

KINGDOM OF CAMBODIA
Nation Religion King

Ministry of Public Works and Transport
Road Assets Management Project II (P150572)

SITE SPECIFIC
ENVIRONMENTAL MANAGEMENT PLAN
NATIONAL ROAD 3 AND 7

December, 2015 (updated on May 03 2018 on GBV and labor influx as per comments made by
lawyer)

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Abbreviations

AC	: Asphalt Concrete
CRPF	: Compensation and Resettlement Policy Framework
DoE	: Department of Environment
EMP	: Environmental Management Plan
ES	: Environmental Specialist
ESSF	: Environmental and Social Safeguard Framework
ER	: Environmental Review
GRM	: Grievance Redress Mechanism
	GBV: Gender Based Violence
MoE	: Ministry of Environment
MPWT	: Ministry of Public Works and Transport
PDoE	: Provincial Department of Environment
PDWT	: Provincial Department of Public Works and Transport
PMU	: Project Management Unit
RGC	: Royal Government of Cambodia
RAMP	: Road Asset Management Project
ROW	: Right of Way
NR	: National Road
NR 3	: National Road No.3
NR 7	: National Road No. 7
ESO	: Environmental and Social Office
	VAC: Violence Against Children
WB	: World Bank

ENVIRONMENTAL MANAGEMENT PLAN

ROAD ASSET MANAGEMENT PROJECT – RAMP-II

National Road No.3 and National Road No.7

NR3: Kampot (PK147+100) to Veal Rinh (PK201+400) in Preah Sihanouk Ville

NR7: Thbong Khmum (PK136+000) to Kratie PK300+000)

1. Introduction

The Government of Cambodia through the Ministry of Public Works and Transport (MPWT) is provided with World Bank financing to implement a new Road Asset Management Project II (RAMP-II) for a period, from 2016 to 2022. The RAMP-II will support the scaling up of the original RAMP project's achievements to ensure continued effective use of the rehabilitated national and provincial road network in support of the economic development in Cambodia. The project will continue to integrate periodic rehabilitation and maintenance investments with institutional support and capacity development for prioritization and planning, implementation of maintenance activities. The original project has developed safeguard instruments including "Environmental and Social Safeguard Framework" (ESSF). Under RAMP-II, this instrument has been updated and remains applicable for RAMP-II. The revised ESSF covers the Indigenous People Development Framework (IPDF), Compensation and Resettlement Policy Framework (CRPF) and Environmental Management Plan (EMP) to be applied to all subprojects to be implemented under RAMP-II regardless of its financing sources. The ESSF has been prepared in line with national laws and the Bank operational policy OP/BP 4.01 provisions on Environment Assessment, OP/BP 4.12 on Involuntary Resettlement, and OP/BP 4.10 on Indigenous People.

Given the nature and scale of civil works for proposed road sections, a formal environmental assessment report was not considered necessary based on national laws and Bank policy OP/BP 4.01. Three policies are triggered including Environmental Assessment OP/BP 4.01, Indigenous Peoples OP/BP 4.10, and Involuntary Resettlement OP/BP 4.12. The project remains classified as environment category B since the impacts are known and likely to be minimal.

In preparing the RAMP-II, the MPWT carried out environmental and social screening along the two (NRs), which are divided into 4 packages of road sections in November 2013. During the field survey, the ministry also conducted consultations with Project Affected Households (PAHs) along NR7 during November 10-13, 2013 and on NR 3 on November 15, 2013. Outcomes of the screening process documented in the report dated November 20, 2013 reveals that no major environmental and social impacts are envisaged because the proposed road maintenance sections will be carried out on the existing road alignments and within Right of Way (ROW). Some inconveniences may occur during construction such as dust, noise, construction debris and short term disturbance to the daily business activities, which however can be mitigated by applying good construction practices and close supervision. The revised safeguard document, i.e. ESSF, has included lessons learned from original RAMP implementation. The revised ESSF, site specific EMPs and other documents will be incorporated in the sub-projects bidding documents.

Lessons learned from RAMP and RAMP II implementation were drawn upon, elaborated in the revised ESMF and used to inform the design of this RAMP II-AF. Thus more attention is given to (a) strengthening the role of the Environmental and Social Office (ESO) and contractors/sub-contractors in monitoring and reporting on EMP implementation; (b) developing a workable GRM; and (c) incorporating the enhanced ESHS requirements and GBV and VAC prevention measures in the bidding and contract documents. The ESO staff of MPWT will continue to receive technical support and capacity development from the Bank and MPWT's consultants, primarily via on-the-job-training.

Since the proposed packages are known of its locations and activities, and the revised ESSF has only generic EMP applied for original project, thus site specific EMPs of the sub-projects are prepared after a site visit to all proposed project packages (NR3 and NR7), accompanied by MPWT's engineers and Bank's safeguard mission team, meeting and interview/discussion (appendix 2: discussion guide) with local people living along the road carried out from 8-12 October 2014 to in-depth understand the situation on the ground (appendix 4: pictures of field visit) and its existing environmental condition to prepare mitigation measures to avoid or mitigate possible impacts that may arise from the project activities. However, this document was updated to reconfirm the impacts and mitigation measures based on field visit carried out on December 16-17, 2015 to both NR3 and NR7. In addition, comments from RSS (Regional Safeguard Secretariat) are also incorporated in this document.

2. Project Overview

2.1 Project Development Objective

The PDO is to improve the condition, safety and climate resilience of selected national road corridors in Cambodia.

The project will achieve this objective through (i) the systematic introduction of designs that include climate proofing and road safety measures and the use of performance based contracts; and (ii) by enhancing MPWT's capacity to carry out road maintenance planning, contracting and management.

2.2 Project Locations

The road sections are located in flat area connecting a number of provincial and district towns (i.e. Kampot and Veal Rinh districts on NR 3, and Suong, Memot, and Snuol on NR7), in which rapid growth in economic developments and increasing demand for in-land transport are observed. The project will focus on preservation of the existing assets and will not involve any civil works or expansion beyond the current public rights of way.

The project will cover repair and maintenance investments of four sections (Packages) of the National Road (NR) No 3 (NR3) located in the southern part of Cambodia from Kampot municipality to Veal Rinh district, and of the National Road 7 (NR7) in Thbong Khmum located in the central region.

The RAMP-II project (US\$58.57 million; IDA US\$54.27 million; RGC US\$4.3 million) has two subcomponents: Sub-component A1 Periodic maintenance and strengthening of national roads, and Sub-component A2 Implementation support.

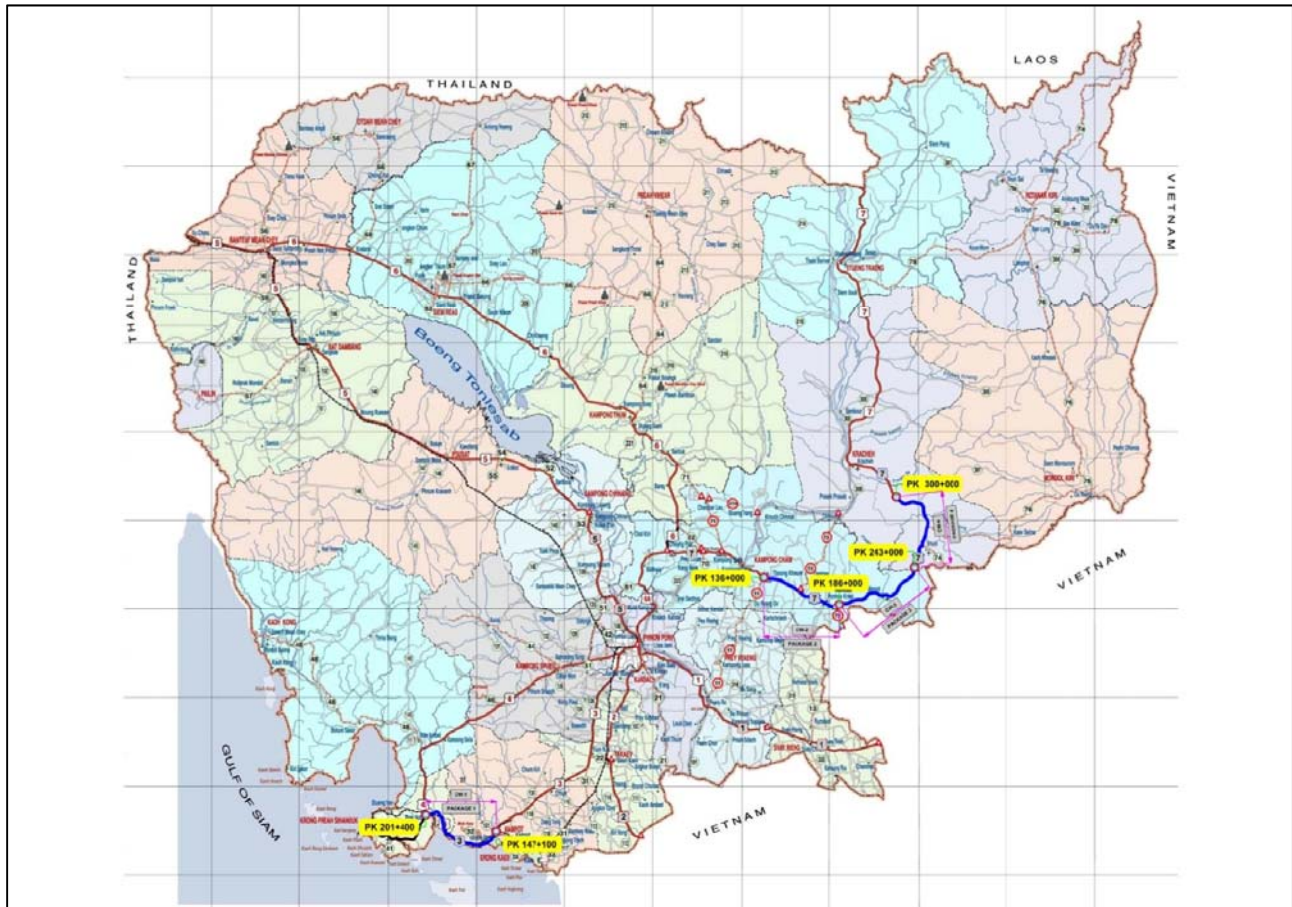
Sub-component A1: Periodic maintenance and strengthening (US\$54.10 million; IDA US\$49.77 million, RGC US\$4.3 million) of about 218 km of existing bitumen-sealed roads with an overlay of asphalt concrete, replacement of current pavement with concrete pavement at flood prone areas, including strengthening and replacement, as necessary, of sub-base and road base-course, using unbound materials or stabilized materials for the road pavement. The civil works would include about 90 km of repair, replacement and installation of new drains, as well as repair and replacement of existing cross-drainage and the placement of some new culverts. The works would be followed by an application of performance-based road maintenance for a period of three years. The works would be divided into four contract packages, one on NR3 and three on NR7. The two road lines (i.e., NR3 and NR7) are divided into four road sections:

- Package 1: Periodic maintenance of 54 km of NR3 from Kampot provincial town to Veal

Rinh intersection of NR3 and NR4, with performance based contract covering routine maintenance for three years. It also supports the construction of side drains of 17 km along the NR 3 road.

- Package 2: Periodic maintenance of 50 km of NR7 from PK136 to PK186, with performance based contract covering routine maintenance for three years. It also supports the construction of both side drains along 28.7 km of the NR7 road.
- Package 3: Periodic maintenance of 57 km of NR7 from PK186 to PK243, with performance based contract covering routine maintenance for three years. It also supports the construction of both side drains along 37.7 km of the NR 7 road.
- Package 4: Periodic maintenance of 57 km of NR7 from PK243 to PK300, with performance based contract covering routine maintenance for three years. It also supports the construction of both side drains along 11.8 km along of the NR7 road.

Proposed Project Location (NR3 and NR7)



3. Description of Project

The RAMP-II is a Repeater Project, which builds on the tangible progress made to date by RAMP and is no longer processed as an RAMP-II to the Existing KH- Road Asset Management Project. The new project would build on the achievements of RAMP to ensure the continued effective use of the rehabilitated national and provincial road network. In doing so, the follow-on project would improve the climate resilience and longevity of about 218 km of National Roads 3 and 7 through the strengthening, repair and maintenance (through three-year performance based maintenance contracts) of road surfaces, and installation of about 90 km of side-drainage in flood prone areas along the roads. The new project would support the planning and development of the road maintenance program by further enhancing the capacity of MPWT to carry out data collection, processing and analysis necessary for effective road asset management of the national and provincial road networks. It would also provide ongoing support to community-based road safety and HIV/AIDs and human trafficking awareness campaigns.

The project (under RAMP-II) has two main components. These are Component 1: Road Asset Management (Periodic maintenance and strengthening of about 218 km of existing bitumen-sealed roads with an overlay of asphalt concrete, replacement of current pavement with concrete

pavement at flood prone areas) and Component 2: system upgrading (social and environmental safeguards training and monitoring).

The project will be implemented using the existing Royal Government of Cambodia (RGC) organizational structure and institutional arrangements, particularly within MPWT. The Project Implementation Unit supervising the activities for RAMP will continue to be responsible for RAMP-II investments. The MPWT is responsible for overall technical supervision, execution and management of the project. The General Department of Public Works (GDPW) will be responsible for the day to-day implementation, supervision and operation of the project, including contracting and direction of all consultants, and will be the employer for all civil works contracts. The General Department of Administration and Planning (GDAP) will carry out the financial, safeguards, capacity development, training and public disclosure matters on the project. The General Department of Transport (GDT) will be responsible for Road Safety aspects as well.

3.1 Package 1: National Road No.3

The package 1 subproject is proposed from Kampot town PK 147+100 to PK201+400. The road section will be an AC overlay of 54km and side drainages in flood prone locations and cross drainage in some locations.

The proposed drainage types and lengths in the above table were proposed by MPWT for RAMP-II, and may change in lengths during implementation. In locations where existing side drainage system exist and still functioning, the RAMP-II project will only restore the system by cleaning. According to the detailed design, storm water will be collected by an improving system and discharged to existing stream or canal or open rice field. The mitigation measures are presented in specific EMP, Chapter 5 and in the recommendation of this report. The type A drainage with RCP and manhole will be installed in urban area where population density is considered high. Because the existing drainage system throughout Cambodia is a combined system (drainage and sewerage), it is predicted that there would be household connections discharging wastewater to the system that is designed only for storm water. The impacts may occur, such as to downstream or rice field, if measures are not taken.

3.2 Package 2-4: National Road No.7

The proposed project (package 2, package 3 and package 4) starts from PK 136+000 to PK300+000. This project would improve the climate resilience and longevity of about 164 km of National Roads 7 through the strengthening, repair and maintenance (through three-year performance based maintenance contracts) of road surfaces, and installation of about 76 km of side-drainage in flood prone areas along the roads.

In locations where side drainage system existed and can be used, the project will only restore the system by cleaning if condition is not good. All side drains will discharge to existing stream or canal or open rice field. According to the detailed design, storm water will be collected by an improving system and discharged to existing stream or canal or open rice field. The mitigation measures are presented in specific EMP, Chapter 5 and in the recommendation of this report.

4. Environmental and Social Impacts

4.1 Environmental Impacts

The proposed project builds on existing environmental practices under the previous Road Asset Management Project funded by the World Bank. Based on the assessment (Environmental and Social Safeguard Framework) carried out by MPWT in November 2013 on the proposed road sections, no major adverse impacts have been observed on local environment and local people.

The environmental impacts would be minor and site specific. Some inconveniences may occur during construction preliminary emissions from heavy equipment, noise, construction debris (most likely the installation of construction materials and machineries along the roads or in front of local community houses or shops), and short term disturbance to daily business (likely the accessibility to shops). However, these issues can be mitigated by applying good construction practices and close supervision and monitoring.

The assessment observed the daily business activities in the urban communities along the two road sections, and resumed quick discussion with households who own shops (such as restaurants, groceries, etc.). It was reported that the construction of side drainages (the excavation and installation of concrete pipes or open V-shape drainages) may cause disturbance to businesses specifically these activities may limit the accessibility of customers from the road to shops. Besides, some mobile tables, cooks, and/or hawkers may have to be cleared from the pedestrian ways being used by local shop owners. This assessment, based on comments from local shop owners and discussion with road engineers of RAMO, proposed site specific EMPs described in table 4 below. The generic potential environmental impacts are elaborated in table 3 below.

Table 3: Potential Environmental Impacts

Activity	Potential Impact	Location	Impact Level/time
Possible Impact During Construction Stage			
- Demolition of old damaged pavement and dust cleaning	- Air pollution caused by dust and impact on community health	- Sections of repairing road bed and pavement. - Residential areas, school, hospital near construction locations	Small to medium (short term)
- Transportation of material and waste (old SBST road removal), operation of construction machines		- Along the transportation roads (NR3 and local roads). - Residential areas, school, hospital near construction locations	Small to medium (short term)
- Road maintenance activities - Cutting of concrete pavement in urban area for drainage system installation	- Noise pollution - Interruption of businesses and utility services	- Residential areas, school, state agencies near construction locations	Small (short term)
- Transportation of soil, waste, gravel, asphalt concrete			Medium (short term)
- Excavation of soil for side drain and open ditch	- Interruption of business and utility services - Damage to “ Andong Khmer ”(possible of	- Locations of drainage system construction - PK150+000: side drain	Medium

Activity	Potential Impact	Location	Impact Level/time
	landslide)		
<ul style="list-style-type: none"> - Digging out the old roadbed - Digging, clearing drainage culverts, ditches - Machinery operation - Maintenance construction machines 	<ul style="list-style-type: none"> - Environmental pollution and deterioration of landscape due to solid waste 	<ul style="list-style-type: none"> - At the sections of repairing road bed and pavement - At the locations of repairing and adding drainage pipes, culverts, ditches 	Small to medium (short term)
	<ul style="list-style-type: none"> - Surface water pollution caused by waste oil and oil-containing wastes 	<ul style="list-style-type: none"> - At the locations of reinforcing slope - At the locations near the source of surface water 	Small (short term)
<ul style="list-style-type: none"> - Arranging construction machines - Transportation of construction materials and waste 	<ul style="list-style-type: none"> - Cause traffic unsafely and traffic obstruction on the project route and local road 	<ul style="list-style-type: none"> - At construction locations - Along transport route (NR3 and local route) 	Small to medium (short term)
	<ul style="list-style-type: none"> - Damage to public utilities 	<ul style="list-style-type: none"> - Local road used for transport material and waste 	Medium
<ul style="list-style-type: none"> - Outside workers 	<ul style="list-style-type: none"> - Impact on community health 	<ul style="list-style-type: none"> - All construction location 	
<ul style="list-style-type: none"> - Material exploitation 	<ul style="list-style-type: none"> - Generate dust, noise, vibration - Damage to public utilities 	<ul style="list-style-type: none"> - Borrow pits - Along transportation road (NR3 and local roads) 	Small (short term)
Potential Impact During Maintenance and Operation Stage			
<ul style="list-style-type: none"> - Maintenance works (pavement, drainage etc.) - Emergency repair work (arranging construction machines, transportation of material and waste) 	<ul style="list-style-type: none"> - Air and noise pollution - Cause damage to public utilities - Interruption of business and utility services 	<ul style="list-style-type: none"> - Residential area along the project road - Location of maintenance and repair 	Small (short term)
	<ul style="list-style-type: none"> - Cause traffic unsafety and obstruction on the route 	<ul style="list-style-type: none"> - Location of repair drainage system - Repair pavement 	Small to medium (short term)

4.2 Social Impacts

The main social impacts are caused by workers focusing on infectious diseases (e.g. impact on security and order due to conflict between local people and workers, sexual transmitted diseases, HIV/AIDS, etc.). However, social impacts were described in revised ESSF including resettlements (RAPs), indigenous people, road safety and awareness campaign to local residents. This report does not intend to address social issues because, in the meantime, a social safeguard consultant is hired to prepare ARAPs for RAMP-II.

Regarding Environmental, Social, Health and Safety (ESHS), all bidding documents have been included mandated enhanced requirements to prevent and manage possible risks and impacts based on experience from similar projects in other regions. The bidding documents thus include an annex with guidance on how contractors should prepare Codes of Conduct and Action Plans to prevent Gender Based Violence (GBV) and Violence Against Children (VAC), along with allocated budgets for implementation. The introduction of these Codes into project documentation addresses a gap in institutionalized attention to the risks of GBV and VAC in road sector projects. With support from the Bank, the project is planning to provide specialized training on the relevant instruments and prevention of sexual harassment and GBV to the MPWT, the supervision consultant, contractors and construction crews. The aim is to complete this training before construction begins. This training, together with signed Codes of Conduct, will build a base for ongoing attention to these important social issues, as well as the capacity to monitor contractor performance and take corrective action if needed. With the support of the project's safeguards consultants and the Bank's safeguards specialists, the Environment and Social Office (ESO) staff will be trained to handle the safeguards implementation (including monitoring and reporting).

Labor Influx

A risk assessment conducted based on the risk classification defined by the World Bank's 2016 Guidance Note on managing the risks of labor influx reveals that the marginal risk associated with the labor influx under the project is considered low at 9. The size of the potential influx of labors and workers is expected to be manageable for periodic maintenance and strengthening of NR4 plus introduction of overloading control and a range of road safety interventions. The POM specifies responsibilities of the implementing agency, RAMO and ESO, its contractor and supervision engineer to mitigate and monitor negative impacts of labor influx and potential risks related to sexual exploitation and gender-based violence.

Guidelines of enhanced Environmental, Social, Health and Safety (ESHS) requirements including contractor Codes of Conduct and management of occupational health and safety (OHS) have been incorporated in the bidding documents and will be regularly monitored by the supervision consultant during the execution of works. Contractors will be required to train all workers and staff on a regular basis on the Workers Code of Conduct to ensure clear definition of obligations of contractors' staff and workers with regard to implementing the project's ESHS and OHS requirements; help prevent, report and address gender-based violence (GBV) and Violence against Child (VAC) issues within the work site and in its immediate surrounding communities. Contractors will also inform workers about national laws that make gender-based violence a punishable offence which is prosecuted. Labor camps will be constructed for those workers coming from outside the community, and will be regularly monitored by the ESO and its supervision consultant. The ARAP and EGEF provide details on a grievance redress mechanism that will also be used to manage grievance redress related to worker conduct, including monitoring timely resolution of grievances received from women.

5. Mitigation Measures

The main mitigation activities (specific site mitigation measures) are described in Table 4 below. Since this is a road maintenance project good practice and standard mitigation measures are required including construction waste management, noise, dust, and traffic safety mitigation measures.

On the other hand, the specific impacts, location and proposed mitigation measures for the proposed road package are presented in table 4 below.

Table 4: Site Specific Environmental Management Plan

Package 1: NR3 (PK147+100-PK201+400)

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
Mitigation Measures During Construction and Maintenance Stage ¹					
PK 147+100 – PK 201+400	All project location – section of package 1	- Lack of mechanism to address environmental complain	- Establish grievance redress mechanism (GRM) - Make public awareness of GRM - Ensure that name and contact number of representative of MPWT and Contractor are place on the notice board outside the construction site and at local government office (provincial and commune levels) - Ensure Contractor’s compliance to TEG and Site Specific EMP is in the contract agreement	MPWT/PMU/ ESO	ESO and contractor
PK 147+100 - PK149+350	- The route passes through residential area of Andon Khmer district where some small business operates on the ROW - School building	- Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction - Canal/stream pollution - Business disruption especially those who have business along the national road	- When construction passes through residential areas particularly area near school should apply traffic safety, and noise restriction - Dust control during construction by spray water on road surface 3-6 times/day (at road construction sections) depending on weather and traffic - During construction stage, collecting and not dumping waste into canal or natural stream - Provide safe walk path if excavate	Contractor	MPWT/PMU/ ESO and contractor

¹Construction activity refers to activities during project commencement to its completion. While maintenance stage is post project activity (maintenance after project completion).

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
			soil for ditches or drainage system that requires more than 2 days - Signs shall be placed and lightning at night shall be installed to avoid any possible danger to public - Construction activities must be planned and implement as quick as possible to minimize business disruption and during construction, a path walk should be provided for temporary access into business area		
PK 149+350 –PK 154+750	- The route passes through sparsely residential and mainly rice field - Sonja Kill, Memorial Hospital (PK154+120) - Preah Monivong Bokor National Park	- Canal/stream pollution - Waste generate from construction activities - Traffic accident - Dust and noise pollution	- Collection of waste, especially oil, not dumping into canal and any water body around construction site - No impact to Bokor National Park since only side drain will be constructed. But waste from construction shall be properly disposed in license area (dumping site of the province), not within National Park - Construction activities should be limited to working hours only	Contractor	Consultant MPWT/PMU/ ESO
PK 150+000	- “ Andong Khmer ” The very old well for more than 100 years that need to conserve	- Encroachment on historical/ cultural areas - Land slide into the ancient well	- Heavy machinery or excavator should not be used for soil excavation of side drain - It is suggested that shallow side drain is suitable for this condition (re-design the drain in this particular location) - Apply traffic safety, noise and dust control	Contractor	Consultant MPWT/PMU/ ESO Local authority

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
			- Contractor and local authority should cooperate to install signboard and protect the well by fencing around		
PK 154+750 – PK 156+550	- This section of the route is rice field and some orchard	- Waste generation from construction activities - Canal/stream water pollution - Land/rice field contamination	- During construction phase collecting waste and not pollute the rice field and existing water body - Excavated soil shall not dump in the nearby rice field	Contractor and Local Authority	Consultant MPWT/PMU/ ESO
PK 156+550 – PK 162+900	- The route passes through sparsely residential area, agricultural field - Pagoda and Vesavan Sakateavuthum	- Siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to dust emission, solid waste and wastewater generation, etc.	- When construction passes through residential areas particularly area near pagoda and religious area should apply traffic safety and noise restriction (no noisy equipment/activity during ceremonial day) - Dust control during construction by spray water on road surface 3-6 times/day (at road construction sections) depending on weather and traffic - During construction stage, collecting and not dumping waste into canal or natural stream - Construction activities should be limited to working hours only	Contractor	Consultant MPWT/PMU/ ESO
BoeungTouk Commune, Rolous Village PK 157+000	- Flooding the road during raining	- Water overflow on the road and flooding in the nearby village	- Both side drain should be installed - Cross drainage or box culvert should be consider to avoid flooding in the village since concern is raised during consultative meeting	Consultant to make revision on the design Contractor	Consultant MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
– PK161+500					
PK 162+900 – PK169+000	- The route passes through sparsely residential and mainly rice field	- Waste generation from construction activities - Canal/stream water pollution - Land/rice field contamination	- Collection of waste, especially oil, not dumping into canal and any water body around construction site	Contractor	Consultant MPWT/PMU/ ESO
PrekAmpil PK 169+300	- Urban area	- Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction - Canal/stream pollution - Business disruption especially those who have business along the national road	- Collection of waste, especially oil, not dumping into canal and any water body around construction site - Apply traffic safety, noise and dust control (during construction by spray water on road surface 3-6 times/day depending on weather and traffic)	Contractor	Consultant MPWT/PMU/ ESO
PK 169+300 – PK 178+220	- The route passes through sparsely residential area, agricultural field - Pagoda - Route pass through some streams	- Construction activities and siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to dust emission, solid waste and wastewater generation, etc.	- When construction passes through residential areas particularly area near pagoda and religious area should apply traffic safety, dust and noise restriction (no noisy equipment/activity during ceremonial day) - During construction stage, collecting and not dumping waste into canal or natural stream	Contractor	Consultant MPWT/PMU/ ESO
PK 178+220 – PK 179+950	- Route pass through rice field, residential and market area (Trapang Lpuov)	- Traffic and safety - Waste generation from construction activities - Canal/stream water	- Apply traffic safety, dust and noise restrictions - During construction collect waste, especially oil, not dumping into water	Contractor	Consultant MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
		<p>pollution</p> <ul style="list-style-type: none"> - Land/rice field contamination - Business disruption - Social conflict between construction workers and local community 	<p>body</p> <ul style="list-style-type: none"> - Construction machines do not impact to residential area market (by dust and noise) - Dust control during construction by spray water on road surface 3-6 times/day (at road construction sections) depending on weather and traffic - Construction activities (side drain and type A: RCP) must be planned and implement as quick as possible to minimize business disruption - During construction, a path walk should be provided for temporary access into business area - Conflict prevention between workers and resident at market area (avoid damaging properties of affected person during construction such as extended roof and other properties that may impact by construction) 		
PK 179+950 – PK 187+480	<ul style="list-style-type: none"> - The route passes through sparsely residential area, agricultural field - Pagoda - Route pass through some streams 	<ul style="list-style-type: none"> - Construction activities and siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to solid waste and wastewater generation, etc. - Air pollution due to elevated levels of dust 	<ul style="list-style-type: none"> - When construction passes through residential areas particularly area near pagoda and religious area should apply traffic safety, dust and noise restriction (no noisy equipment/activity during ceremonial day) - During construction stage, collecting and not dumping waste 	Contractor	Consultant MPWT/PMU/ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
		and gaseous emissions	into canal or natural stream		
PK 187+480 – PK 191+550	- Route pass through residential area at TeukL'ak commune	<ul style="list-style-type: none"> - Traffic and safety - Waste generation from construction activities - Canal/stream water pollution - Land/rice field contamination - Business disruption - Social conflict between construction workers and local community 	<ul style="list-style-type: none"> - Dust and noise control during construction - Construction activities (side drain and type A: RCP) must be planned and implement as quick as possible to minimize business disruption - During construction, a path walk should be provided for temporary access into business area 	Contractor	Consultant MPWT/PMU/ ESO
PK191+550 – PK 199+600	- The route passes through sparsely residential area, agricultural field	<ul style="list-style-type: none"> - Waste generation from construction activities - Canal/stream water pollution - Land/rice field contamination 	<ul style="list-style-type: none"> - When construction passes through residential areas should apply traffic safety, dust and noise restriction - During construction stage, collecting and not dumping waste into canal or natural stream 	Contractor	Consultant MPWT/PMU/ ESO
PK 199+600 – PK 201+400	- Route pass through residential area	<ul style="list-style-type: none"> - Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction - Canal/stream pollution - Business disruption especially those who have business along the national road 	<ul style="list-style-type: none"> - Dust and noise control during construction - Construction activities (side drain and type A: RCP) must be planned and implement as quick as possible to minimize business disruption - During construction, a path walk should be provided for temporary access into business area 	Contractor	Consultant MPWT/PMU/ ESO
Mitigation Measures During Operation					
The project road	- High risk sections of the road, especially the turn-		- All vehicles must go through checking regularly	MPWT/PMU	MPWT/PMU/ ESO/

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
	around sections and residential area		<ul style="list-style-type: none"> - Material load shall be covered and secured during transportation to prevent scattering of soil, sand, materials or dust - Vehicle owners are required to follow national regulation on traffic and traffic safety - Relevant traffic signs and road bumper need to be installed at right location of the road 		contractor

Package 2-4: NR7 (PK136+000-PK300+000)

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
Mitigation Measures During Construction and Maintenance Stage ²					
Project Location	All project location – Package 2 to package 4	- Lack of mechanism to address environmental complain	- Establish grievance redress mechanism (GRM) - Make public awareness of GRM - Ensure that name and contact number of representative of MPWT and Contractor are place on the notice board outside the construction site and at local government office (provincial and commune levels) - Ensure Contractor’s compliance to	MPWT/PMU/ ESO	Consultant contractor

²Construction activity refers to activities during project commencement to its completion. While maintenance stage is post project activity (maintenance after project completion).

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
			TEG and Site Specific EMP is in the contract agreement		
PK 136+000 – PK 137+270	- District market of Thnal Totoeung	<ul style="list-style-type: none"> - Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction - Business disruption especially those who have business along the national road 	<ul style="list-style-type: none"> - Apply dust control (spray water on road surface 3-6 times/day depending on weather and traffic) and noise restriction - During construction stage, collecting and not dumping waste into canal or natural stream - Provide safe walking path by wood or checker plate into business area if construction time requires more than 2 days - Drainage installation must be planned and not delay to minimize business disruption - Signs shall be placed and lightning at night shall be installed to avoid any possible danger to public 	Contractor	Consultant MPWT/PMU/ ESO
PK 139+000 – PK 140+700	- Route passes through rice field and sparsely resident	<ul style="list-style-type: none"> - Waste generation from construction activities - Canal/stream water pollution - Land/rice field contamination 	<ul style="list-style-type: none"> - Collection of waste, especially oil, not dumping into canal and any water body around construction site - Excavated soil shall transport away and not dump in the rice field 	Contractor	Consultant MPWT/PMU/ ESO
PK 143+350 – PK 146+844	- The route pass through urban center (Suong market) and residential area	<ul style="list-style-type: none"> - Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction 	<ul style="list-style-type: none"> - Apply dust control (spray water on road surface 3-6 times/day (at road construction sections) depending on weather and traffic) and noise restriction - During construction stage, 	Contractor	Consultant MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> - Business disruption especially those who have business along the national road 	<ul style="list-style-type: none"> collecting and not dumping waste into canal or natural stream - Provide safe walking path into business area if construction time requires more than 2 days - Drainage installation must be planned and not delay to minimize business disruption - Signs shall be placed and lightning at night shall be installed to avoid any possible danger to public 		
PK 146+884 – PK 180+000	- The route passes through residential area, market, school, pagoda, hospital and agricultural field	- Siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to dust emission, solid waste and wastewater generation, etc.	<ul style="list-style-type: none"> - When construction passes through residential areas particularly area near pagoda and religious area should apply traffic safety, dust and noise restriction (no noisy equipment/activity during ceremonial day near pagoda area) - During construction stage, collecting and not dumping waste into canal or natural stream - Construction activities should be limited to working hours only - Apply dust control and noise restriction - Drainage installation must be planned and not delay to minimize business disruption - Collection of waste, especially oil, not dumping into canal and any water body around construction site 	Contractor	Consultant MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
PK 178+500 – PK 179+000	- Urban area and school	<ul style="list-style-type: none"> - Dust pollution - Business disruption - Canal/stream pollution 	<ul style="list-style-type: none"> - Contractor need to restore existing canal since the area is flooding when it is rain. Existing cross drain is not big enough for water to flow and cause damage to school fence. It is suggested that this cross culvert should be replace or added to allow water flow and this road section would raise higher - Apply noise and dust control (spray water on road surface 3-6 times/day (at road construction sections) depending on weather and traffic) - Work limit to working hour only 	Contractor	Consultant MPWT/PMU/ ESO
PK 180+000 – PK 206+200	- Residential, agriculture and market area	<ul style="list-style-type: none"> - Siting of various project facilities could adversely affect sensitive receptors (residential areas, etc.) due to dust emission, solid waste and wastewater generation, etc. - Business disruption - Solid waste generation from construction activities 	<ul style="list-style-type: none"> - Apply traffic safety, dust (spray water on road surface 3-6 times/day depending on weather and traffic) and noise restriction - Collecting and not dumping waste into canal or natural stream - Construction activities should be limited to working hours only - Drainage installation must be planned and not delay to minimize business disruption - It is suggested that in market area (Da and Samroung Market) shallow drain should apply to (a). minimize resettlement impact, (b). minimize waste dumping practice into drainage system and (c). be easy for maintenance purpose 	Contractor	Consultant MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
PK 206+200 – PK 211+000	- The route passes through residential and market (Memot market)	<ul style="list-style-type: none"> - Traffic accident - Air pollution due to elevated levels of dust and gaseous emissions - Solid waste and waste from construction - Pile of excavated material in urban area and storage of sand or other construction material - Business disruption especially those who have business along the national road 	<ul style="list-style-type: none"> - Apply noise and dust control (spray water on road surface 3-6 times/day depending on weather and traffic) - Work limit to working hour only - Drainage installation must be planned and not delay to minimize business disruption - Transportation of waste/excavated soil from construction site to a license dumping area - Holy Tree in Memot market must be avoid since it is very old and religious tree 	Contractor	Consultant MPWT/PMU/ESO
PK 206+000	- Residential area	<ul style="list-style-type: none"> - Air pollution due to elevated levels of dust and gaseous emissions - Flooding and overflow on the road 	- Side drainage on the right hand side is not big enough. During raining water flow on the road. It is recommended that right hand side drain should be bigger U-shape to accommodate rain water. On the other hand, MPWT engineer should study if cross drainage is big enough to allow rain water flow since the location is very low and the volume of water is huge, according to village chief in the area. Flooding also last for about 2 days if heavy rain (informed by Ms. Sreang Hun, a resident whose her house also suffer from flood)	Contractor	Consultant MPWT/PMU/ESO
PK 211+000 – PK	- The route passes through residential area, market,	<ul style="list-style-type: none"> - Traffic safety - Air and noise pollution from 	- Apply traffic safety, dust (spray water on road surface 3-6 times/day	Contractor	Consultant MPWT/PMU/

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
256+325	pagoda, school and agricultural field	construction activities - Business disruption on shops along the road and market area - Waste generation from construction - Pile of excavated material along the project road	depending on weather and traffic) and noise restrictions (no noisy equipment/activity during ceremonial day near pagoda area) - During construction collect waste, especially oil, not dumping into water body - Transportation of all excavated material off site to a license dumping area - Construction machines do not impact to residential area market (by dust and noise) - During construction, a path walk should be provided for temporary access into shops or selling stalls - Conflict prevention between workers and resident at market area		ESO
PK 256+325 – PK 300+000	- The route passes through sparsely residential area, agricultural field - Pagoda - Route pass through some streams		- When construction passes through residential areas particularly area near pagoda and religious area should apply traffic safety, dust and noise restriction (no noisy equipment/activity during ceremonial day near pagoda area) - During construction stage, collecting and not dumping waste into canal or natural stream	Contractor	Consultant MPWT/PMU/ ESO
Mitigation Measures During Operation					
The project road	- High risk sections of the road, especially the turn-around sections and		- All vehicles must go through checking regularly - Material load shall be covered and	MPWT/PMU	MPWT/PMU/ ESO

Location	Sensitive Area or Activities	Potential Impacts/Concerns	Mitigation Measures	Responsibility	
				Implementation	Monitoring
	residential area		<p>secured during transportation to prevent scattering of soil, sand, materials or dust</p> <ul style="list-style-type: none"> - Vehicle owners are required to follow national regulation on traffic and traffic safety - Relevant traffic signs and road bumper need to be installed at right location of the road 		

5.1 Discovery by Chance/Changes finds Procedure

- If the Contractor, during construction, discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:
 - Stop the construction activities in the area of the chance find and report to RAMP/Bank as soon as possible for appropriate measures;
 - Delineate the discovered site or area;
 - Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until there responsible local authorities or the Department of Culture and Information takes over;
 - Notify the Construction Supervision Consultant who in turn will notify responsible local or national authorities in charge (within 24hours or less).
 - Relevant local or national authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.
 - Decisions on how to handle the finding shall be taken by the responsible authorities (MPWT).This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.
 - If the cultural sites and/or relics are of high value and site preservation is recommended by the professionals and required by the cultural relics authority, the Project's Owner will need to make necessary design changes to accommodate the request and preserve the site.
 - Decisions concerning the management of the finding shall be communicated in writing by relevant authorities.

Comments from Consultative Meeting:

- Project pre-construction stage: Andong Khmer (Khmer well) is the name of village in Kampot. This name also refers to a historic well of over 100 years and people in the village are still using for their daily life. But not many people are using this at present time except people living near this well. It is located in PK150+000 right hand side of the proposed road and 5 meters from existing road shoulder. District chief, Mr. Yoy Sithong informed, in the consultative meeting, that local authority conserves this well by building brick to protect from damage. (Please see site specific mitigation measure in table 4 above).
- As this well is an historical well, It is suggested:
 - Indicate the location of "Khmer well" in the design so that necessary measure can be taken to avoid its damage.
 - Avoid heavy equipment in this area to prevent land slide into the well.
 - Local authority may cooperate to put signboard and historical information for this area

6. Implementation Arrangement

The table below shows the institutional responsibilities for implementation of the EMP.

Table 5: Responsibilities for EMP Implementation

Agency	Responsibilities
Ministry of Public Works and Transport (MPWT)	<ul style="list-style-type: none"> • Executing agency, shall ensure that sufficient funds are available to properly implement the EMP including recruitment of Environmental specialist consultant • Ensure that all Project components, regardless of financing source, complies with the provisions of the EMP and the World Bank Safeguard Policy • Ensure that Project implementation complies with Government environmental policies and regulations • Ensure that tender and contract documents include the EMP • Internal cooperation with Social and Environmental Office during Project implementation • Submit Monthly monitoring reports on EMP implementation to the World Bank
Project Management Unit (PMU)/Environment and Social Office (ESO) With assistance from the Consultant, prepare monthly environmental monitoring reports for submission to WB based on the results of EMP monitoring identify environmental corrective actions, and prepare a corrective action plan, as necessary	<ul style="list-style-type: none"> • Responsible for overall project implementation, management and coordination; • Include the EMP in the tender and contract documents; • Ensure that EMP provisions are strictly implemented during various project phases (design/pre-construction, construction and operation) to mitigate environmental impacts to acceptable levels • Undertake monitoring of the implementation of the EMP (mitigation and monitoring measures) with assistance from Consultant. • With support from the Consultant, prepare monthly environmental monitoring reports for submission to WB • Ensure that Project implementation complies with WB's Safeguard principles and requirements • Commit and retain dedicated staff for the ESO to oversee EMP Implementation • Ensure that environmental protection and mitigation measures in the EMP are incorporated in the detailed design • Obtain necessary approval(s) from MOE prior to award of civil works contracts, e.g. borrow pits, quarry site, crash stone, etc.
Implementation Supervision Consultant	<ul style="list-style-type: none"> • Assist PMU/ESO to ensure that all environmental requirements and mitigation measures from the EMP are incorporated in the bidding documents and contracts • Implement all mitigation and monitoring measures for various project phases • Undertake environmental management capacity building activities for ESO as required in the EMP • Undertake regular monitoring of the contractor's environmental performance as scheduled in the EMP • Conduct field measurements for surface water quality, dust and noise as required in the EMP
Contractor	<ul style="list-style-type: none"> • Provide sufficient funding and human resources for implementation of the EMP • Ensure proper and timely implementation of required pre-construction and construction mitigation measures in the EMP

Agency	Responsibilities
	<ul style="list-style-type: none"> Implement additional environmental mitigation measures, as necessary
PDPWT	<ul style="list-style-type: none"> Responsible for operation and maintenance of Project road Implement EMP mitigation and monitoring measures during operation
Ministry of Environment (MOE), Ministry of Culture and Fine Arts	<ul style="list-style-type: none"> Issue necessary approvals to the Project prior to implementation Undertake monitoring of the Project based on their mandate

6.1 Capacity Building

Actual implementation of projects shows that coordination in environmental management is not always effective because of the following reasons:

- The community does not have obvious awareness on their rights and obligations on environmental protection or in spite of understanding, there is a lack of regime to provide feedback;
- Relevant agencies were not always ready in coordinating works during project implementation. Some agencies assigned their functional staff to coordinate with the project but this assignment is only temporary and appointed staffs do not master the coordination method as well as necessary procedures for discussion and contact with PMU;
- Most of the case contractor does not pay much attention to the implementation of EMP. For this purpose environmental and social specifications for contractor is developed (see appendix 1 of the report) and shall be included in the bidding document. This environmental and social specification of the contractor shall be strictly implemented and supervised by concerned agencies.

In order to overcome these matters, it is necessary to analyze and assess the capability and demands of relevant departments/divisions in environmental management and analyze actual demands for project implementation. Accordingly, a capacity building and training program will be established to increase the effective operation of environmental management systems in the future and ESO should play an important role in safeguard monitoring. On the other hand, implementation of EMP by contractor should be re-enforced.

7. Recommendations

Results of the study 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 can be mitigated.

To avoid or mitigate negative impacts arising from the Project, the specific environmental management plan (EMP) detailing mitigation measures have been prepared for monitoring purpose and TOR for environmental and social safeguards was prepared to implement this EMP (Please see appendix 3 of the report).

To ensure that Project is carried out consistent with the specific EMP requirements, MPWT shall specify in the tender documents and civil works contracts the implementation of EMP. MPWT shall be assisted by the consultant in monitoring the environmental performance of contractors. The consultant shall also undertake environmental management capacity building to the Social and Environmental Office in MPWT during Project implementation.

In some markets and urban area it is recommended that shallow drain (made of concrete) should be considered as an option to the engineering study to suite current situation in local area (i.e. Da and Samroung market, between PK195 to PK201).

To ensure that Project is carried out consistent with the specific EMP requirements, MPWT shall specify in the tender documents and civil works contracts the implementation of EMP. MPWT shall be assisted by the consultant in monitoring the environmental performance of contractors. The consultant shall also undertake environmental management capacity building to the Social and Environmental Office in MPWT during Project implementation.

The purpose of drainage system in this project is to improve transport facilities which are essential for economic development and social activities of the nation because drainage system can reduce rate of road deterioration (or prolong the life of the facilities) and lower vehicle operating cost. This system is to drain rainwater to natural canal, stream or open rice field. As Cambodia has a combine system (rainwater and household wastewater), for short term this system is fine in all location but long term view it is necessary to prevent household, especially for those in urban area, to discharge wastewater from household into the system since it may cause pollution to natural stream or open rice field. Hence it is recommended that local authority shall take necessary measures in their area in order to prevent household waste to discharge into the system.

Dumping of solid waste into drainage system (especially open drainage) in most of urban area in both proposed road section of NR3 and NR7 is very common (observed and interviewed with people during field visit from 8-12 October 2014). It is suggested that solid waste collection should be provided in the area. However, it is necessary that during implementation an environmental awareness should be provided to local community.

8. Conflict Resolution Procedure

In connection with this proposed road maintenance (package 1), all grievances will be handled through negotiation with the aim of achieving consensus. It is recommended that complaints will pass through village chief/elders for submission to the project authorities and other relevant authorities.

With this regards, the Grievance Redress Mechanism should be established by MPWT to handle all complains from local community and make public awareness of its procedures. In addition the name and contact number of representative of MPWT and Contractor are placed on the notice board outside the construction site and at local government office i.e. provincial and commune office.

APPENDICES

Site Specific Environmental Management Plan National Road 3 and 7

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APPENDIX 1: Environmental and Social Specifications for Contractor

The following are the environmental and social specifications that must be included in both the bidding documents and construction contracts to ensure an adequate management of environmental and social issues during all the phases of the road project. However, this information is intended solely as broad guidance to be used in conjunction with local and national regulations.

The Contractor and his employees shall adhere to the mitigation measures set down in:

- The Environmental Management Plan of the NR3-Package 1 including site specific measures identified in Table 3;
- The mitigation measures included in project design and bill of quantities;
- The specifications, procedures, and best practices included in these specifications. These specifications complement any technical specifications included in the work quantities and the requirements of any Cambodian regulations and standards.

WORKFORCE AND SITE INSTALLATION MANAGEMENT PLAN

Workforce

Workforce includes all personnel hire by the Contractors to work in the constructions, rehabilitation or improvement of roads. The workers shall, whenever possible, rent houses nearby.

The Contractors shall:

- Give priority to hire local labor for the works;
- Engineers and workers shall register their temporary residence with the local authority;
- Provide work safety training to those local labors upon their hiring;
- The construction workers and staff shall need to have appropriate certificates as required (for example, health checks, labor contracts, insurance, etc;)
- Provide education classes on HIV and sexually transmitted diseases.
- Establish a Code of Conduct to outline the importance of appropriate behavior, drug and alcohol abuse, respect for local communities, and compliance with relevant laws and regulations;
- Ensure adequate use of resources and proper waste management.

Site Installation

In order to minimize adverse environmental impacts due to construction and location of areas/facilities for the completion of the project, the following measures should be put into place:

- To the extent possible, the project shall utilize the existing mixing stations and asphalt plants of local area;
- The workforce shall be provided with safe, suitable and comfortable accommodations. They have to be maintained in clean and sanitary conditions;
- A medical and first aid facilities and first aid boxes shall be provided for all workers.

Prohibitions

The following activities are prohibited on or near the project site:

- Cutting of trees for any reason outside the approved construction area;
- Hunting, fishing, wildlife capture, or plant collection;
- Buying of wild animals for food;
- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.;
- Disturbance to anything with architectural or historical value;
- Building of fires;
- Use of firearms (except authorized security guards);
- Use of alcohol by workers in office hours;
- Washing cars or machinery in streams or creeks;
- Doing maintenance (change of oils and filters) of cars and equipment outside authorized areas:
- Disposing trash in unauthorized places;
- Driving in an unsafe manner in local roads;
- Working without safety equipment (including boots and helmets);
- Creating nuisances and disturbances in or near communities;
- The use of rivers and streams for washing clothes;
- Indiscriminate disposal of rubbish or construction wastes or rubble;
- Littering the site;
- Spillage of potential pollutants, such as petroleum products;
- Collection of firewood;
- Poaching of any description;
- Explosive and chemical fishing;
- Burning of wastes and/or cleared vegetation

Any construction worker, office staff, Contractor's employees or another person related to the project found violating these prohibitions will be subject to disciplinary actions that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

Environmental Training for Construction Workers

The Contractor shall prepare an Environmental Training Plan for all construction workers and staff to ensure that all concerned staff is aware of the relevant environmental requirements as stipulated in the Cambodia environmental legislation and the Contract specifications.

- The Contractor shall distribute to the key staff, including newly joined key staff members, (1) the Contractor's Environmental Policy; and (2) Copies of relevant extracts from environmental laws, standards and regulations.
- The Contractor is responsible for providing appropriate training to all staff according to their level of responsibility for environmental matters. Managerial staff shall receive additional training
- All Contractor's employees shall be required to comply with environmental protection procedures and they shall be able to provide evidence that they attended the training sessions detailed in the Plan
- Training materials and methods - which shall include formal training sessions, posters, data in newsletters, signs in construction area and 'tool box' meetings - shall be

- reviewed by the ES
- The Plan shall educate all construction workers on the following issues but not limited to them: fire arm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, health and safety issues, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, general information on the environment in which they will be working and living; and establishment of penalties for those who violate the rules;
- Periodic training shall be provided when necessary.

CONSTRUCTION IMPACT MANAGEMENT PLAN

Emissions and Dust

In order to ensure that the generation of dust due to the constructions activities is minimized, the following activities should be put into place:

- The Contractor shall be responsible for compliance with relevant Cambodian's legislation with respect to ambient air quality;
- The Contractor shall ensure that the generation of dust is minimized and shall implement a dust control program to maintain a safe working environment, minimize nuisance for surrounding residential areas / dwellings and protect damage to natural vegetation, crops, etc;
- The Contractor shall implement dust suppression measures (e.g. water spray vehicles, covering of material stockpiles, etc.) if and when required;
- Construction vehicles shall comply with speed limits and haul distances shall be minimized;
- It is encouraged to use vehicles and machinery which would cause less pollution like gasoline without lead. Limit the use of materials which may have high risk of pollution such as coal and black oil;
- Material loads shall be suitably covered and secured during transportation to prevent the scattering of soil, sand, materials or dust.

Noise and Vibration

To minimize noise and vibration during construction, the Contractor shall:

- Be responsible for compliance with the relevant Cambodia legislation with respect to noise;
- Ensure that all instruments, machinery and construction equipment meet quality standards before they are put into use;
- Try to keep noise generating activities to a minimum;
- Restrict all operations that result in undue noise disturbance to local communities and/or dwellings to daylight hours on weekdays;
- Use temporary noise barriers to minimize the noise caused by the construction equipment;
- Provide ear pieces to workers who must work with highly noisy machines such as piling, explosion, mixing, etc., for noise control and workers protection
- Maintain the construction equipment in its best operating conditions and lowest noise levels possible; In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;

- To the extent possible, nighttime operations shall be kept to a minimum and banned near sensitive receptors;

Earthworks, Cuts and Fill Slopes

Earthworks, cuts and fill slopes shall be carefully managed to minimize negative impacts on the environment:

- All earthworks shall be properly controlled, especially during the rainy season.
- The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
- Any excavated cut or unsuitable material shall be disposed of in designated disposal areas
- Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips.

Disposal of Debris

The Contractor shall carry out the following activities:

- Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for debris;
- Debris generated due to the dismantling of existing structures shall be suitably reused, to the extent feasible, in the proposed rehabilitation program. The disposal of remaining debris shall be carried out only at sites identified and approved by local authority.
- The contractor should ensure that these sites (a) are not located within designated forest or cultivated areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.
- In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state;
- Water courses shall be cleared of debris and drains and culverts checked for clear flow paths;
- Include provisions for incorporating the most appropriate stabilization techniques for each disposal site and determine that the selected spoil disposal sites do not cause unwanted surface drainage;
- Assess risk of any potential impact regarding leaching of spoil material on surface water;
- Once the job is completed, all rehabilitation -generated debris should be removed from the site.

WASTE MANAGEMENT PLAN

During the construction stage, the Contractor shall prepare a Waste Management Plan before commencement of project works. The Plan shall include the following Sub-Plans:

Wastewater

- The Contractor shall be responsible for compliance with the relevant Cambodian legislation relevant to wastewater discharges into watercourses
- The Contractor shall submit a method statement to the local authority or Provincial Department of Environment (PDoE) detailing how wastewater would be collected from all

wastewater generating areas, as well as storage and disposal methods. If the Contractor intends to carry out any on-site wastewater treatment, this should also be included;

- Water from kitchens, showers, laboratories, sinks etc. shall be discharged to existing sewer system (if any) or a conservancy tank for removal from the site;
- Runoff from fuel depots/workshops/machinery washing areas and concrete batching areas shall be collected into a conservancy tank and disposed of at a site approved by the local authority or PDoE/MoE;
- Domestic sewage from site office and toilets shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limit according to the legislation;
- Toilets can be provided on site for construction workers. Domestic sewage collected from the site office and chemical toilets shall be cleaned up on regular basis. Only licensed waste collectors shall be employed for this disposal;
- Wastewater shall not be disposed in watercourses without treatment.

Solid waste

- The Contractor shall submit a method statement detailing a solid waste control system to the PDoE/MoE for approval.
- The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter;
- Measures shall be taken to reduce the potential for litter and negligent behavior with regard to the disposal of all refuse. At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities for later disposal;
- Solid waste may be temporarily stored on site in a designated area approved by the PDoE prior to collection and disposal as regulation.
- No burning, on-site burying or dumping of waste shall occur;
- Random disposal of solid waste in scenery areas shall be strictly prohibited.

Hazardous waste

- All hazardous waste shall be disposed of at an approved hazardous landfill site and in accordance with local legislative requirements
- The removal of asbestos-containing materials or other toxic substances shall be performed and disposed of by specially trained workers;
- Used oil and grease shall be removed from site and sold to an approved used oil recycling company;
- Under no circumstances shall the spoiling of tar or bituminous products be allowed on the site, over embankments or any burying;
- Unused or rejected tar or bituminous products shall be returned to the supplier's production plant;
- Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and sent back to the supplier or removed from site by a specialist oil recycling company for disposal at an approved hazardous waste site.
- Initiate a remedial action following any spill or incident;
- Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions.

MATERIALS HANDLING, USE AND STORAGE MANAGEMENT PLAN

Environmental considerations shall be taken into account in the location of any material storage areas.

Transportation

- The Contractor shall ensure that all suppliers and their delivery drivers are aware of procedures and restrictions (e.g. restricted areas);
- Material shall be appropriately secured to ensure safe passage between destinations during transportation;
- Loads shall have appropriate cover to prevent them spilling from the vehicle during transit;
- The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

Hazardous Substances

The Contractor shall provide a method statement detailing the hazardous substances / material that are to be used during construction, as well as the storage, handling, and disposal procedures for each substance / material and emergency procedures in the event of misuse or spillage that might negatively affect the environment. In general terms, the following activities shall be carried out:

- Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities
- All hazardous material / substances shall be stored on site only under controlled conditions;
- All hazardous material / substances shall be stored in a secured, appointed area that is fenced and has restricted entry. All storage shall take place using suitable containers to the approval of the PDoE/MoE;
- Hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure;
- Fuel shall be stored in a steel tank supplied and maintained by the fuel suppliers. The tank shall be located in a secure, demarcated area.

Surfacing Materials

- Over spray of bitumen products outside of the road surface and onto roadside vegetation shall be prevented;
- When heating of bitumen products, the Contractor shall take appropriate fire control measures; Stone chip / gravel excess shall not be left on road / paved area verges. This shall be swept /raked into piles and removed;
- Water quality from runoff from any fresh bitumen surfaces shall be monitored and remedial actions taken where necessary.

Cement and Concrete Batching

- Concrete mixing directly on the ground shall not be allowed and shall take place on impermeable surfaces;
- All runoff from batching areas shall be strictly controlled, and cement-contaminated water shall be collected, stored and disposed properly;
- Unused cement bags shall be stored out of the rain where runoff won't affect it;
- Used (empty) cement bags shall be collected and stored in weatherproof containers to prevent windblown cement dust and water contamination. Used cement bags shall not be used for any other purpose and shall be disposed of on a regular basis via the solid waste management system;
- All excess concrete shall be removed from site on completion of concrete works and disposed of washing of the excess into the ground is not allowed. All excess aggregate shall also be removed.

Maintenance of Construction Equipment

- Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas;
- Ensure that all instruments, machines, and construction equipment meet quality standards before they are put into use;
- Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems.
- All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies.

ECOLOGICAL MANAGEMENT PLAN

Protection of Natural Vegetation

- The Contractor shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the rehabilitation site as a result of their activities;
- Clearing of natural vegetation shall be kept to a minimum;
- Prohibit and prevent open fires during upgrading/rehabilitation and provide temporary firefighting equipment in the work areas, particularly close to forest areas;

Protection of Fauna

- The Contractor shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place.
- The feeding of any wild animals shall be prohibited;
- The use of pesticides shall be approved by the PDoE/MoE;
- No domestic pets or livestock shall be permitted on site.

SAFETY MANAGEMENT PLAN

Construction Site Safety

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

- Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots, etc.,) for construction workers and enforce their use;
- During heavy rains, accidents, or emergencies of any kind, suspend all work;
- Brace electrical and mechanical equipment to withstand seismic events during the construction;
- Limit the speed of vehicles moving within the construction site;
- Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning;
- Provide post Material Safety Data Sheets for each chemical present on the worksite;
- Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant;

- Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers.

Fire Control

- The Contractor shall submit a fire control and fire emergency method statement to the supervision consultant;
- The contractor shall take all reasonable steps to avoid increasing the risk of fire through activities on site;
- The contractor shall appoint a fire officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire;
- The contractor shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire;
- Any work that requires the use of fire may only take place at a designated and must be supervised at all times. Fire-fighting equipment shall be available.

Traffic Management

- Estimate maximum concentration of traffic (number of vehicles/hour);
- Construction vehicles shall comply with speed limits;
- Use selected routes to the project site and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;
- Maintain adequate traffic control measures throughout the duration of the construction activities;
- Promote and disseminate traffic safety information to local residents;
- If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- Ensure traffic safety at intersections, especially near sensitive areas (schools, markets, hospitals, and historical, cultural and religious places).
- Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;
- Use signs and flagmen for traffic control;
- Materials leaving or entering the construction site shall be transported during non-peak hours in order to minimize traffic noise due to the increase in traffic volume;

Environmental Emergency Procedures

Environmental Emergency procedures are unforeseen events that can occur during the construction or rehabilitation of a road. The Contractor shall be prepared to take any necessary measures to solve such emergencies on a case-by-case basis. Events related to adverse weather conditions shall be addressed as part of the Contractor's Safety Plan, which shall be submitted to the MPWT/PMU3 before commencement of project construction works.

The following environmental emergency procedures shall be implemented during the construction of the Road:

- Training shall be provided to all construction workers and site staff to ensure that they are fully aware of the various possible emergency situations in construction activities, the danger and potential damages caused by the emergency to the environment and the people, as well as the emergency response procedures to be followed;

- If explosive materials are detected during the clearing of construction areas, earth work movements, or any other construction activity, the Contractor shall secure the area and inform the local authorities immediately, which in turn shall contact the local army unit for support;
- If the accidents/incidents generate serious environmental pollution that the incident has the potential of resulting in serious environmental pollution problems (e.g. spillage/leakage of toxic or chemicals, large scale spillage/leakage, or spillage/ leakage into the nearby water bodies which are used for irrigation/portable water);
- In such cases, the Contractor shall take immediate action to stop the spillage / leakage and divert the spilled / leaked liquid to a nearby non-sensitive areas;
- The Contractor shall arrange maintenance staff with appropriate protective clothing to clean up the chemicals/chemical waste. This may be achieved through soaking with saw dust (if the quantity of spillage/leakage is small), or sand bags (if the quantity is large); and/or using a shovel to remove the topsoil (if the spillage/leakage occurs on bare ground);
- Depending on the nature and extent of the chemical spill, evacuation of the activity site may be necessary. Spilled chemicals must not be flushed to local surface drainage systems. Instead, sawdust or sandbags used for clean-up and removed contaminated soil shall be disposed of by following the procedures for chemical waste handling and disposal already described.
- The Contractor(s) shall prepare a report on the incident detailing the accident, clean-up actions taken, any pollution problems and suggested measures to prevent similar accidents from happening again in future.

COMMUNITY RELATIONS AND HEALTH MANAGEMENT PLAN

Community Relations

The Contractor shall:

- Maintain open communications between the local government and concerned communities;
- Have a mailing list to include agencies, organization, and residents that are interest in the project;
- Disseminate project information to affected parties through community meetings before construction commencement;
- Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results;
- Provide all information, especially technical findings, in a language that is understandable to the general public and in a form of useful to interested citizens and elected officials through the preparation of fact sheets and news release, when major findings become available during project phase;
- Monitor community concerns and information requirements as the project progresses;
- Respond to telephone inquiries and written correspondence in a timely and accurate manner;
- Inform local residents about construction and work schedules, interruption of services, traffic detour routes and provisional as appropriate;
- Provide technical documents and drawings to community, especially a sketch of the construction area and the EMP of the construction site;
- Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers and other contact information so that any affected people can have the channel to voice their concerns and suggestions;
- Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures;

Health Management Plan

The Contractor shall prepare and enforce a Health Management Plan to address matters regarding the health and wellbeing of construction workers, project staff and nearby communities. The contractor shall include in his proposal the outline of the Health Plan. The Contractor shall:

- Require screening of all workers on recruitment and annually;
- Implement a vaccination program including but not limited to vaccination against yellow fever, hepatitis A and B, tetanus, polio, etc.
- Provide periodical health check to construction workers to ensure their health and well-being.
- Provide appropriate information and education to the workforce on basic personal hygiene, prevention of diseases, including respiratory diseases, vector-borne diseases such as malaria and dengue, water and food borne diseases such as diarrhea, tuberculosis, etc; Implement a program for workers and local communities, via an approved service provider, for the prevention, detection, screening, and diagnosis of sexually
- transmitted diseases, especially with regard to HIV/AIDS;
- Implement preventive measures against malaria, if applicable;
- Provide basic first aid services to the workers as well as emergency facilities for emergencies for work related accidents including a medical equipment suitable for the personnel, type of operation, and the degree of treatment likely to be required prior to transportation to hospital;
- Include a Pest Management Program for the construction areas, including construction work areas, in the Health Management Plan. The use of pesticides shall follow procedures acceptable to the World Bank and the government of Cambodia
- Ensure correct maintenance of water and water treatment plants to prevent the breeding of mosquitoes.

APPENDIX 2 : Site Visit - Discussion Guide for Meeting with Local Authority

Ministry of Public Works and Transport
Road Asset Management Project (RAMP-II)

Checklist/Discussion Guide for Evaluating the Significance of Impacts

Date: ____ / ____ / ____

Road Project: _____ Package: _____

Side Drainage: _____ Package: _____

Location: _____ Province: _____

1. What are the environmental effects of the proposed road rehabilitation/maintenance project?
Please use the following categories: biophysical (land, air, water, biota), socio-economic (health, gender, income, human settlements) and cultural (historical sites, community use of resources).

2. What environmental effects may occur as a result of accidents or malfunctions relating to the project?
(For example: discharge area, spills, release of pollutants)

3. What cumulative environmental effects are likely to result from the rehabilitation/maintenance project, in combination with other projects that have been, or will be, carried out in the project area?

4. What measures will be taken to reduce, control, compensate for, or eliminate the project's adverse environmental effects?

5. What environmental effects may continue to occur after the measures described in question 4 are implemented?

6. The project will have side drainage system. Where is the suitable place for rain water to flow to? Why?

7. Is there any sewerage system in your area? Yes_____ No_____

8. Do you think this drainage system will contaminate surface water/rice field in long time?

Explain? How to mitigate the impact if there is?

(If the system discharge to rice field, to surface water body: river, stream,...)

9. Do you think there are other indirect impacts as result of the rehabilitation/maintenance project?

10. During the construction of drainage system. How to avoid/minimize impact on current business operation?

11. As urban will be grown in the future. What are your concerns with regards to the environment in the area? (Size of drainage, connection of household wastewater into the system, surface water contamination, pollution of the rice field as results of drainage discharge, etc.)

12. Comments or suggestions.

APPENDIX 3 : Environmental Supervision for RAMP-II (TOR)

To be included in scope of work for construction supervision consultant

Introduction

In order to prevent harm and nuisances on local communities, and to minimize the impacts on the environment during the construction and operation of RAMP-II project, the following documents have been prepared which should be adhered to by all Contractors and his employees:

- The Environmental Management Plan (EMP) of RAMP-II project including site specific EMP identified in Table 3;
- The Environmental and Social Safeguard Framework;
- The specifications, procedures, and best practices included in the contractor's EMP. These specifications complement any technical specifications included in the work quantities and the requirements of any Cambodian regulations and laws.

Monitoring Objective

The Consultant is to provide professional technical services ("the Services") to help ensure effective implementation of the Environmental Management Plan (EMP), mitigation measures and the Environmental Specifications during the construction of RAMP-II (the Road).

In order to achieve the goal of minimizing the negative environmental impacts of the project, the EMP has been integrated in the design of the Road, and in the technical specifications and contract documents. It will need to be closely followed and implemented by the contractors. The implementation of the EMP will therefore involve three parties:

- The Contractor's Workplace Safety and Environment Officer (ESO) responsible for implementing the EMP and other construction related environmental and safety issues;
- The Construction Supervision Consultant (CSC) who are responsible for supervising and monitoring all construction activities and for ensuring that contractors comply with the requirements of the contracts and the EMP.

Scope of Service

The general services to be provided by the Environmental and Social Safeguards (ESS) are to inspect, monitor and audit the construction activities to ensure that mitigation measures adopted in the EMP are properly implemented, and that the negative environmental impacts of the project are minimized.

The Contractor has the responsibility for ensuring compliance with the project EMP and contract conditions while undertaking the works. This is overseen by the ESS. The ESS is therefore to be an independent monitor to ensure compliance with the EMP and to ensure adequate performance of the Contractors on environmental issues.

The ESS will inspect, monitor and carry out environmental review of all road contracts packages. The ESS shall have extensive knowledge and experience in environmental supervision, monitoring and auditing to provide independent, objective and professional advice to the client on the environmental performance of the project. The ESS team leader shall be familiar with the project works through review of the relevant reports, including the ESSF, EMP as well as project technical specifications and contract documents.

As part of the CSC, the SES is expected to perform the following duties:

I. Preparation

The main objective of is to lay the groundwork for the successful execution of the project. The ESS shall: (i) review the ESSF, EMP, project designs and technical specifications and confirm that there have been no major omissions of mitigation measures; (ii) prepare guides for contractors on implementing the EMP; and, (iv) develop and execute a training program for all involved in construction activities.

The main tasks are:

Review of Project Documents: The ESS shall review the ESSF, EMP, project designs and technical specifications and confirm in writing that there have been no major omissions of mitigation measures. If any issues are identified, the ESS shall propose to the PMU updates to the EMP and the design and technical specifications to address these issues. Once approved by PMU, the ESS shall update the EMP.

Environmental Supervision Checklist: The ESS shall establish a comprehensive checklist which will be used during the construction of the project to monitor the contractor's performance. This shall cover major aspects of the project, required mitigation/control measures and their implementation schedule.

Log-Book: The ESS shall keep a log-book of each and every circumstance or change of circumstances which may affect the environmental impact assessment and non-compliance with the recommendations made by the ESS to remediate the non-compliance. The log-book shall be kept readily available for inspection by all persons assisting in the supervision of the implementation of the recommendations of the ESSF and Contract.

Environmental Training: The ESS shall design and execute a comprehensive training program for all actors: Supervision Engineers, , PMU, ESO, Contractor (and workers as part of the trainings given to the ESO), on the environmental requirements of the project, and how they will be supervised, monitored and audited, giving particular attention to:

- **EMP:** The requirements of the EMP, the agreed environmental monitoring checklist, the environmental monitoring form, how non-compliance with the EMP will be handled, and all other key issues shall be covered. Particular attention will be paid to the specific provisions in each contract's technical specifications indicating how the EMP is to be complied with;
- **Health and Safety:** The health and safety requirements of the project shall be clearly identified and communicated with the Contractors and PMU (included in environmental specifications for contractors).

At the conclusion of the training Contractors will also sign a statement acknowledging their awareness of the environmental regulations, the EMP, the compliance framework, and health and safety obligations.

II. Supervision of Construction Activities

On behalf of the PMU3 and the Chief Supervision Engineer, the SES will:

- Review, and inspect in an independent, objective and professional manner in all aspects of the implementation of the EMP;
- Carry out random monitoring checks, and review on records prepared by the Contractor;
- Conduct regular site inspections;
- Review the status of implementation of environmental protection measures against the EMP and contract documents;
- Review the effectiveness of environmental mitigation measures and project environmental performance;
- As needed, review the environmental acceptability of the construction methodology (both temporary and permanent works), relevant design plans and submissions. Where necessary, the ESS shall seek and recommend the least environmental impact alternative in consultation with the designer, the Contractor(s), and PMU.
- Verify the investigation results of any non-compliance of the environmental quality performance and the effectiveness of corrective measures;
- Provide regular feedback audit results to PMU3 and CSC according to the procedures of non-compliance in the EMP;
- Provide training programs to appraise them of issues identified and how to improve environmental compliance;
- Instruct the Contractor(s) to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints;
- Instruct the Contractor(s) to take actions to reduce impacts and follow the required EMP procedures in case of non-compliance / discrepancies identified;
- Instruct the Contractor(s) to stop activities which generate adverse impacts, and/or when the Contractor(s) fails to implement the EMP requirements / remedial actions instructed by the ESS.

Review of Site Plans: To ensure consistency across the project, the ESS shall provide the final review of all site plans which may affect the environment. These include, but are not limited to: borrow pit and disposal sites plan. The ESS will review and approve EMP implementation Plan by Contractors. Where these plans are found not to comply with the EMP or ESSF, the ESS shall work with Contractors to establish a suitable solution.

Health and Safety: To ensure consistency across the project, the ESS shall provide the final review and recommend clearance of all Contractors' safety plans and, based on these, prepare an overall project safety plan. The project safety plan (PSP) shall include procedures such as management of explosion, safety during construction, the prevention of soil erosion during raining season, etc. These plans shall be reviewed on an annual basis and updated if necessary.

The ESS shall ensure compliance with the requirements of the health and safety clauses in the contract documents. This shall include, but not be limited to: a. construction activities; b. HIV/AIDS education campaign; c. compliance with Cambodian labor laws; and d. road traffic safety. For HIV/AIDS the focus shall not only on the construction sites themselves, but also on existing the nearby communities.

Site Inspection: The ESS shall closely audit the construction activities through regular site inspection accomplished through daily site visits, walks and visual inspection to identify areas of potential environmental problems and concerns.

Inspection should be done independently from the Contractor's staff. It is expected that the ESS shall have their own monitoring equipment such as cameras, transport and other resources. Where

definitive monitoring is necessary to resolve contentious issues or to impose penalties the ESS may contact third parties to carry out specific monitoring at the location under review.

Where there is infringement of technical specification or condition of contracts, or non-compliance with the EMP, the ESS shall be immediately informed Contractor, supervision engineer and PMU/MPWT. The ESS shall also report all infringements to the PMU as part of the monthly reporting.

Regular joint environmental site inspection (e.g. weekly) should be organized by the ESSF and ESO with participant from the Contractor's environmental specialist/officer. These should be used as an opportunity for ESSF to further train the ESO and Contractor's officer.

ESSF field log-book shall be kept readily available for inspection by all persons assisting in project management. The ESSF shall also regularly review the records of the contractors to ensure that they are up to date, factual and meet the EMP reporting requirements (e.g. environmental complaint monitoring records).

Complaints: Complaints will be received by the Contractor's site office from local residents with regard to environmental infraction such as noise, dust, traffic safety, etc. The Contractor's engineer or his deputy, and the ESSF shall be responsible for processing, addressing or reaching solutions from complaints brought to them. The ESSF shall be provided with a copy of these complaints and shall confirm that they are properly addressed by the Contractors in the same manner as incidents identified during site inspections.

Unforeseen Impacts: IN the even that an incident arises which was not foreseen in the EMP, the ESSF shall work closely with the ESO, the Contractors, and the PMU to confirm satisfactory resolution to the incident. The ESSF shall then update the EMP and the implementation guidelines, training the Contractors' staff accordingly.

Site Restoration and Landscaping: The ESSF shall closely monitor all activities with regards to site restoration and landscaping in areas such as borrow pits, quarries, washing vehicles etc. to ensure that the activities are done to an appropriate and acceptable standard. The ESSF will agree with the Contractor on a site decommissioning and restoration plan to be implemented before the completion of the construction.

The ESSF is expected to be mobilized at the beginning of the contract to prepare the necessary guidelines, documentation, training, etc.

Reporting: As minimum the ESSF shall prepare the following written reports:

- Monthly report of compliance or non-compliance issues;
- Quarterly report covering key issues and findings from reviewing and supervision activities;
- Consolidated summary report from contractor's monthly report

At the end of project, the ESSF shall prepare a final report summarizing the key findings from their work, the number of infringements, resolutions, etc. as well as advice and guidance for how such assignments should be conducted in the future.

APPENDIX 4 : Field Pictures and List of People Met

Package 1-National Road No.3 (PK147+000 – PK201+000)



NR3 – Drainage outlet visit



Meeting at Andong Khmer district



Meeting at Boeung Touk commune



Visit side drainage-flooded area



Meeting at Koh Toch commune



Interview local people



Discussion of existing pipe clean up



Interview people along the road

List of People Interview

List of people living along the road

No.	Date	Name	Sex	Location
1	08-10-2014	Sok Ung	Female	Andong Khmer
2	08-10-2014	Yem Sorn	Female	Andong Khmer
3	08-10-2014	Prum Kol	Male	Andong Khmer
4	08-10-2014	Chhun Seng	Male	Kdat village, Koh Toch
5	12-10-2014	Chhem Sothy	Male	Prek Ampil, Koh Toch
6	12-10-2014	Han Vuthy	Male	Trapaing Lapov, Teuk Chhou
7	12-10-2014	Dy In	Female	Trapaing Lapov, Teuk Chhou
8	12-10-2014	Lay Nem	Male	Prek Proh, Prey Nob, Sihanouk Ville
9	12-10-2014	Chhun Heng	Female	Prek Proh, Prey Nob, Sihanouk Ville
10	12-10-2014	Bun Hour	Male	Boeung Veng, Prey Nob, Sihanouk Ville

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

លាសាក្រុងកំពត

សង្កាត់អណ្តូងខ្មែរ

អង្គប្រជុំខេត្ត ថ្ងៃទី ៨ ខែ ១០ ឆ្នាំ ២០១៤

បញ្ជីវត្តមាន

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2	ឡាក់ វិជ័យ	ស្រី	នាយករង ទីសាលា		
3	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
4	សាវណ្ណ វិជ័យ	ប្រុស	អគ្គនាយករង ទីសាលា		
5	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
6	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
7	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
8	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
09	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
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12	ស្រី ឈន់	ស្រី	នាយករង ទីសាលា		
13	ស្រី ឈន់	ស្រី	Env. Specialist		013335533
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15	ស្រី ឈន់	ស្រី	Resettlement		
16	ស្រី ឈន់	ស្រី	Interviewer		
17	ស្រី ឈន់	ស្រី	RAMA.PM/MONK		
18	ស្រី ឈន់	ស្រី	in Bank		
19	ស្រី ឈន់	ស្រី	in Bank		
20	ស្រី ឈន់	ស្រី	in Bank		

អ្នកធ្វើតារាង

បានឃើញ

ចៅសង្កាត់

॥ श्रीगणेशाय नमः ॥

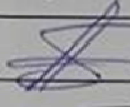

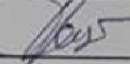
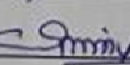
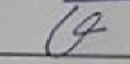
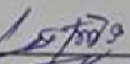
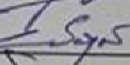
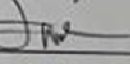
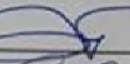
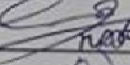

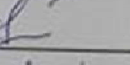
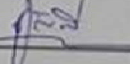
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List of Participants

Road Asset Management Project (RAMP-II)

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Date: 8 / 10 / 14

No.	Name	Position	Village	Signature	Note
1	සර්. පාලන	පොලි.	මුරේගම		012/412.994
2	සර්. පාලන	පොලි.	මුරේගම		092278549
3	ආ. - විමර්ශ	පොලි.	මුරේගම		092286147
4	සර්. පාලන	පොලි.	මුරේගම		0975379746
5	ආ. - විමර්ශ	පොලි.	මුරේගම		012.7988.10
6	ආ. - විමර්ශ	පොලි.	මුරේගම		0977883127
7	ආ. - විමර්ශ	පොලි.	මුරේගම		092625002
8	ආ. - විමර්ශ	පොලි.	මුරේගම		012852507
9	ආ. - විමර්ශ	RAMP-AM/PPMT	P.P		012850197
10	ආ. - විමර්ශ	P.P	P.P		077677720
11	ආ. - විමර්ශ	පොලි.	මුරේගම		092724661
12	ආ. - විමර්ශ	Interview	P.P.		07883058
13	ආ. - විමර්ශ	පොලි.	මුරේගම		011 617766

Package 2-4: National Road No.7 (PK136+000 – PK340+000)



NR7- Interview with local resident



NR7- Interview with local resident



Business disruption discussion



Discussion with local authority-Memot



Discussion with local authority-Snuol



Cross drainage PK206-Flooded road



Existing small drainage to be enlarged



Discussion with commune Chief – Da market

List of People Interview

List of people living along the road

No.	Date	Name	Sex	Location
1	09-10-2014	Yim Chhom	male	Prey Chhor, Kampong Cham
2	09-10-2014	Kim Seang	female	Prey Chhor, Kampong Cham
3	09-10-2014	Tuy Meas	male	Sragne, Prey Chhor, Kampong Cham
4	09-10-2014	Mon Sok	female	Prey Chhor, Kampong Cham
5	09-10-2014	Khun Vanna	male	Chrey Vean, Prey Chhor, Kampong Cham
6	09-10-2014	Seang Ouk	male	Trapaing Preah, Prey Chhor, Kampong Cham
7	09-10-2014	Bun Theary	female	Kampong Seam, Kampong Cham
8	09-10-2014	Sok Chea	female	Kampong Seam, Kampong Cham
9	09-10-2014	Born Sinath	female	Tbong Khmum, Tbong Khmum
10	09-10-2014	Ngak Kim Eang	male	Slab Kdong village
11	09-10-2014	Bun Lim	male	Slab Kdong village, Thnal Totoeung
12	09-10-2014	Seang Sareth	female	Cheung Lor village
13	09-10-2014	Tough Khemara	male	Koung Kang, Ponhea Krek
14	10-10-2014	Chung Yung	male	Memot, Tbong Khmum
15	10-10-2014	Sreang Hun	female	Memot, Tbong Khmum
16	10-10-2014	Oeun Socheat	female	Orussei, Kraches
17	10-10-2014	Hun Sreineang	female	Orussei, Kraches
18	10-10-2014	Ou Nguon	male	Orussei, Kraches
19	10-10-2014	Roum Vanna	male	Treak, Memot, Tbong Khmum
20	10-10-2014	Min Kunthy	male	Treak, Memot, Tbong Khmum
21	10-10-2014	Koy Khuy	male	Treak, Memot, Tbong Khmum
22	10-10-2014	Chhun Ey	female	Da commune, Memot, Tbong Khmum
23	11-10-2014	Sry Nareth	male	Da commune, Memot, Tbong Khmum
24	11-10-2014	Krim Line	female	Da commune, Memot, Tbong Khmum
25	11-10-2014	Huon Kim Sreng	male	Da commune, Tbong Khmum
26	11-10-2014	Yin Sopha	male	Da commune chief
27	11-10-2014	Sok Channa	male	Ponhea Krek, Tbong Khmum
28	11-10-2014	Chea Sareth	male	Ponhea Krek, Tbong Khmum
29	11-10-2014	Seng Y	male	Ponhea Krek, Tbong Khmum
30	11-10-2014	Aun Reaksa	male	Stung market, Tbong Khmum

List of Participants

Road Asset Management Project (RAMP-II)

ಬೆಂಗಳೂರು.

Date: 10 / 10 / 2014

No.	Name	Position	Village	Signature	Note
1.	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	012357308
2	ಶ್ರೀ. ಬಿ. ಶೇಖರ್	ಮೆಂಟಲ್	ಬೆಂಗಳೂರು	[Signature]	092-899792
3	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	092160632
4	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	012881698
5	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	092125014
6	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	089851524
7	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	
8.	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	09213445025
9	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	0979121-330
10	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	017-8806411
11	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	012480511
12	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	011-4444004
13	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	011 6177 66
14	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	0888185555
15	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	098 835058
16	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	077677720
17	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	012852507
18	ಶ್ರೀ. ಸಿದ್ದೇಶ್	ಮೇಲ್ಮನೆ	ಬೆಂಗಳೂರು	[Signature]	012367 523

