	Ms. Phem Phearun	F	-	Villager	
7	Ms. Eang Sokear	F	-	-	
8	Mr. Chun Socheat	M	-	-	
9	Ms. Chhim Sinat	F	Samraong Leu Commune	-	

10	Mr. Hang Sokhon	M	-	-	
11	Mr. Oun Sa Mour	M	-	-	
12	Mr. Soth Oun	M	-	-	
13	Mr. Khim Born	M	-	-	
14	Mr. Ros Thou	M	-	-	
15	Mr. Seng Mach	M	-	-	
16	Mr. Yon Penh	M	-	-	
17	Mr. Kun Kan	M	-	-	
18	Mr. Sem Dom	M		-	
19	Mr. Yon Bunchheun	M	Peuk Commune	Commune Chief	017 524 563
20	Mr. Hun Son	M	Samraong Leu Commune	Commune Chief	
21	Ms. Preap Sophat	F	-	Deputy village chief	
22	Ms. Lo Teng	F	-		
23	Ms. Chean Sok	F	-		

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

I. Introduction

On 08 to 12 November, 2017 the consultant of study team conducted site visits of proposed rural roads under RRIP III in some project provincial areas such as Kampong Cham, Kratie, Tboung Khmum, Kandal, and Kampot Province. The visits of these proposed roads include consultations/discussions with some local authorities (village and commune) and local people locating/living along the road projects.

II. Field visits and consultations schedule

Date-time	Activities	Participants	
08 Nov, 017 (Wed)		**Planned**	**Actual**
6:30am - 12:00am	-Travel to **Kampong Cham.** - Visiting road: KC5 - Travel to Tboung Khmum. Visiting roads consultation and REA-Social checklist TBK8 and TBK7		- KC5: 16 - TBK7:07
2:00pm - 5:30pm	- Travel to Kratie. - Visiting roads: KR1, KR5, and KR2. (**Overnight in Kratie**)		- KR5: 09 - KR2: 02
09 Nov, 2017 (Thu)			
7:30am – 11:00am	Visiting roads, consultation and REA-Social checklist of KR3 and KR4.		- KR3: 07 - KR4: 04
2:00 to 5:30pm	- Travel to Tboung Khmum. - Visiting roads, Consultation, and REA-Social checklist of TBK2, TBK5, TBK12, TBK14, and TBK9 (**Overnight inTBK**)		- TBK12: 06
10 Nov, 2017 (Fri)			
7:30am – 12:00am	- Travel to Prey Veng. - Visiting road, Consultation, and REA-Social checklist of PV1 and PV10		- PV1: 04
2:00pm – 5:30pm	- Travel to Kandal. - Visiting road, Consultation, and REA-Social checklist of KD12 and KD1 - Travel to Kampot. (**Overnight in Kampot**)		- KD1: 03
11 Nov, 2017 (Sat)			
Whole day	- Visiting road, Consultation, and REA-Social checklist of roads: KP3, KP4 and PK1. (**Overnight in Kampot**)		
12 Nov, 2017 (Sun)			
7:30am – 12:00 2:00pm -5:00pm	- Road visiting, Consultation, and REA-Social checklist of roads:KP2 and KP5 - Travelling from Kampot to Phnom Penh		KP5: 07 KP2: 05

Field Team:

- Ms. Ester M. Filix — International Social Safeguards Specialist
- Mr. Joselito P. Losaria — International Environmental Specialist
- Mr. Yim Chamnan — National Environmental Specialist
- Mr. Pen Thay — National Social and Gender Specialist

III. Summary of road visits, consultation and pictures

1. Kampong Cham Province

The team conducted site visits and consultations with stakeholders of the proposed road KC5 in Kok Rovieng and Khnor Dambang Commune, Chheung Prey District.

Road Identification: KC5

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KC5: Consultation at Kok Rovieng and Khnor Dambang Commune, Chheung Prey District			
- This road is very important for our people. There are some schools, pagodas, health centers, and markets located along the road. - The road is in very difficult condition for people to travel especially to school, market, and hospital. It is even more difficult during the rainy season. There are 5 schools, 8 pagodas, and 2 Health centers along this road. - For any effects to private properties or small structures, I think the people will support and donate to the project. - Now, we are very happy with new DBST road, can be used long time with good environment and health. However, there should be provided watering on dusty road during construction. - There is no problem with dust during construction because it is only for short time. We need a good road. - Should identify which old culverts or bridges will be built new. - The local people are willing to work for road construction, if project needs.	- Mr. Sorn Srann - Mr. SanTry - Ms. Yet Thearin - Mr. Duong Toy - Ms. Sem Males	- Now the Consultant is starting the study, but we are not yet clear if this will be selected for construction or not. - When people donate, there should be a prepared agreement letter of donation.	The suggestion is referred to all participants

Consultation with Kok Rovieng and Khnor Dambang Commune and Students on KC5

The existing environmental and road condition on the proposed road, KC5

2. Kratie Province

In Kratie, the team conducted site visits of 04 proposed roads. During the site visits, the team consulted with stakeholders of some of the project roads (KR5, KR2, KR3 in Chetr Borei District and KR4 in Snuol District).

Road Identification: KR5, KR2, KR3 and KR4

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KR5, KR2, KR3 and KR4: Consultation of stakeholders in Sambok, Kbadamrei, and Kantout commune, Chetr Borei and Svay Chras Commune, Snuol District			
- The road is in very bad condition, especially during the rainy season. The people spend more time and money for traveling or transporting products to markets (dusty during dry season and muddy during the rainy season). - There are many potholes and mud along these roads during the rainy season. - In KR 5, there are 2 schools and 1 pagoda. - In KR2, there are 4 schools and 3 pagodas. - In KR3, there are 8 schools, 3 pagodas, and 1 health center. - In KR4, there are 4 schools, 2 pagodas, and 1 health center. - When there is heavy rain (run-off) or (flash flood), the flood takes a few days on roads KR5 and KR2. - The improvement of the rural road to DBST is very good for safe traveling and for improving local economic activities of our people. - Please provide some enough/suitable culverts for control of flood over the road. - The 80-90% of total population in the commune are minority people living in Thmei Commune, Chetr Borei District, along KR3. - For any effects to private properties or small structures, and trees, I think the people will support/donate to the road projects in Kratie (KR5, KR2, KR3 and KR4). There are a few schools and pagodas located on these roadways. - Dust is not a problem with us during construction because it is only for a short time. We need good roads. - The local people are willing to work for road construction.	KR5: - Mr. Tuy Sovanna - Ms. Ly Ponlork KR2: - Mr. Son Samheng - Ms. Leng Nei KR3: - Ms. Khim Savy - Mr. Tan Theng - Mr. Kan Bunthy KR4: - Mr. Khen Sokha - Mr. Dol Dara	- When people donate, should be prepare agreement letter of donation	The suggestion is referred to all participants

Consultation with stakeholders on KR5

Consultation with stakeholders on KR2

Existing environmental and road condition KR5 | Existing condition road KR2

Consultation with Kantout commune authority and stakeholders on KR3

The existing environmental and road condition of KR3

The existing environmental and road condition of KR4 | Consultation with Svay Chras Commune, KR4

3. Tboung Khmum Province

In Tboung Khmum Province, the team visited the proposed roads TBK8, TBK7, TBK2, TBK5, TBK12, TBK14, TBK9, and TBK10. During the site visit activities, consultations were conducted with local authorities and stakeholders along some of the roadways at Seda Commune, Dambe District(TBK7) and Treak Commune, Memut District (TBK12).

Road Identification: TBK7 and TBK12

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
TBK7 and TBK12: Meeting at Seda Commune, Dambe District and Treak Commune, Memut District			
- We are very happy with this project for the improvement of rural road in this area. - We head from PDRD that informed us of this project for improving to DBST road. - TBK7 and TBK12 road now is very difficult to travel, with potholes, muddy and slippery during the rainy season and very dusty during the dry season (big issue is muddy and slippery roads) - During the rainy season, some parts of the road experiences flash flood especially where are potholes. - The people will support this project. If the project needs or if there any small impacts to private properties or trees, they will donate without compensation. - I think the impacts of road project on trees and private properties will not be a problem, because we need good road. - The local authorities informed the people already about the ROW and land use on the ROW. - There are no forest areas or conservation forest resources located near the road project. - DBST road is more beneficial to the local people, so the impacts on environment and social are small or minor. - When these roads will be constructed? - The rural roads are very important for local communities for many daily purposes such as: going to markets, transport of products, go to hospitals and schools, and improving the local business activities. Good road is good for the health and environment. - In TBK7, there are 2 schools, 2 pagodas, 1 health center, and 1 mosque. - In TBK12, there are 2 schools and 2 pagodas.	- Mr. Mom Sitha - Mr. Sovann - Ms. Chhry Theary - Ms. Seng Heang - Ms. No Sreang	- Now is study, we don't know this road will construct or not. - The engineer will conduct survey and design for bridge, culvert, and drainage.	

Consultation with Sida Commune chief and local people in Seda Commune, Damber District, TBK7

The existing environmental and road condition of TBK7

The existing environmental and road condition of TBK8. Most of areas along the roadway are covered with rubber plantation, forest land, and a few residents

Existing environmental and road condition, TBK2

Existing environmental and road condition, TBK5

Existing environmental, road condition, and consultation at Treak Commune, TBK12

Existing environmental and road condition, TBK14

Existing environmental and road condition, TBK9

Existing environmental and road condition, TBK10

4. Prey Veng Province

Visiting proposed road of PV1 in Kdeung Reay Commune, Kanchreach District.

Kdeung Reay commune office

Existing environmental and road condition, PV1

5. Kandal Province

The team visited the following proposed roads: KD12 in Siem Reap Commune, Kandal Stung District and KD1 in Beung Kchang Commune, Kandal Stung District.

Existing environmental and road condition, KD1

Existing environmental and road condition, KD12

6. Kampot Province

The Team visited some proposed roads and consulted with local people along roads KP5 in Trapeng Sangke Commune, Teuk Chhou District; and KP2 in Touk Meas Commune, Banteay Meas District.

Road Identification: KP5 and KP2

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KP5 and KP2: Consultation in Trapeng Sangke, Konsath and Touk Meas Khang Lech Commune			
- We heard from PDRD that informed us of the project for improving to DBST road. - In KP5 same as KP2, the roads now are very difficult to travel, with potholes, muddy and slippery during the rainy season. These are also very dusty during the dry season (big issue is muddy and slippery roads). It ss difficult for students to go to schools in Kampot town. - During the rainy season, there are many potholes, wet/flood, and muddy. - I think the impacts of road project on trees and private properties are not going to be problems, because we need good road. We will donate for the road project the fruit trees and any structures (with no compensation). - We heard the road improvement project from the village chief and PDRD. - Please study and provide drainage system for some road sections for reducing flood on the roads. - There are no forest areas or conservation forest resources that are located near the road project. - DBST road provides more benefits for local people, so the impacts on environment and social are small or minor. - When these roads will be constructed?. - The rural roads are very important for local communities (to district and provincial markets). - Some local people, especially women in this area are interested to work for the road construction,. - In KP5, there are 2 schools and 4 pagodas. - In KP212, there are 3 schools and 5 pagodas.	- Mr. Mom Sitha - Mr. Sovann - Ms. Chhry Theary - Ms. Seng Heang - Ms. No Sreang	- Now is study, we don't know this road will construct or not. - The engineer will conduct survey and design for bridge, culvert, and drainage.	



Consultation with people and students, KP5


Existing road, KP5




Existing environmental and road condition, KP5



Existing environmental and road condition, KP2


Consultation with local people, KP2




Existing environmental and road condition, KP3




Existing environmental and road condition, KP1

Existing environmental and road condition, KP4

IV. Attendance List of Participants

Table 1: Attendance List of the consultations in Kampong Cham Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation in Kok Rovieng and Khor Dambang Commune, Chheung Prey District, KC5					
1	Mr. San Try	M	Kok Rovieng Commne	Deputy commune chief	089 903 075
2	Mr. Chork Duong	M	-	Commune Clerk	012 377 011
3	Ms. Yet Thearin	F	-	Commune Assistant	088 986 6096
4	Mr. Sorn Srann	M	-	Commune chief	077 522 121
5	Mr. Seang Hai	M	-	Student	
6	Mr. Seang Oudam	M	-	-	
7	Mr. Pheung Vith	M	-	-	
8	Ms. Sras Sreymab	F	-	-	
9	Ms. Pheon Sophea	F	-	-	
10	Ms. Hak Thydav	F	-	-	
11	Ms. Lon Soheang	F	-	-	
12	Ms. Lot Ousa	F	-	-	
13	Ms. Kan Sreykong	F	-	-	
14	Mr. Sok Sarith	M	-	-	
15	Mr. Duong Toy	M	Khnor Dambang Commune	Commune Council	092 723 938
16	Ms. Sem Males		-		012 321 913

Table 2: Attendance List of the consultations in Kratie Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation in Sambok Commune, Chetr Borei District, KR5					
1	Mr. Toy Vanna	M	Sambok Commune	Commune chief	097 588 6288
2	Ms. Kroch Sophek	F	-	Villager	
3	Ms. Ly Ponlork	F	-	-	
4	Ms. Kol Sarath	F	-	-	
5	Ms. Srey Khouch	F	-	Brazed worker	
6	Ms. Srey Phal	F	-	-	
7	Ms. Ra Vy	F	-	-	
8	Mr. Ming Men	M	-	Villager	
9	Mr. Try Ly	M	-	Villager	
(2) Consultation in Kbal Damrei Commune, Chetr Borei District, KR2					
1	Mr. Song Samheng	M	Kbal Damrei Commune	Provincial Army	
2	Ms. Leng Nei	F	-	Villager	
(3) Consultation in Kantout Commune, Chetr Borei District, KR3					
1	Ms. Kley Sarim	F	Kantout Commune	Villager	
2	Mr. Tan Then	M	-	Villager	
3	Mr. Phou Ankleuy	M	-	-	
4	Ms. Teang Sokheang	F	-	-	
5	Mr. Top Horn	M	Kantout Commune	Commune chief	

6	Mr. Sa Butny	M	-	Commune Clerk	
7	Mr. Kan Bunthy	M	-	Primary School Director	
(4) Consultation in Svay Chras Commune, Snuol District, KR4					
1	Mr. Khiev Sok	M	Svay Chras Commune	Commune chief	097 742 1747
2	Mr. Dol Sara	M	-	Commune clerk	097 611 3464
3	Mr. Lorn Ngor	M	-	Commune election staff	
4	Mr. Pin Chantha	M	-	Villager	

Table 3: Attendance List in Tboung Khmum Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation in Seda Commune, Dambe District, TBK7					
1	Ms. Chhry Theary	F	Seda Commune	Villager	
2	Ms. No Sreang	F	-	Villager	081 343 4568
3	Ms. Seng Heang	F	-	-	
4	Ms. Khiev Sing	F	-	-	
5	Ms. Sam Ros	F	-	-	
6	Mr. Sovann	M	-	-	
7	Mr. Mom Sitha	M	Seda Commune	Commune chief	017 580 866
(2) Consultation in Treak Commune, Memut District, TBK12					
1	Mr. Nget Phan	M	Treak Commune	Deputy commune chief	
2	Ms. Nat Vanneath	F	-	Villager	
3	Mr. Souy Yenn	M	-	Commune chief	012 198 6931
4	Mr. Ouch Yan	M	-	Villager	
5	Mr. Kong Deth	M	-	Commune Clerk	
6	Mr. Sok Sarin	M	-	Villager	

Table 4: Attendance List of contacted persons in Prey Veng Province

No	Name	Sex	Village-Commune	Function	Phone
Consultation in Kdeong Reay Commune, Kanchreach District, PV1					
1	Mr. Yang Houn	M	Kdeong Reay Commune	Commune chief	092 310 391
2	Mr. Soun Saran	M	-	Commune council	077 729 749
3	Mr. Houn Heang	M	-	Commune council	
4	Mr. Pan Dara	M	-	Commune clerk	069 334 801

Table 5: Attendance List of the contacted persons in Kandal Province

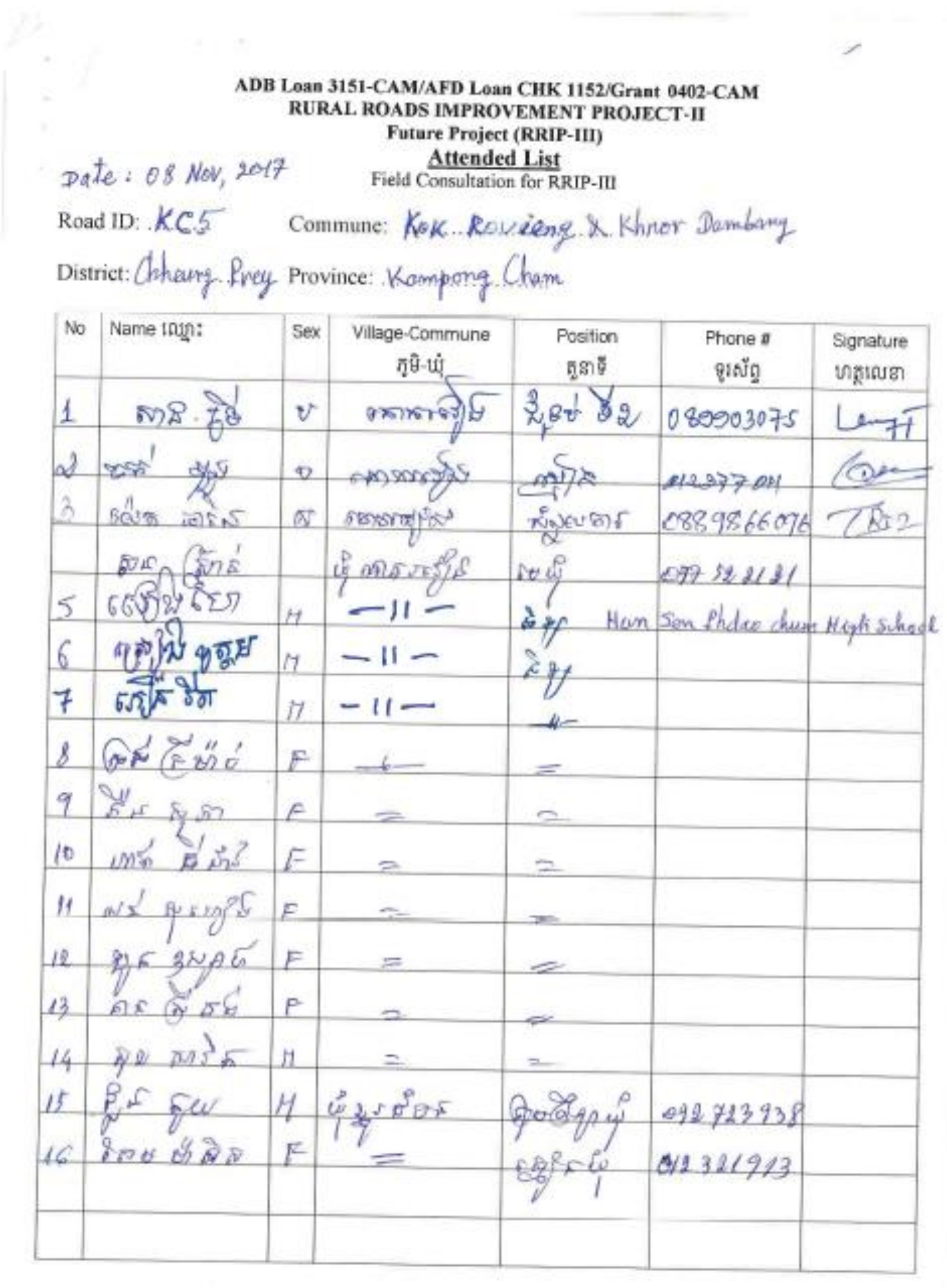
No	Name	Sex	Village-Commune	Function	Phone
Consultation in Beung Kchag Commune, Kandal Stung District, KD1					
1	Mr. Nao Kheung	M	Beung Kchag Commune	Village security	092 813 693
2	Mr. Douch Pheng	M	-	Village chief	012 779 679
3	Mr. Soun Navy	M	Trear Commune	Commune chief	092 908 828

Table 6: Attendance List of the consultations in Kampot Province

No	Name	Sex	Village-Commune	Function	Phone
(1) Consultation in Konsath Commune, Teuk Chhou District, KP5					
1	Mr. Pou Kheang	M	Konsath Commune	Villager	012 941 467
2	Ms. Kean Kim Yeang	F	-	-	
3	Ms. Oeun Nhe	F	-	-	
5	Ms. Chhea Vanna	F	-	-	
6	Ms. Son Kimleng	F	-	Student	
7	Ms. Tan Srey Lak	F	-	-	
(2) Consultation in Toukmeas Khang Lech Commune, Touk Meas District, KP2					
1	Mr. Chreang Hong	M	Toukmeas Khang Ket commune	Villager	

2	Ms. Sam Sarun	F	-	-	
3	Phorn Dany	F	-	-	
4	Mr. Kim Hing	M	-	-	
5	Mr. Por Raim	M	Toukmeas Khang Ket commune	Commune chief	012 544 205

Annex: Attendance Lists of Meetings



ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date: 08 Nov, 2017

Road ID: KC5 Commune: Kok Roviang & Khnor Dambang

District: Chhaung Prey Province: Kompong Cham

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1	[illegible]	[illegible]	[illegible]	[illegible]	0 89903075	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	012377011	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	088 9866076	[illegible]
	[illegible]		[illegible]	[illegible]	097 32 8181	
5	[illegible]	M	— ॥ —	[illegible] Hun Sen Phdao chum High School		
6	[illegible]	M	— ॥ —	[illegible]		
7	[illegible]	M	— ॥ —	—		
8	[illegible]	F	—	=		
9	[illegible]	F	=	=		
10	[illegible]	F	=	=		
11	[illegible]	F	=	=		
12	[illegible]	F	=	=		
13	[illegible]	F	=	=		
14	[illegible]	M	=	=		
15	[illegible]	M	[illegible]	[illegible]	092 723 938	
16	[illegible]	F	=	[illegible]	012 321 913	

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date 09/11/2017

Road ID: KR5, 2 & 3 Commune: [illegible], [illegible], [illegible]

District: Chetr Borei Province: Kratie

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1	Mr [illegible]	M	[illegible]	[illegible]	097 593 6897	Samm
2	Ms [illegible]	F	— " —	[illegible]		
3	Ms [illegible]	F	— " —	=		
4	Ms [illegible]	F	=	[illegible]		
5	Ms [illegible]	F	=	[illegible]		
6	Ms [illegible]	F	=	=		
7	Ms [illegible]	F	=	=		
8	Mr Meang Man	M	=	[illegible]		
9	Mr [illegible]	M	=	=		
10	Mr Song Samberg	M	[illegible]	Army		Song
11	Ms Leng Nei	F	=	[illegible]		
12	Ms Khey Sarim	F	Kantout Commune	[illegible]		
13	Mr [illegible]	M	Kantout	[illegible]		
14	Mr [illegible]	M	=	[illegible]		
15	Ms [illegible]	F	=	=		
16	[illegible]	M	[illegible]	[illegible]	011 900 222	
17	[illegible]	M	=	[illegible]		
18	[illegible]	M	=	[illegible]		

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date: 08/11/2017

Road ID: TBK-[illegible]-12 Commune: Seda Commune & Treak Commune

District: Dambe Memot Province: Thoung Khmum

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1	[illegible]	F	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	F	=	=		[illegible]
3	[illegible]	F	=	=	081 3434 568	
4	[illegible]	F	=	=		
5	[illegible]	F	=	=		[illegible]
6	[illegible]	M	[illegible]	=		
7	[illegible]	M	[illegible]	Commune chief	017 580 866	
8	[illegible]	M	[illegible]	[illegible]	TBK 12	[illegible]
9	[illegible]	F	=	[illegible]		[illegible]
10	[illegible]	M	=	[illegible]	012 898 6931	
11	[illegible]	M	=	[illegible]		
12	[illegible]	M	=	[illegible]		
13	[illegible]	M	[illegible]	[illegible]		

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List

Field Consultation for RRIP-III

Date 10/11/2017

Road ID: KD1 & PV1 Commune: Trea Commune ..... Ddeung Roay Commune,

District: Kandal Stung Province: Kandal and Prey Veng

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
	KD1 :					
1		M			092 813 693	
2		M	(KD1) =		012 979 679	
3		M	=		092 908 828	
	PV1 :					
1		M			092 310 391	
2		M	=		077 739 749	
3		M		=		
4		M	=		069 374 901	

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date 12/11/2017

Road ID: KP Commune: Kansath Commune

District: Teuk Chhou Province: Kampot

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1		H			012 941 467	
2		F	=	=	015 368 061	
3		F	=	=		
4		F	=	=		
5		F	=			
6		F	=			
	Road: KP 2		Toukmeas Khang Kot Commune,			
1		F				
2		F	=	=		
3		F	=	=		
4		M	=	=		
5		M	=		012 544 205	

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

I. Introduction

On 20 to 23 November, 2017 the Consultants of study team conducted site visits of proposed rural roads under RRIP III in the provincial project areas of Prey Veng, Svay Rieng, and Kampong Speu. These field visits included consultation/discussions with some local authorities (village and commune) and stakeholders along the roadways.

II. Field visits and consultations schedule

Date-time	Activities	Participants		Remarks
		Actual participants		
		Total	Female	
20 Nov, 017 (Mon)				
8:00am - 5:30 pm Whole day	-Travel to Svay Rieng. - Visiting, consultation, and REA-Social checklist of roads: PV4 and PV8. - Visiting, consultation, and REA-Social checklist of roads: SVR3, SVR4, and SVR2 - Overnight in Svay Rieng	15 SVR3: 23 SVR2: 10	04 SVR3: 12 SVR2: 05	
21 Nov, 2017 (Tue)				
7:30am – 12:00am	Visiting, consultation, and REA-Social checklist for roads: SVR5, SVR8, and SVR9	SVR8: 7 SVR5: 11	SVR8: 05 SVR3: 006	
2:00 to 5:30pm	- Visiting, consultation, and REA-Social checklist for roads: SVR6, and SVR7 - Travel to Prey Veng - Overnight in Prey Veng	SVR6: 09	SVR6: 06	
22 Nov, 2017 (Wed)				
7:30am – 12:00am	- Visiting, consultation, and REA-Social checklist for road: PV12 - Travel to Kampong Speu			Visiting
2:00pm – 5:30pm	- Visiting, consultation, and REA-Social checklist for roads: KSP1, KSP3, and KSP2 - Travel to Kampong Chhnang. - Overnight in Kampong Chhnang	SVR3: 23		Visiting
23 Nov, 2017 (Thu)				
7:30am – 5:30pm Whole day	- Visiting, consultation, and REA-Social checklist for roads: KSP7 - Travelling from KCH to Phnom Penh.	KSP7: 11	KSP7: 08	

Field Team:

Mr. Yim Chamnan	National Environmental Specialist
Mr. Pen Thay	National Social and Gender Specialist
Mr. Joselito P. Losaria	International Environmental Specialist

III. Summary of road visits, consultation and pictures

1. Prey Veng Province

1.1 Road Identification: PV4, PV8, and PV12

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
PV4 and PV8: Consultation at Kampong Trabeak Commune, Kampong Trabeak District			
- The roads PV4 and PV8 are laterite roads, and some sections are in poor condition with absence of laterite in some sections, many potholes and muddy/slippery. - The roads connect to NR-1 and are very important for our people to transport products to district markets, hospitals, and schools. - I think improving the road to DBST is good for improving local business of our people' activities in this area. There is no flood on the road, but during heavy rain, water are collected in the potholes and the road muddy. - On PV4, there are: 02 schools, 02 pagodas, and 01 health center. - The people are very happy to hear the road will improve to DBST. There will no longer dust, mud and slippery road. - There are no fruit trees on PV4 and PV8. - For any impacts to private properties or small structures, I think the people will support and donation to project is only a small issue and will not be a problem because we need good road. - When will the road be constructed? - Please help us to prepare any documents for approving construction as soon as possible. - There are some minor impacts from dust, noise and air but only during construction for a short time. But we are not complaining. - The local people are willing to work for road construction, especially women, if project needs labor.	- Ms. Ol Srey Ngim - Mr. Kong San - Mr. Meas Vicheth - Mr. Touch Sokhom - Ms. Meas Pisey	- Now the study is starting, but are are not yet clear if this road will be finally select for construction. - When people donate, there should be a prepared agreement or document of donation. - We will inform the contractor to select local people to work for these road projects. .	The suggestion is referred to all participants

1.2 Consultation Pictures

Public consultation activities in Kampong Trabeak Commune

1.3 Roads visiting pictures

Existing road and environmental condition on PV8

Existing road and environmental condition on PV12

1.4 Table: Attendance List of the consultations in Prey Veng Province

No	Name	Sex	Village-Commune	Function	Phone
PV4 and PV8: Consultation at Kampong Trabeak Commune, Kampong Trabeak District					
1	Ms. Ol Srey Ngim	F	Kg Trabeak Commune	Village chief	096 381 1671
2	Mr. Kong San	M	--	Villager	
3	Mr. Touch Phalla	M	--	--	
4	Mr. Chan Seng	M	--	--	
5	Mr. Sim Saveun	M	--		
6	Mr. Meas Vicheth	M	--	Villager member	015 596 996
7	Mr. Touch Sokhom	M		Villager	
8	Mr. Toch Samnang	M			
9	Mr. Chan Saran	M			
10	Ms. Keo Vanny	F			
11	Mr. Meas Piseth	M			
12	Ms. Eav Vann	F			
13	Mr. Lim Sreang	M			
14	Mr. Sok Phalla	M			
15	Ms. Meas Pisey	F		Commune council	088 609 7317

2. Svay Rieng Province

The team conducted site visits of proposed roads SVR2, SVR3, SVR4, SVR5, SVR6, SVR7, SVR8, and SVR9. During the site visits, consultations were conducted with stakeholders on roads SVR3, SVR2, SVR8 and SVR6.

2.1 Road Identification: SVR2, SVR3, SVR4, SVR8, SVR9, SVR6, SVR7.

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
(1) SVR3 and SVR4: Consultation in Kraol Kor Commune, Svay Chrum District			
- We are very happy to hear about this road that will be improved to a DBST road. We heard from the commune and village chief about it, but we have been waiting for this for a long time already. - These roads are very important for local people (Krol Kork Commune) and some commune around this are for connecting to each other to NR-1, and to the market. - There no any protected sites near the roadway.	- Mr. Kong Saban - Ms. Kei Kong - Ms. Kei Chea		The suggestion is referred to all participants

- There are 02 commune markets, 02 schools, and 01 health center located along the RoW of SVR3. - The road is in poor condition, with some parts made of earth and some of laterite with many potholes. It is dusty during the dry season and mud during the rainy season). - There are no flood on the road but only some water in the potholes during heavy rain (run-off). - For any effects to private properties or small structures and trees, I think the people will support/donate to these road projects. - There are no valuable trees on the roadway. - There are some small impacts only during construction from dust, noise, and small impacts on small shops of market along the RoW, but people will move out and will come back after construction. We think is not serious problem.			
(2) SVR2: Consultation in Kok Pring Commune, Svay Chrum District			
- The ideas of people in Kok Pring Commune is the same as in SVR3. They are very happy to hear that this road will be improved. - If the road project road construction will have impact to their properties (land use, structures, tree), they will donate to the project or move out (don't need compensation). - This is an important road in this area for connecting to NR-1, main market, school, university, and hospital. - The people knew the RoW of this rural road and the local authorities have already informed them. - The road study should include the drainage system along the roadway for urban areas, market and commune for reducing flood during the rainy season. - The impacts of road construction on the environment and social are very small, People will not complain during construction activities, because they need good road that will result in no dust, and not muddy anymore. - Some local people are willing to work for road construction as workers, if contractors need labor.	- Ms. Teap Sormony - Mr. Mom Sath - Mr. Yuos Min	Project engineers will conduct detailed survey, then will provide drainage and culverts.	All the ideas of in the commune are referred to group.
(3) SVR5: Consultation in Bassac Commune, Kampong Ror District			
- This road connects Cambodia to the Vietnam border and is important for people to go and transport products to the Vietnamese markets. - Now the road is in very poor condition with most parts not paved with laterite and with lots of potholes. - It is very difficult to travel and transport any product to Vietnam. And to also go to schools and hospital. - The people will be very happy if this road will be improved to DBST. -The project should study where to install culverts to reduce flood from the upstream and to the downstream of the road.	- Mr. Neang Sambat - Ms. Teap Saran - Ms. Sar Sambat	For the donation process, the project need documents, so authorities will issue these documents (work with affected people).	All the ideas and commune are referred to group.

- Most of both sides of the road are rice fields and village gardens. There are no sensitive resources located close to the roadway. - Near the road, there are: school – 01; pagoda - 01, and the road passes rice fields and village gardens. - If there will be impacts from the road project on any local properties, the people are willing to donate to the road project. It is not a problem (they need the DBST road). - The people know the ROW of rural road and land use on the ROW. It is not a problem for a few impacts during road construction on trees on the ROW. - The impacts during road construction do not worry the people too much. They are already used to this condition for a long time already living with a poor road. - The local people (also women) want to work for the road construction, if contractors need labor. - When the road will start construction, please inform commune authority of project planning and we will collaborate with the project any time.			
(4) SVR8: Consultation in Samyang Commune, Kampong Ror District			
- Almost all people in this commune are farmers and they are used to growing rice (wet and dry rice). - This road is important for people to transport agricultural products to market or to Vietnam. - We are very happy, if this road will improve to DBST. - For a long time already and until now, this road is difficult to pass due to the bad condition (potholes, muddy during the rainy season and very dusty during the dry season). - There are no sensitive resources that will be impacted by the project. This road is wider. Along the roadway are mostly village areas, and ricefields. - For impacts on trees and any private properties, our people will support and donate to project. They need good road in their area. - Impacts of road construction are small and temporary. The people do not consider air and noise although for dust, the contractor should provide watering during the construction of the road. We do not complain during the road construction because the DBST road will provide more benefits and good environment for us.	- Ms. Lim Vesna - Mr. Sok Chea - Ms. Khoun Rain - Ms. Nut Sothea	- Now the project is starting for study but we don't know exactly if this road will be selected for construction and when it will start. - If the budget will be approved, the engineer will conduct detailed design and to where culvert or bridge will be constructed.	All the ideas and commune are referred to group.
(5) SVR6: Consultation in Kampong Chark Commune, Rumduol District			
- We heard from PDRD about information of the project for improving to DBST road. - The road now is very difficult to travel with potholes, muddy and slippery during the rainy season and very dusty during the dry season. - This road connects to the provincial road and to the Cambodia-Vietnam border. So it is important for the improvement of the economy of the local people. - Most income of local people depends on rice production, and local business/trade.			

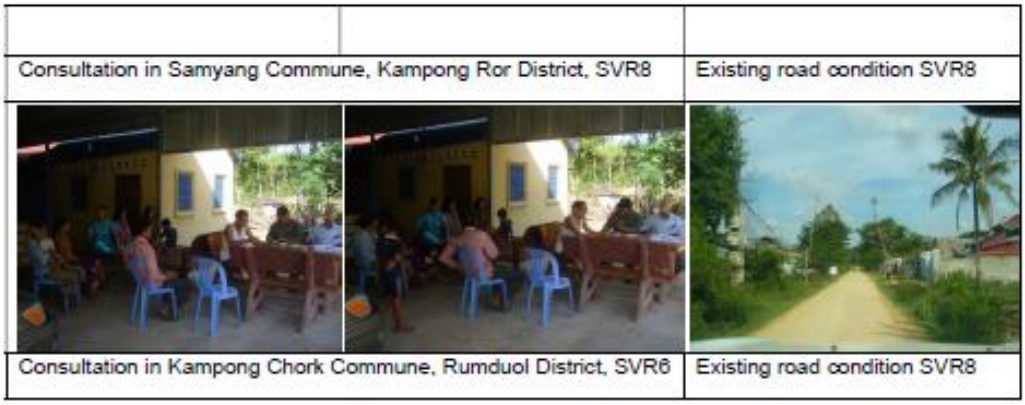
- DBST road will save time and money. It will no longer be dusty and it will be easy for students to go to schools. - There are: 03 schools and 02 pagodas near the road. - This road is wider so there are very few impacts on trees, and structures that are close to the roadway. For these impacts, the people will be happy to donate for the road project (cutting or moving out of the ROW). - Air pollution from dust is small during construction (on construction sections) but should still be considered. - Noise from construction machines is very small and only during the construction stage. - The local people are not concerned too much of impacts from dust, noise, and air during road construction (short time only during construction).			

2.2 Consultation pictures

Consultation in Kraol Kor Commune, Svay Chrum District on SVR3

Consultation in Kok Pring Commune, Svay Chrum District, on SVR2 | Existing road condition SVR2

Consultation in Bassac Commune, Kampong Ror District SVR5 | Existing road condition SVR5



Consultation in Samyang Commune, Kampong Ror District, SVR8 | Existing road condition SVR8

Consultation in Kampong Chork Commune, Rumduol District, SVR6 | Existing road condition SVR8

2.3 Roads visiting pictures

Existing road and environmental condition of SVR4

Existing road and environmental condition of SVR9

2.4 Table: Attendance List during the consultations in Svay Rieng Province

No	Name	Sex	Village-Commune	Function	Phone
(1) SVR3 and SVR4: Consultation in Kraol Kork Commune, Svay Chrum District					
1	Mr. Kong Sabat	M	Kraol Kor	Commune Clerk	012 639 200
2	Ms. Kei Kong	F	-	Villager	
3	Ms. Kei Chae	F	-	-	
4	Mr. Ngoung So	M	-	-	
5	Mr. Veung Sonly	M	-	-	
6	Mr. Pem Narin	M	-	-	
7	Mr. Sao Chea	M	-	Village chief	092 278 770
8	Ms. On Marady	F	-	Deputy village chief	096 496 3558
9	Duong Yann	M	-	Villager	
10	Mr. Pom Man	M	-	-	
11	Ms. Va Savan	F	-	-	
12	Ms. Som Saveun	F	-	-	
13	Mr. Hem Sinal	M	-	-	
14	Mr. Ros Sophat	M	-	-	
15	Mr. Sar Sengly	M	-	-	
16	Ms. Kim Khvay	F	-	-	
17	Ms. Kim Sothy	F	-	-	
18	Mr. Chet Sain	M	-	-	
19	Ms. Pich Saraim	F	-	-	

20	Ms. Phok Vanthan	F	-	Deputy chief of commune	012 594 912
21	Ms. Poa Chanmakara	F	-	Villager	
22	Ms. Chet Ro	F	-	-	
23	Ms. Sok Na.	F	-	-	
(2) SVR2: Consultation in Kok Pring Commune, Svay Chrum District					
1	Ms. Teap Sormony	F	Kok Pring Commune	Commune council	088 834 7381
2	Mr. Yuos Min	M	-	Villager	
3	Mr. Mom Sath	M	-	Village chief	066 325 126
4	Ms. Prum Sam	F	-	Villager	
5	Mr. Sok Chhit	M	-	-	
6	Ms. Reach Yen	F	-	-	
7	Mr. Chhoun Sam On	M	-	-	
8	Mr. Mom Sophal	M	-	Village chief	097 509 1277
9	Ms. Thy Chanda	F	-	Villager	
10	Ms. Seang Eang	F	-	-	
(3) SVR8: Consultation in Samyang Commune, Kampong Ror District					
1	Ms. Lim Veasna	F	Samyang Commune	Deputy commune chief	071 407 5666
2	Mr. Nup Sam Oeun	M	-	Villager	
3	Mr. Sok Chear	M	-	-	
4	Ms. Khoun Rain	F	-	-	
5	Ms. Sek Yeam	F	-	-	
6	Ms. Nout Sothea	F	-	-	
7	Ms. Keit Rann	F	-	-	
(4) SVR5: Consultation in Bassac Commune, Kampong Ror District					
1	Mr. Neang Sambat	M	Bassac Commune	Villager	097 438 1016
2	Ms. Teap Saran	F	-	-	
3	Mr. Srey Sophal	M	-		
4	Mr. Keo Ponleu	M			
5	Ms. Sar Sambat	F			
6	Ms. Ean Sitha	F			
7	Ms. Teap Rasy	F			
8	Ms. Kongg Saran	F			
9	Ms. Sao Saroun	F			
10	Mr. Moa Poa	M	-	Border police	
11	Mr. Chit Pilot	M	-	Border police	
(5) SVR6: Consultation in Kampong Chark Commune, Rumduol District					
1	Mr. Son Sarann	M	Kampong Chark commune	Commune chief	097 782 1697
2	Ms. San Khon	F	-	Villager	
3	Mr. Noun Seak	M	-	Village chief	
4	Ms. San Sokha	F	-	Villager	
5	Mr. Yang Sinat	M	-	-	
6	Ms. Khem Samong	F	-	-	
7	Ms. Mei Yeay	F	-	-	
8	Ms. Oung Chheang	F	-	-	
9	Ms. San Sokhear	F	-	-	

3. Kampon Speu Province

3.1 Road Identification: KSP7

Issues/Comments/Suggestions Raised by the Stakeholders	Stakeholders raised issues/suggestions	Response or Answer	Remarks
KSP7: Consultation in Arm Lang Commune, Thpong District, Kampong Speu			
- We are very happy with this project for the improvement of the rural road in this area. - The PDRD informed commune-village chiefs of the improvement of this road to a DBST road. - Now it is very difficult to travel with potholes, muddy and slippery during the rainy season, and very dusty during the dry season (big issue is	- Mr. Phon Mang - Ms. Phim Chan - Ms. Ath Than	- Now is study, we don't know this road will construct or not. - The engineer will conduct	

being muddy and slippery road during the rainy season). - Some parts of road experiences flash flooding by run-off where there are potholes during heavy rain. So the project should provide culverts and drainage on both sides of the road to reduce flood. - The impacts of project on land use, crops on the road side or RoW are very small. It is not going to be a problem. Our people will support and contribute these small impacts or their loses. - Air pollution from dust is small during construction (on construction sections) but should be considered. - Noise from construction machines is very small and limited only during the construction stage. - There are no protected areas and sensitive resources located near the road. - Based of the road location, about 1-2 km towards the end of the road is located in the Oral Wildlife Sanctuary (and from the result of the site investigation, this area is already a development zone (village, farm fields, ricefields, and economic land concessions). - The road provides access to the Tasal Waterfall that is a local tourist site.		survey and design for bridge, culvert, and drainage.	

3.2 Consultation pictures

Consultation in Arm Lang Commune, KSP7

Existing road condition KSP7

3.3 Roads visiting pictures

Existing road and environmental condition on KSP1

Existing road and environmental condition on KSP2

Existing road and environmental condition on KSP3

2.4 Table: Attendance List during the consultations in Kampong Speu Province

No	Name	Sex	Village-Commune	Function	Phone
KSP7: Consultation in Arm Lang Commune, Thpong District					
1	Mr. Phon Mang	M	Arm Lang Commune	Village chief	010 535 853
2	Ms/ Phin Chan	F	-	Villager	
3	Ms. Ah Than	F	-	-	
4	Ms. Sout Sopheap	F	-	-	
5	Ms. Phan Pheun	F	-	-	
6	Ms. Thy Phany	F	-	-	
7	Mr. Sras Sokha	M	-	-	
8	Ms. Seung Thea	F	-	-	
9	Ms. Sim Ngin	F	-	-	
10	Ms. Chan Tha	F	-	-	
11	Mr. Seun Seum	M	-	-	

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List

Field Consultation for RRIP-III

Date: 20/11/2017

Road ID: PV4+PV8 Commune: Kampong Trabeau....

District: Kg. Trabek Province: ..Prey Veng..ខេត្ត

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1						
2						
3						
4						
5						
6					015596998	
7						
8						
9						
10						
11						
12						
13						
14						
15					088609 73517	

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date : 10/11/2017

Road ID: SVR3 Commune: Krol Kor Commune

District: Svay Chrum Province: Svay Rieng

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1		M			012639200	
2		F				
3		F				
4		M			096704357	
5		M				
6		M				
7		M			092278770	
8		F			096496355	
9		M				
10		M				
11		F				
12		F				
13		M				
14		M				
15		M				
16		F				
17		F				
18		M				
19		F				

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List

Field Consultation for RRIP-III

Road ID: SVR 3 Commune: Kraol Kou Commune

District: Svay Chrum Province: Svay Rieng

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
20						
21						
22						
23						

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)
Attended List
Field Consultation for RRIP-III

Date : 20/11/2017

Road ID: S.V.R.2 Commune: Kok Prong

District: Svay Chrum Province: Svay Rieng

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List
Field Consultation for RRIP-III

Date 21/4/2017

(I) Road ID: SVR8 Commune: Samyang

District: Kampong Ror Province: Svay Rieng

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1					071407 5666	
2					097 33 30 122	
3						
4						
5						
6					088 997 4563	
7						

(II) Road ID: SVR5, Bati Sek Commune, Kampong Ror District, Svay Rieng

1		M			097 438 10 16	
2		F	"	"		
3		M	"	"		
4		M	"	"		
5		F	"	"		
6		F	"	"		
7		F	"	"		
8		F	"	"		
9		F				
10		M	"	Border Police		
11		M	"	Border Police		

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List

Field Consultation for RRIP-III

Date: 22/11/2017

Road ID: ..SVR6 Commune: ឃុំ.កំពង់ចក..Kampong Chark

District: Rumduol... Province: ...Svay...Rieng...

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1	[illegible]	M	[illegible]	មេឃុំ	097 78 21 697	
២	[illegible]	F	=	[illegible]		
៣	[illegible]	[illegible]	=	[illegible]		
៤	[illegible]	F	=	[illegible]		
5	[illegible]	M	=	=		
6	[illegible]	F	=	=		
7	[illegible]	F	=	=		
៨	[illegible]	F	=	=		
៩	[illegible]	F	=	=		

ADB Loan 3151-CAM/AFD Loan CHK 1152/Grant 0402-CAM
RURAL ROADS IMPROVEMENT PROJECT-II
Future Project (RRIP-III)

Attended List

Field Consultation for RRIP-III

Date 23/11/2017

Road ID: KSP.7 Commune: [illegible], Am Laing

District: Thpong.... Province: ..Kampong...Speu, [illegible]

No	Name ឈ្មោះ	Sex	Village-Commune ភូមិ-ឃុំ	Position តួនាទី	Phone # ទូរស័ព្ទ	Signature ហត្ថលេខា
1	Mr [illegible]	M	[illegible]	[illegible]	010535853	
2	Ms [illegible]	F	=	=		
3	Ms [illegible]	F	=	=		
4	Ms [illegible]	F	=	=		
5	Ms [illegible]	F	=	=		
6	Ms [illegible]	F	=	=		
7	Mr [illegible]	M	=	=		
8	[illegible]	F	[illegible], [illegible]	=		
9	[illegible]	F	=	=		
10	[illegible]	F	=	=		
11	[illegible]	M	=	=		

APPENDIX 5

Selected Socio-Economic Information from Public Consultations and Baseline Socio-Economic Survey

Selected Socio-Economic Information from Public Consultations and Baseline Socio-economic Survey

1. The Rural Roads Improvement Project (RRIP) III has a total length of about 359.8 kilometers with 22 road sections in 54 communes in 23 districts and has the potential to benefit about 601,001 beneficiaries (137,491 families) including 306,686 female population representing 51% of the total population) in five provinces of Cambodia: Kampong Cham; Kratie; Prey Veng; Svay Rieng; and Tboung Khmum. The project area traversed by these roads has 21,952 female-headed households or about 15% of the total number of families. No indigenous peoples and ethnic minority groups live within the proposed road project area.

2. No other indigenous peoples and ethnic minority groups live within the proposed road project area. Information was confirmed by the Village and commune leaders within the project area.

3. The project will be funded by a loan from the Asian Development Bank (ADB) and will be implemented by the Ministry of Rural Development (MRD) as the executing agency.

4. The road will provide an all-year road access from provincial towns and agricultural areas, and will provide greater accessibility to basic facilities and services. It will also strengthen the capacity of the MRD to plan, manage and monitor road maintenance operations and implementing the loan covenants and other conditions through the MRD's Project Management Unit/Social and Environmental Office and the Provincial Department of Rural Roads.

5. The RRIP III has four key project outputs, namely: (i) rural road improvements; (ii) rural road asset management; (iii) rural road safety and community awareness program; and (iv) project management support.

6. Poverty is considered as a major problem in Cambodia, particularly in the rural areas where majority of the population lack access to basic facilities due to bad road condition, absence of electricity, inadequate irrigation structures, and limited access to safe drinking water and sanitary toilets in the rural areas. Based on ADB Cambodia Country Poverty Analysis report in December 2011, Cambodia's growth performance for 1998–2007 ranks sixth highest among the countries in the world, and it is one of the 46 countries that achieved 7% average annual growth for 14 years in a row (Guimbert 2010).

7. Rural poverty remains a challenge, with 90% of the poor residing in the countryside (in 2009) and about 80% in 2013. ADB stated that Cambodia's population living on less than $1.25 (PPP) a day was 18.6% in 2009, compared to 28.3% in 2008. In 2007, the population living below the national poverty line was 30.1%. The under – 5 mortality rate per 1,000 live births was 43 in 2011 and the population with access to improved drinking water sources was 64% in 2010 (ADB. 2013. Basic Statistics 2013. Manila; ADB & Cambodia Fact Sheet, 2012).

8. Baseline socio-economic survey was conducted in the RRIP III areas in ten (10) provinces, utilizing a total of 1,219 respondents randomly selected from various communes/districts. The baseline survey was conducted on September 28 to November 12, 2017. Data entry and processing were completed in December 2017. Stakeholder consultations were also conducted in selected project areas.

9. Over 50 consultations were conducted by the social/ gender, and environment specialists with various stakeholders for the period October to December 2017 with a total of 495 participants

including 200 (40.4%) female within the proposed project area. Separate focus group discussions were conducted with women within the project area. The total number of ethnic minorities consulted in Themei commune, one commune with ethnic groups in Kratie province is 48 including 24 (50%) female. Likewise, a baseline social survey has been conducted in the project area with 1,219 households (including 541 or 44.40% female) respondents, who were also consulted about their perception on the project, how they will be benefited by the project and their concerns and recommendations related to the project.

10. The Project has a high level of awareness among those surveyed for the Project. For those who are aware of the project, their information comes from local authorities and neighbors. Based on the baseline survey, the following are the positive impacts of the proposed project once completed: Safer travel; Travelling convenience; business benefits; reduced travelling time; and no more dusty road condition. Generally, (i) it is now easy to transport agricultural products to the markets; (ii) convenient for the children and/or easy to go to school; will motivate children to go to school thus, cases of school drop-outs will decline; (iii) faster travel in going to another place/district or province; (iv) greater access to health center and hospitals; (v) will provide jobs during the road construction for the local population, including the women; business investors will establish commercial establishments that could provide jobs to the local communities, and could prevent migration if there are jobs available in the project areas (vi) will increase the economic condition of the households as they could open shops along the road once completed; they plan to sell vegetables, fruits and other products.

11. The negative impacts of the project identified by the survey respondents include the following: (i) possible increase of road accidents; (ii) potential traffic congestion; (iii) air pollution; (iv) asset removal - some trees will be affected during the road construction and shops located along the road might be temporarily disrupted but they said, there is no problem as they could just move their shops during the road construction. During construction, the most negative effects of the project cited include degradation of air quality due to dust; noise; safety; traffic congestion; removal of assets; impacts to schools/hospitals/businesses; impacts to cultural and historical structures; and waste control. Resettlement is considered not a major problem in the RRIP III as the road improvement will be done in the existing roads. But all these are considered temporary and could be mitigated.

12. Overall, the people in the RRIP III areas are in favor of the proposed project. They identified positive impacts, as well as negative impacts. They believed that the negative impacts could be mitigated by social safeguard measures. The proposed project will provide greater benefits to the local communities and households.