

## Lao PDR

### Implementation Support Mission

#### MAINSTREAMING DISASTER AND CLIMATE RISK MANAGEMENT (P129182)

September 29-30 and October 14-17, 2014

#### AIDE-MEMOIRE

### I Introduction

1 The World Bank conducted an Implementation Support Mission in Vientiane, Lao PDR, for the grant Mainstreaming Disaster and Climate Risk Management into Investment Decisions during September 29-30 and October 14-17, 2014. The team was led by Ms. Henrike Brecht (TTL) and Mr. Sombath Southivong (co-TTL) and comprised Jasper Cook (Road Engineering Consultant) Khamphet Chanvongnaraz (Procurement Specialist), Mr. Vilaysack Syvilay (Financial Management Specialist), Ms. Vilayvanh Phonepraseuth (Operations Analyst), and Vathana Singharaj (Program Assistant).

2 The mission objectives were to (i) review the implementation progress and project outputs since the last mission in April 2014; (ii) provide technical guidance to the counterparts; and (iii) identify key actions for completing the detailed design and bidding of the climate resilient pilots in the road and irrigation sectors.

3 The mission wishes to express its sincere appreciation for the excellent collaboration and warm hospitality received from the Government of Lao PDR.

4 This Aide Memoire records the agreements reached during the mission. The recommendations made in this Aide Memoire are subject to review and confirmation by the World Bank management. The list of people met is provided in Annex 2.

### II Project Overview

<b>Project Development Objective (PDO)</b>	The program strengthens the institutional capacity of the Government of Lao PDR at national and sub-national levels to mainstream climate and disaster risk management into public infrastructure investments.		
<b>Policy and Human Resources Development (PHRD) Grant RETF</b>	US\$2.718 million	<b>Effectiveness</b>	29 February 2012
<b>Disbursement</b>	US\$799,267(29%)	<b>Closing Date</b>	30 January 2015
<b>Env. Category</b>	Partial Assessment		
<b>IP Rating as of October 2014:</b>	Moderately Unsatisfactory	<b>DO Rating as of October 2014:</b>	Moderately Satisfactory

5 The PHRD grant has the following five components: (i) Risk Assessments; (ii) Mainstreaming Disaster and Climate Resilience into Key Sector Policies; (iii) Institutional Strengthening and Capacity Building; (iv) Climate-Resilient Pilot Projects; and (v) Project Management. This project strengthens the institutional authority and implementation capacity of the Government of Lao PDR at national and sub-national levels to mainstream disaster and climate risk management into public infrastructure investments, thereby decreasing the vulnerability of the population and national economy to climate change and natural hazards. The implementing ministries are the Ministry of Planning and Investment (MPI), the Ministry of Agriculture and Forestry (MAF) and the Ministry of Public Works and Transport (MPWT). The project is coordinated by a Project Management Unit (PMU) within MPI.

### III Project Implementation Status

6 **The overall progress is moderately unsatisfactory.** While the technical assistance tasks of this project are nearing completion, the construction of the pilot projects has not yet started. Institutional strengthening and capacity building has been accomplished through the development of climate resilience guidelines and building codes in three key growth sectors: housing, road, and irrigation, which are the sectors suffering most from disasters. Training has been rolled out at national and local levels and cooperation with the National University of Lao and vocational schools have started. The guidelines are showcased through pilot demonstration works in the road and irrigation sectors. Progress on these pilots since the last mission in April 2014 includes the development of the detailed designs and bidding documents for all the five pilot projects. The Government has started to issue the bid invitations, and it is expected that all contracts will be signed by December.

### IV Key Issues

7 The following issues need attention:

- **Project Closing:** We note that project is closing January 30, 2015 and that pilot works are still to be implemented. We note that the bidding for the five pilot projects is ongoing and are expected to be ready to award shortly. Should the Government wish to request an extension, the World Bank would be amenable to such a request and would need to receive the request from the Ministry of Finance in December 2014.
- **Pilot Works:** The start of the pilot projects with the Department of Roads (DoR) (US\$700,000) and the Department of Irrigation (DoI) (US\$500,000) has been delayed. Bidding for the pilot projects has started, and the four bid evaluations for the road sector are expected to be completed in December 2014 and the bid evaluation in the irrigation sector will be finalized in January. If contracts for these pilots are signed without an extension of the project closing date, we remind that financing beyond the current closing date would be the responsibility of the Government.
- **Institutionalization of Project Outputs:** It was agreed that a high level steering committee with the three ministries of the project will be organized to determine how the developed guidelines on mainstreaming resilience will be officially adopted into the Government working procedures. Three complementary approaches were discussed: First, MPI will send

requests to MPWT and MAF to formally adopt the guidelines. Second, the development of specific legal and policy instruments to formalize the guidelines was considered. For example, the upcoming National Socio-Economic Development Plan could include indicators on disaster resilience (e.g., 15% of Lao's road network made resilient). Third, the potential for follow up work through lending projects will be explored. **V Implementation Progress by Component**

### **Component 1: Risk Assessments**

8 **Current status:** National and provincial level risk assessments have been completed and the associated report was shared with the Government. In addition, for the Beng and Bolikhan Districts, hazard risk maps were prepared. Guidelines for conducting risk assessments in the irrigation, rural housing, and transportation sectors were completed and trained. Finally, a landslide inventory for critical national and provincial roads was developed. The reports and guidelines will be finalized based on the comments received from the Government and the World Bank.

9 **Training and dissemination:** Several steps are planned to disseminate the outputs: (i) An open data web platform to publically share the hazard and exposure data and disclose the underlying risks in Lao PDR will be established in November 2014; (ii) the generated risk data will serve as input for the regional risk platform to be established by the Mekong River Commission under the Integrated Water Resource Management Project; (iii) further training on risk assessments and GIS will take place at national and local levels; (iv) to showcase the training material on road risk assessments by means of a demonstration example, a road risk assessment for National Road 1B in the mountainous terrain within the Northern Lao province of Phongsaly will be carried out. A desk study and walk over survey will be undertaken for this road to identify potential future hazards. This exercise will support capacity building and transfer of relevant technologies in hazard assessment and risk prioritization to the Department of Roads and the Provincial Departments of Public Works and Transport (see Annex 4).

### **Component 2: Mainstreaming Disaster and Climate Resilience into Key Sector Policies**

10 **Current status:** The outputs under this component include a report on international good practices in constructing resilient infrastructure, guidelines on mainstreaming resilience into the housing, roads, and irrigation sectors, as well as revisions of specific existing standards to include resilience. For MPI, a handbook on how to certify a planned infrastructure project using resilience criteria was prepared. For the housing sector, it was agreed that in addition to the existing documents, a simple booklet with basic illustrations will be developed for distribution at the local level.

11 **Workshops:** It was agreed that DoR, DoI, and MPI respectively will organize workshops to seek feedback from national and provincial levels on the draft reports. At the DoR and DoI workshops the (i) climate resilience guidelines, (ii) suggestions on amendments to building codes, and (iii) risk assessment guidelines will be presented and refined. The MPI workshop will discuss mainstreaming disaster risk management into MPI procedures, including (i) the development of an accreditation certificate for infrastructure programs, (ii) guidance on integrating disaster and climate resilience into the upcoming NSEPD, and (iii) suggestion on including climate-proofing into the JICA's Project for Establishing Public Investment

Plan (PCAP3). Donors, working on sectoral resilience, for example, the KfW Development Bank in the road sector or JICA in the investment planning sector, will be invited to seek synergies.

12 **Sustainability:** To support sustainability of project outputs, several approaches were discussed: (i) the mission suggested including indicators on disaster resilience in the upcoming Sectoral National Strategies as well as the sectors' 5 year plans; (ii) a high level steering committee with different ministries will be organized to discuss how the outputs can be institutionalized; (iii) it was agreed that MPI will send letters to MPWT and MAF to seek formal approval for mainstreaming guidelines; (iv) opportunities for leveraging the outputs through lending projects will be explored; and (v) training for the outputs will be rolled out.

### **Component 3: Institutional Strengthening and Capacity Building**

13 **Current Status and next steps:** A training needs assessment was conducted and capacity building plan developed. Multiple trainings on resilient infrastructure design for the irrigation, road and housing sector were conducted. Further training courses in developing resilient infrastructure will take place and are expected to be completed by January 2015. To increase the sustainability, training modules, for example, on 'Safer Construction Practices in Hazard Prone Areas' were developed for technical personal and artisans in cooperation with the National University of Laos (NUL) as well as training and vocational centers. These modules will be incorporated into the regular curricula on these educational institutions.

### **Component 4: Climate-Resilient Pilot Projects**

14 **Pilot Projects in the Road Sector:** The final design and bidding documents for the four pilots have been submitted. The cost of each pilot is US\$200,000 or less and will be procured through the shopping method. The rehabilitation budget of less than US\$200,000 per site enables the implementation of a number of different demonstration techniques of cost-effective climate resilient construction. An evaluation committee to review the bids has been set up within DoR, which has completed two bid evaluations so far. The other two bid documents are being advertised.

15 **Pilot Project in the Irrigation Sector:** One pilot project is planned in the irrigation sector. The bidding documents have been advertised and the bid evaluation will be finalized in mid-January 2015. The implementation of the works is anticipated take up four months.

16 It is recommended that no construction contracts are signed before a decision on a project extension has been reached. If contracts for these pilots are signed without processing an official project extension, financing beyond the regular closing date would be the responsibility of the Government. Once construction contracts are signed, the DoR and DoI confirmed to hire a national supervision consultant to monitor the works under the overall oversight by the provincial offices. A candidate for the supervision has been identified for each of the two sectors, following World Bank's procurement procedures. DoR agreed to submit a work program for the contractual works to the mission.

## **Component 5: Project Management**

17 **Project Monitoring and Evaluation:** An M&E framework has been developed. Indicators for each component have been agreed upon and are being monitored in semi-annual reviews. The PMU agreed to extend the contract of the consultant, the Asian Disaster Preparedness Center (ADPC) to cover the extended project timeline.

## **VI Financial Management**

18 **Project disbursement:** As of April 30, 2014, the project has disbursed close to US\$800,000 or 29.4% of the recipient-executed grant amount. A significant increase in disbursements is expected in the next three months, once the pilot works are being implemented.

19 **Expenditure plan:** There is a risk that the budget allocated for consulting services may be overspent by 3.5 percent. The mission recommended preparing an expenditure plan, which lists the commitments made vs. the budget available to ensure that overall budget allocation in each category is not exceeded.

20 **Reporting and rating:** The audit reports for the period ending September 2013 have been received with unmodified opinion (clean). The next two audits will cover the period from October 2013 – September 2014 and October 2014 – January 2015. An error - free Interim Unaudited Financial Report was submitted on time. Based on the above, the financial management performance is rated moderately satisfactory.

## **VII Procurement**

21 The procurement performance under the project is moderately satisfactory. The project coordinator has assisted to undertake the procurement activities under this project. The original procurement plan for this project was revised and approved by the Bank in September 2013. The mission did not conduct a post review due to the small number of procured contracts.

## **VIII Safeguards**

22 A Resettlement Framework, Environmental Management Framework and Ethnic Group Framework have been prepared. These frameworks have been applied when designing the pilot works.

23 **Actions.** A summary of the key actions and deadlines agreed with the counterparts is provided in the table below.

	Activity	Completion date	Responsible entities
2	Send letter to MPWT and MAF to approve of mainstreaming guidelines	December 30, 2014	MPI
3	Prepare simple housing guidelines booklet for local distribution	November 30, 2014	ADPC, DoH
4	Organize a three workshops to seek feedback on TA outputs	October 30, 2014	ADPC, DoR, DoI, MPI
6	Prepare an action plan for the remaining activities and tasks	November 15, 2014	DoI and DoR
7	Complete bid evaluation for all five pilots	January 2015, 2014	DoI, DoR, MPI
<b>Financial Management</b>			
8	Contact the external auditor to commence field work for the period ending in September 2014;	October 31, 2014	MPI/KMPG
9	Submit Final Audit Report for the period ending in September 2014;	March 31, 2015	MPI
10	Submit IFR for the period ending in September 2014	November 15, 2014	MPI
11	Prepare procurement/expenditure plan from October 2014 to January 31, 2015	October 31, 2014	MPI
12	Prepare Withdrawal Application for documentation and disbursement frequently	On-going	MPI
13	Meet with the Project team regarding the closing procedures and advise from the WB team	December 31, 2014	MPI/World Bank

#### **Annexes:**

Annex 1: Mission Schedule

Annex 2: List of People Met

Annex 3: Site Visit Findings

Annex 4: ToR Road Engineering Specialist

## Annex 1: Mission Schedule

### Mainstreaming Disaster and Climate Risk Management into Investment Decisions (P129182) and Building Resilience to Natural Hazards (P144268)

Date/Time	Officials to Meet	Discussion Issues	Mission Participants	Venues
<b>Wednesday, September 17, 2014</b>				
9.00 – 4.00 p.m. Confirmed	<b>Meeting with DRM project and BRNH project</b>	Procurement Review	Khamphet	MPI
<b>Tuesday, September 23, 2014</b>				
9.00 – 4.00 p.m. Confirmed	Meeting with Project Finance	Continue: FM supervision	Vilaysak	MPI
<b>Monday, September 29, 2014</b>				
9.00-10.00	Internal WB team meeting	Discuss the mission agenda and etc.	Henrike, Khamphet, Vilayvanh, Vilaysak, Vatthana	Main Conference ROOM
10.30-12.00	<b>Kick Off meeting</b> with MPI, MoF, Ministry of Natural Resources and Environment (MoNRE), MAF, MPWT <i>GOL Participants:</i> <ul style="list-style-type: none"> <li>Mr. Ounheuang Chittaphong</li> <li>Mr. Phouthasen Ackavong, DDG of Urban Department, MPWT</li> <li>Anousone Manisouk, Technical officer, DoR - MPWT</li> </ul>	On DRM project and BRNH project	Henrike, Khamphet, Vilayvanh, Vilaysak,	MPI
13.30 -14.30	Mr. Ounheuan Chittaphong DDG Planning Department MPI <ul style="list-style-type: none"> <li>Ms. Vilayphet (DRM Coordinator) &amp; Ms. Dalouny (BRNH project)</li> </ul>	Project Implementation Progress/Status/Issues/ Agreed Actions – for both DRM and BRNH	Henrike, Sombath, Vilayvanh	MPI

Date/Time	Officials to Meet	Discussion Issues	Mission Participants	Venues
	Coordinator)			
15.00 - 16:00	Mr. Kaison Climate Change Department, MONRE	Discuss on - Oct 13 International and ASIA Disaster Reduction Conference	Henrike	WB
<b>Tuesday, September 30, 2014</b>				
8.30 - 9.30	Mr. Nouan Deang and Mr. Vorlachith DoI, MAF	Project Implementation Progress/Status/Issues/ Agreed Actions – for DRM	Henrike, Vilayvanh	Irrigation Department, Ban Sihom
10.00 -11.30	Mr. Sinthong Prathoummady – DDG Department Meteorology and Hydrology, MoNRE	Project Implementation Progress/Status/Issues/ Agreed Actions – for BRNH	Henrike, Vilayvanh	DMH - Ban Wattay -
13.30 -14.30	<ul style="list-style-type: none"> <li>DG or DDG (Chair for the meeting International)- International Corporation Department, MoF</li> <li>State Reserve Department, MoF</li> </ul>	Project Implementation Progress/Status/Issues/ Agreed Actions – for BRNH	Henrike, Sombath, Vilayvanh	Internationa l Cooperation Dept -3 <sup>rd</sup> floor MoF
15.00 -16.00	Mr. Pothong Ngonphachanh DDG DoR, MPWT	Project Implementation Progress/Status/Issues/ Agreed Actions – for DRM	Henrike, Sombath, Vilayvanh	MPWT -2 <sup>nd</sup> floor DoR
16.30 – 18.00	<ul style="list-style-type: none"> <li>Dr. Peeranan, Co – leader of ADPC</li> <li>Mr. Thanongdeth ADPC</li> </ul>	Project Implementation Progress/Status/Issues/ Agreed Actions – for DRM	Henrike, Sombath, Vilayvanh	MPI
18.00 -19.00	Meeting with Country Manager	<i>Debriefing</i>	Henrike, Sombath	WB
<b>Tuesday, October 14, 2014</b>				
8:00-18:00	Road 1B site visit		Sombath, Jasper Cook	
<b>Wednesday, October 15, 2014</b>				
8:00-18:00	Road 1B site visit continued.  Meeting with DWT and Vice Governor of	Project Implementation Progress/Status/Issues/ Agreed Actions – for BRNH	Sombath, Jasper Cook	Phongsaly



Date/Time	Officials to Meet	Discussion Issues	Mission Participants	Venues
	Phongsaly			
<b>Thursday, October 16, 2014</b>				
8:00-18:00	Road 1B site visit continued.  Meeting with DWT at Oudomxai	Project Implementation Progress/Status/Issues/Agreed Actions – for BRNH	Sombath, Jasper Cook	Oudomxai
<b>Friday, October 17, 2014</b>				
8:00-18:00	Meeting with DoR and ADPC	Project Implementation Progress/Status/Issues/Agreed Actions – for BRNH	Sombath, Jasper Cook	MPWT -2 <sup>nd</sup> floor DoR

## Annex 2: List of People Met

Organisation	Name and Surname	Position	Contact details
Department of Planning, MPI	Mr. Ounheaune Chitaphong	DDG	Mb: +8562055406330 Email: chittaphong08@yahoo.com
DoR	Mr. Lakham Sompeth	DG	Tel: +856214112714 Mb: 8562055708234 Email: sompeth@gmail.com
Department of Meteorology and Hydrology (DMH), MoNRE	Mr. Singthong Pathoummady	DDG	Office: +85621215010 Mb: +8562055389651 Email: p.singthong@yahoo.com
Department of Meteorology and Hydrology, MoNRE	Ms. Outhone Phetluangsy	Head of the Legal Division	Mb: +8562055706611 Email: outhoneph@yahoo.com
Department of Urban Planning and Housing, MPWT	Sengdara Duangmexay	Deputy Director of Urban Planning Division	Mb: +8562055526421 Email: dounmyxay@yahoo.co.uk
DoI, MAF	Mr. Nouanedeng Rajvong	Deputy Director General	Email: rajvong_nd@yahoo.com
Department of Disaster Management and Climate Change	Mr. Kaisorn Thanthathep	Deputy Director General	Office: 85621262120 Mb: 8562022234995 Email: kaisorn20002@hotmail.com
DoI, MAF	Mr. Vorlachit Sisouvanthong	Project Coordinator	Mb: +856 – 2059595989 Email: vorlachit_s@yahoo.com
DoR, MPWT	Mr. Pothong Ngonphachanh	Deputy Director General	Mb: + 856 -20 22223378
State Reserve Department, MoF	Mr. Thoum Khamphanith	Director General	Office: 856 -21 900932
International Corporation, MoF	Mr. Boualtih Khounsay	Deputy Director General	Office: 856 -21 412579
SOEs Finance Management Department, MoF	Mr. Phonevilay Thepvilay	Head of Unit	Office: 856 -21 900799
International Corporation, MoF	Mr. Phatsaphone Phandanouvong	Technical Officer	Office: 856 -21 412579
State Reserve Department, MoF	Mr. Saychay Lithsana	Head of Unit	Office: 856 -21 900932
International Corporation, MoF	Mr. Chanpasith SengphaAthit	Technical Officer	Office: 856 -21 412579
International Corporation, MoF	Ms. Thatsaphone Phatdanouvong	Technical Officer	Office: 856 -21 412579
State Reserve Department, MoF	Ms. Somchit Malayvanh	Technical Officer	Office: 856 -21 900932
ADPC	Dr. Peeranan Towashiraporn	Team Leader	E-mail: <a href="mailto:peeranan@adpc.net">peeranan@adpc.net</a>

ADPC	Mr. Thanongdeth Insisiengmay	Deputy Team leader	Mb: 856 -20 55700136 E-mail: <a href="mailto:thanongdeth@adpc.net">thanongdeth@adpc.net</a>
ADPC	Dr. Krishna Devkota,	Institutional Development Specialist/Landslide Specialist	E-mail: <a href="mailto:krishna@adpc.net">krishna@adpc.net</a>
ADPC	Mr. Keopheth Phoumphon,	Training Specialist	E-mail: <a href="mailto:keopheth@adpc.net">keopheth@adpc.net</a>

## **Annex 3: Site Visit Findings**

### **I Site Visit for the Road Pilots along National Road 1B in Phongsaly Province**

1 The mission visited the four road sector pilot sites under this project along Road 1B in Phongsaly Province from October 14-16. The four pilots demonstrate different techniques in strengthening climate resilience in the road sector. On October 17, discussions were held with the Department of Roads (DoR), the project consultants (ADPC) and the Ministry of Planning and Investment (MPI) to report the site visit findings and agree on the next steps.

2 **Criteria for site selection:** The four sites for the project have been selected by consultants from a suggested list of nine sites put forward by the World Bank. The principal criteria for site selection were: (i) demonstration of best practices in climate strengthening in the road sector; (ii) a rehabilitation budget less than US\$200,000 per site to enable the implementation of a number of different demonstration techniques; (iii) contribution to the rehabilitation of identified slope hazards along Road 1b; and (iv) design had to be within construction capacity of available national contractors.

3 **Characteristics of the four pilot sites:** The four pilot sites are located along the National Road 1B in Phongsaly Province, which is highly prone to landslides and flash floods.

- Site 1 Km 44+880 (Plate1): This site comprises a failing up-slope that has impacted on, and effectively destroyed the left hand side drainage allowing ingress of water into the pavement and sub-grade. This would eventually lead to weakening and subsidence, as has happened elsewhere along the alignment. Climate resilience will be strengthened by cutting-back and benching the slope, installing cut-off drainage and utilizing bio-engineering as a further erosion protection measure.
- Site 2 Km 44+900 (Plates 2, 3): This site comprises a failed culvert with associated erosion of embankment, sub-grade and pavement (risk level 4). Climate resilience will be demonstrated by constructing a significantly larger box culvert with associated protection measures, and reinstate embankment and pavement.
- Site 3 Km 63+900 (Plates 4, 5): This site comprises an upslope failure in soaked colluvial material derived from the adjacent ridge slopes that has impeded drainage. This has allowed water ingress into road pavement and subgrade which is likely to have been a casual factor in the significant (risk level 5) road failure immediately adjacent to the pilot site. Climate resilience will be demonstrated by cutting-back and benching the slope, installing cut-off drainage and utilizing bio-engineering as a further erosion protection measure. The failed road section will be addressed separately through MPWT.
- Site 4 Km 82+900 (Plate 6, 7): This site comprises a failing up-slope in soaked colluvial and weathered soil-rock material that has impeded the left hand side road drainage allowing ingress of water into the pavement and sub-grade. This would eventually lead to weakening and subsidence, as has happened elsewhere along the alignment and may have influenced a nearby downslope erosion failure. The consultant proposes to cut-back and bench the slope, install cut-off drainage and utilize bio-engineering as a further erosion protection measure.

## **II Minutes of Meetings**

### **Provincial Department of Public Works and Transport and Vice Governor of Phongsaly Province**

4 **Importance of climate-proofing:** The Vice Governor confirmed the significant impact from natural disaster in the mountainous terrain of Phongsaly Province. He and the Director of DPWT were in agreement with the mission on the importance of increased climate resilience for the road network and they would welcome World Bank support to mainstream disaster risk management at strategic, planning and operation levels.

5 **Spot improvements:** The mission outlined the concept of back-strengthening existing roads and constructing new roads effectively, with the aim of reducing the current climate resilience deficit and whole-life costs. Prioritized back-strengthening could be conducted as a form of periodic maintenance, utilizing the concept of spot improvement. The identification of climate threats and the identification of priority road section is an essential part of this process.

### **Provincial Departments of Public Works and Transport of Oudomxai Province**

6 **Climate resilient maintenance:** The mission outlined the desirability of including climate strengthening within the overall maintenance strategy of the province. The possibility to fund maintenance and climate strengthening work using provincial budget, funds from Road Maintenance Fund (RMF) and a proposed IDA project was discussed. The DPWT was of the opinion that with regular routine and periodic maintenance related to climate strengthening, the disaster and emergency repair costs would decrease. The department expressed appreciation and commitment to set up a local road unit to manage this work. Procedures to receive emergency maintenance funds in post-disaster situations were discussed. If emergency budget is needed, the province estimates the required amount and submits a request to MPWT.

7 **Coordination with KfW:** The mission learned that the KfW Development Bank has had discussion with Oudomxai Province with respect to pursuing a similar climate strengthening strategy for their previously funded roads. Coordination in this area would be useful. The mission agrees that there would also be significant benefits in working in coordination with KfW in areas such as training and institutional strengthening related to climate risk.

### **Department of Roads, Project Consultants (ADPC) and Ministry of Planning and Investments**

8 **Need for cost-benefit analysis:** The mission emphasized the importance of integrating risk management into planning and design at the highest strategic and operational levels as an essential precursor to any effective on-the-ground disaster impact reduction. The DoR welcomed the chance of improving road designs by integrating DRM. It expressed concerns about the budget exceeding with the addition of DRM. The mission explained that DRM, if applied effectively, will reduce the overall life-cycle costs since, when properly implemented, DRM reduces the need for emergency maintenance. It is important that this long-term advantage is demonstrated to high-level decision-makers using cost-benefit analyses.

9       **Contracting:** The mission requested that the existing contractor for Road 1B work under the Lao Road Sector Project (LRSP) should be allowed to bid for the DRM works at the four sites as this contractor has relevant experience. Some challenges in using local contractors were identified: i) lack of construction experience in “best practice” demonstration program; ii) conflicts of sharing responsibility between local contractors and the main LRSP contractor working closely together on sites; and iii) difficulty in ensuring high quality control on materials and construction procedures with local contractors. In addition, the mission noted that Sites 3 and 4 were essentially part of one larger site and having separate contractors on these sites would make it extremely difficult to program, manage and assign contractual responsibility. It was suggested that DoR considers an option to have a combination of local contractors (sites 3 and 4) and the LRSP contractor (Sites 1 and 2).

## **Annex 4: ToRs for Road Engineering Consultant**

### **TERMS OF REFERENCE**

Short Term Consultant (STC)

Lao PDR

### **Road Engineering Specialist**

for

### **(i) Construction Supervision and (ii) Roadside Slope Risk Assessment**

#### **Project Background**

#### **Mainstreaming Disaster and Climate Risk Management into Public Investments (DCRM)**

This World Bank grant aims to strengthen the institutional authority and implementation capacity of the Government of Lao PDR at national and sub-national levels to mainstream disaster and climate risk management into public infrastructure investments, thereby decreasing the vulnerability of the population and national economy to climate change and natural hazards. It targets the Ministry of Planning and Investment (MPI) and three key growth sectors in the project: urban planning, road transport, and irrigation, which are the sectors suffering most from natural disaster.

An important element of this program is the practical demonstration of DRM principles through the pilot demonstration sites. The pilot works will be implemented at local level and the Provincial Departments of Public Works and Transport (DPWT) will have responsibility for the implementation and supervision of subprojects involving roads with the main consultants and project management having an overall monitoring role. The four pilots will be implemented along National Road 1B in Phongsaly Province.

#### **National Road 1B**

The reconstruction of the 104 km of Road NR1B (lots 1 and 2) is has been substantially completed in mountainous terrain within the Northern Lao province of Phongsaly. Improvement and widening of the road alignment has impacted on the natural stability of the terrain, which largely comprises bedded sedimentary and meta-sedimentary shale and sandstone units.

A number of road-side slope failures have been identified some of which have been assessed as having a high risk of severely impacting access along this strategic route. Five downslope river erosion related failures between km 90 and km 102 have already been rehabilitated, but a further sites have been identified, approximately 8 to 10 of which are high to very high risk.

The designs of further stabilisation measures are currently being finalised for high risk areas. In addition to these slopes now receiving attention, there may be other sites at risk of failure. These, together with those sites already identified but not designed for, need comprehensive detailing and prioritisation in terms of further assessment for remediation.

### **Services:**

The short term consultant (the “Consultant”) is to provide professional technical and advisory services (“the Services”) to assist the World Bank in the satisfactory completion of the DCRM and Road 1B programmes. In the provision of the Services, the Consultant is expected to reasonably and objectively reflect current acceptable best international and local practice.

The Consultant shall provide Services for the following projects:

#### **Advisory Services**

1. Mainstreaming Disaster and Climate Risk Management into Investment Decisions Lao PDR (DCRM), East Asia and Pacific Region, World Bank
2. Support to Lao PDR: Road Sector Project (LRSP) Road NR 1B Lots 1 and 2: Roadside Slope Risk Assessment.

### **Specific Services:**

#### **I Construction Supervision**

- Field monitoring and assessment of the DCRM pilot site construction at the four demonstration sites along National Road 1b, Phongsaly province.
- The Consultant shall comment on the construction quality of the four demonstration sites in relation to the approved design and best geotechnical practice.
- The Consultant shall keep the TTL regularly informed on the progress of the demonstration site construction in relation to the DCRM consultant’s completion programme.
- The Consultant shall advise the Department of Roads (DoR) and DCRM consultants, if requested to do so by the World Bank TTL, on improvements that could be made in terms of quality control and best geotechnical practice.
- The Consultant will support capacity building and the transfer of technology and best practice in climate strengthening to the DoR and relevant DPWT staff.
- The Consultant will draft a short report on each of the four sites commenting on quality control and design compliance.

#### **II Road Risk Assessment**

- The Consultant will undertake a desk-study and walkover survey of the LRSP Road 1B Lot 1 and Lot 2 alignments as they now stand in terms of actual and potential slope hazard and identify current potential future hazards.
- The Consultant will clearly indicate these hazard sites on existing alignment maps and in terms of agreed chainage and identify and delineate general zones of risk along the alignment.



- In conjunction with other World Bank Specialists the Consultant will prioritise identified slope hazards in terms of the engineering risk to Road NR1B.
- The Consultant will in conjunction with other World Bank Specialists support capacity building and the transfer of relevant technologies in hazard assessment and risk prioritisation to DOR and relevant DPWT staff.
- The Consultant will draft a concise report summarising key issues relating to Road 1B and comment on the progress and overall quality control of ongoing slope repair works if requested to do so by the World Bank TTL.
- The Consultant shall liaise with any other consultants appointed by the World Bank to advise on the DCRM project.
- Any key issues raised during the completion of the above services will be brought to the attention of the Bank's Task Team Leader.
- The Consultant shall also prepare any short technical notes as may be required in the course.

**Timing:** The Consultant shall provide the Services intermittently from November 2014 until May 2015.

**Commitment:** The initial commitment is shown below:

<b>Project</b>	<b>Task Team Leader</b>	<b>Initial Commitment (days)</b>
DCRM	Henrike Brecht	<b>40</b>
LRSP	Sombath Southivong	<b>10</b>
<b>Total</b>		<b>50</b>

**Inputs:** The Bank shall reasonably provide or arrange to be provided to the Consultant information and documentation, related to the Bank and Client, necessary for the Consultant to deliver the Services.

**Deliverables:** The Consultant shall provide the following deliverables (outputs).

**General:**

- Reports on the construction quality of the pilot construction
- Roadside Slope Risk Assessment of National Road 1B (Lots 1 and 2)

**Reports and Technical Notes** – All reports shall be provided in a timely manner and organized in a professional and easily referenced electronic format

Participation in Meetings – The Consultant when asked to attend meetings, shall provide a written summary of each meeting attended by the Consultant including attendees, next steps, and an action list. At times the Consultant may be requested to develop and present a presentation on specific issues related to the Consultant's field of expertise and the Client's or the project's needs.

**Administration and Reporting:** The Consultant will work under the overall supervision of the Task Team Leaders at the World Bank. He/she will also report to and work closely with the Department of Roads and DPWT. Coordination with the project's main consultants (ADPC) is also required.

**Invoicing:** The Consultant shall submit invoices on a monthly basis with invoices being submitted on the last day of each month. The invoice shall be accompanied by a running total of the days committed against days invoiced in a format to be agreed with the task team leader.