Appendix

1. Project Design Matrix
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Appendix 01: Project Design Matrix

Prior to commencement of the Project, the Detailed Planning Survey was conducted in February 2011, to scope the Project. The Project Design Matrix (PDM) (PDM ver. 0), which demonstrates the goal, purpose, output and activities of the Project, has been discussed and agreed, involving key stakeholders of Ministry of Public Works and Transport (MPWT), during the Detailed Planning Survey for the Project.

In the initial stage of the Project, existing situation survey and training needs survey were conducted by means of interviewing to the concerned agencies, including Department of Road (DOR), Public Works and Transport Research Institute (PTRI) and Department of Public Works and Transport (DPWT). The result of these surveys suggested key project outputs proposed to remain same, focusing the following three areas; (i) improvement and updates of RMS/PRoMMS and development of a road maintenance plan, (ii) development of technical manuals and (iii) conducting on-the-job training through routine maintenance works and rehabilitation works. Project activities were also reviewed and revised, by adopting project cycle approach, incorporating survey of baseline monitoring indicators and monitor and evaluation of these indicators as part of project activities.

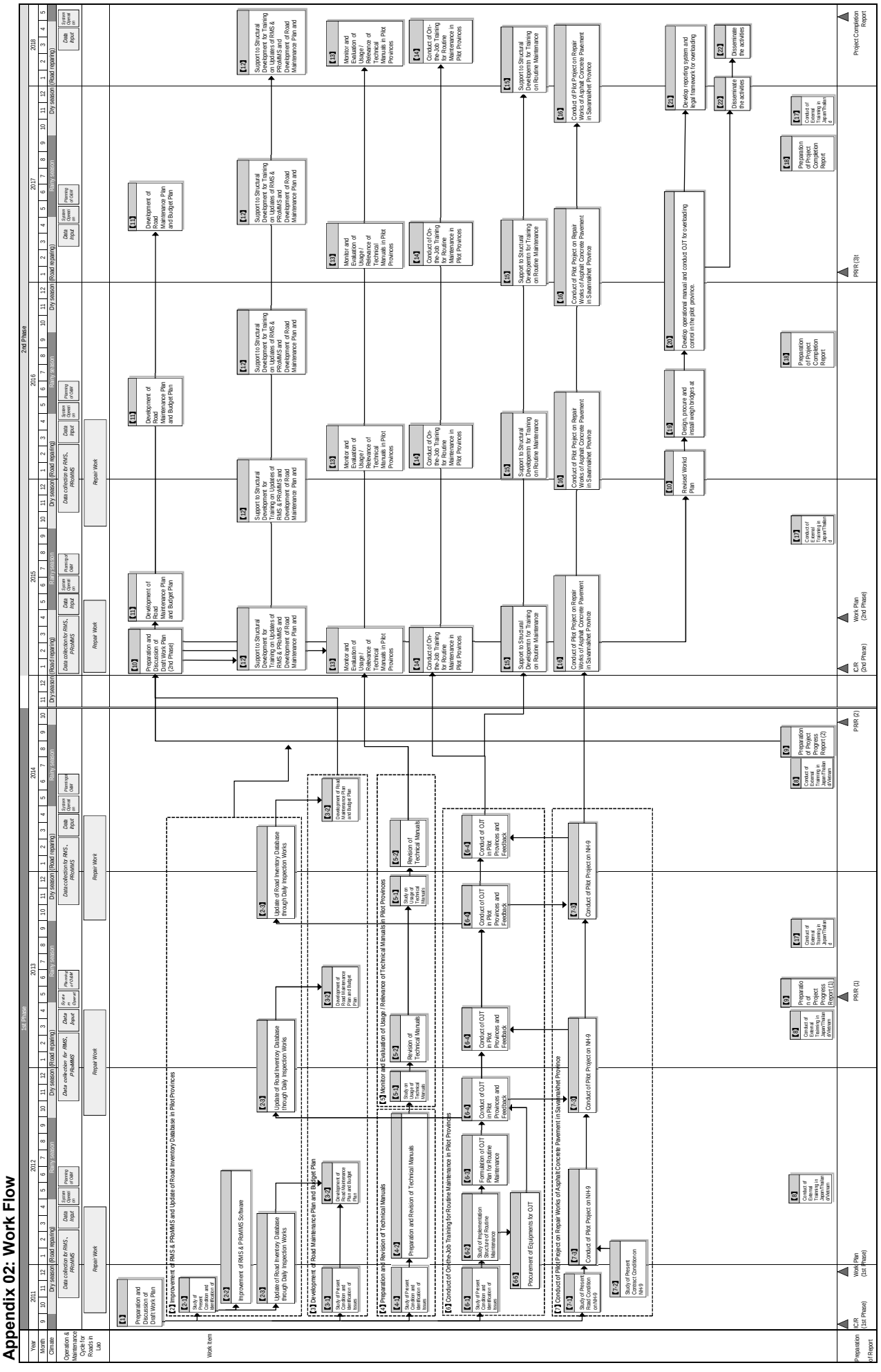
On 20th Jan, 2012, the 1st Joint Coordinating Committee (JCC) meeting was held to discuss the PDM and the members of the JCC agreed with amendment of the PDM ver. 1.

The JICA dispatched the Mid-term Review Mission between 23rd March and 5th April, 2014. The Mid-term Evaluation Mission, composed of three members from JICA and private consulting company, evaluated performance and achievement derived from the Project, by the structured questionnaire and interview surveys to concerned organizations. During the Mid-term Review Mission, the Mission suggested to amend the PDM, mainly changing the monitoring indictors, in order to precisely evaluate the performance of the Project and prepared PDM ver. 2.0.

On 17th September 2015, the 7th JCC was organized to discuss the PDM ver. 3.0 in order to add the activities related to overloading vehicle control. The members of JCC basically agreed with the amendment of the PDM. Accordingly, the Expert Team prepared PDM ver. 3, with additional activities and inputs as following table.

PDM ver. 3
Overall Goal Roads and bridges in Laos are properly maintained.
Project Purpose Roads and bridges in the pilot provinces are properly maintained.
Output 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.
Activities 1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works. 4-1. Review current institutional framework for overloading control and suggest approaches to address institutional issues to develop sustainable overloading control. 4-2. Design, procure and install weigh bridges at one location along National Road No.9. 4-3. Develop operational manual(s) and conduct on-the-job training (OJT) for overloading control in the pilot province. 4-4. Develop regular check – reporting system and legal framework for strict enforcement on overloading control in the pilot province. 4-5. Disseminate the activities (4.1 to 4.4) to private trucking companies/forwarders/major shippers. 4-6. Assess progress of the activities and evaluate institutional capabilities for overloading control.

Appendix 02: Work Flow



Appendix 03: PO / WBS

Expert Schedule (Phase 1)

	担当業務 Assignment Name	名前 Name	所属 Position	人月 MM
現地業務 Work Plan in Laos	総括/維持管理マネージメント Team Leader/ Road Management Expert	高橋 君成 Kiminari Takahashi	IDCJ	14.00
	副総括/施工監理技術 Deputy Team Leader/ Construction Management Expert	藤熊 昌孝 Masataka Fujikuma	OC	16.77
	道路点検・維持管理技術 1 Road Maintenance Expert 1	小林 宏昭 Hiroaki Kobayashi	OC	16.20
	橋梁維持管理技術 Bridge Maintenance Expert	ﾊﾟﾜﾏﾝ・ｺﾝｹｵ Phamavanh Kongkeo	OC (個人)	13.57
	契約制度・管理 Contract Management Expert	上田 広／野澤 誠 Hiroshi Ueda/Makoto Nozawa	OC	8.50
	システム改良・運用1 System Management Expert 1	有田 禎之 Yoshiyuki Arita	IDCJ	13.00
	人材育成/業務調整 Human Resource Development Expert/ Project Coordinator	小笠原未歩子 Mihoko Ogasawara	IDCJ	7.57
	道路防災 Road Disaster Management Expert	横川 巌 Iwao Yokokawa	OC (JOC)	5.83
	自然条件 Natural Condition Expert	平山 一夫 Kazuo Hirayama	OC (JOC)	2.17
	道路計画 Road Planning Expert	森本 博行 Hiroyuki Morimoto	OC	2.00
	システム改良・運用2 System Management Expert 2	宮尾佳予子 KayokoMiyao	IDCJ	2.00
	道路設計 Road Design	野澤 誠 Makoto Nozawa	OC	1.00
	道路点検・維持管理技術2 Road Maintenance Expert 2	ｳﾞｫｲﾄ・ｸﾛｰﾈﾝ Vitto Kuronen	OC (VARIN)	1.47
			小計 Sub-Total	104.07

	担当業務 Assignment Name	名前 Name	所属 Position	人月 MM
国内業務 Work in Japan	総括/維持管理マネージメント Team Leader/ Road Management Expert	高橋 君成 Kiminari Takahashi	IDCJ	0.20
	人材育成/業務調整 Human Resource Development Expert/ Project Coordinator	小笠原未歩子 Mihoko Ogasawara	IDCJ	1.43
			小計 Sub-Total	1.63
			合計 Total	105.70

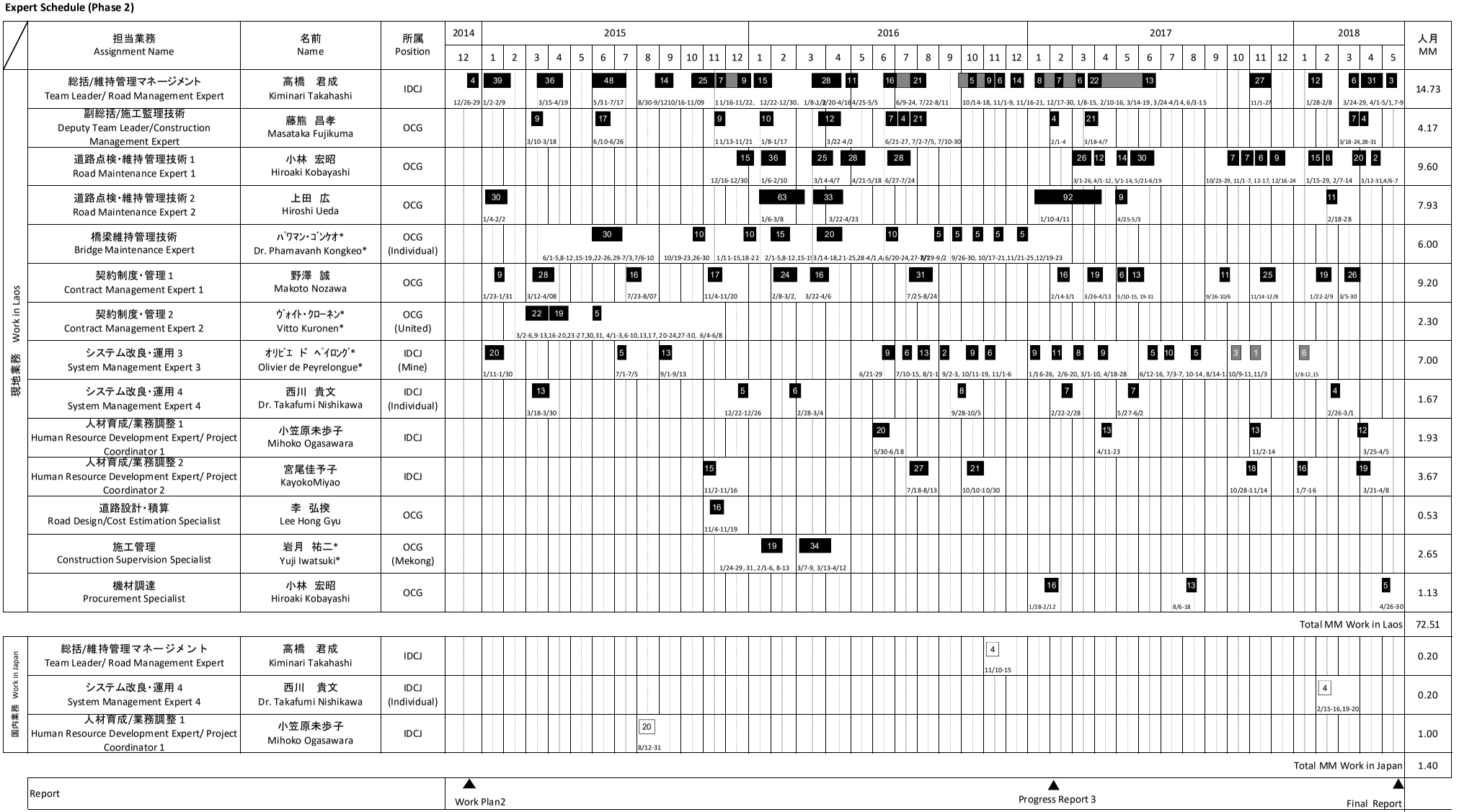
Submission of Reports: Project; Work Plan (1); Progress Report (1); Progress Report (2)

Legend
Work in Laos
Work in Japan
IDCJ: International Development Center of Japan
OC: Oriental Consultants
VARIN: VARIN Survey Design Construction and Consultant Co.Ltd
JOC: Japan Overseas Consultants
Paid by the company

Appendix 04

Expert Schedule (Phase 2)

	担当業務 Assignment Name	名前 Name	所属 Position	人月 MM
現地業務 Work in Laos	総括/維持管理マネージメント Team Leader/ Road Management Expert	高橋　君成 Kiminari Takahashi	IDCJ	14.73
	副総括/施工監理技術 Deputy Team Leader/Construction Management Expert	藤熊　昌孝 Masataka Fujikuma	OCG	4.17
	道路点検・維持管理技術 1 Road Maintenance Expert 1	小林　宏昭 Hiroaki Kobayashi	OCG	9.60
	道路点検・維持管理技術 2 Road Maintenance Expert 2	上田　広 Hiroshi Ueda	OCG	7.93
	橋梁維持管理技術 Bridge Maintenance Expert	ﾊﾟﾜﾏﾝ・ｺﾝｹｵ* Dr. Phamavanh Kongkeo*	OCG (Individual)	6.00
	契約制度・管理 1 Contract Management Expert 1	野澤　誠 Makoto Nozawa	OCG	9.20
	契約制度・管理 2 Contract Management Expert 2	ヴｫｲﾄ・ｸﾛｰﾈﾝ* Vitto Kuronen*	OCG (United)	2.30
	システム改良・運用 3 System Management Expert 3	ｵﾘﾋﾞｴ ﾄﾞ ﾍﾟｲﾛﾝｸﾞ* Olivier de Peyrelongue*	IDCJ (Mine)	7.00
	システム改良・運用 4 System Management Expert 4	西川　貴文 Dr. Takafumi Nishikawa	IDCJ (Individual)	1.67
	人材育成/業務調整 1 Human Resource Development Expert/ Project Coordinator 1	小笠原未歩子 Mihoko Ogasawara	IDCJ	1.93
	人材育成/業務調整 2 Human Resource Development Expert/ Project Coordinator 2	宮尾佳予子 KayokoMiyao	IDCJ	3.67
	道路設計・積算 Road Design/Cost Estimation Specialist	李　弘揆 Lee Hong Gyu	OCG	0.53
	施工管理 Construction Supervision Specialist	岩月　祐二* Yuji Iwatsuki*	OCG (Mekong)	2.65
	機材調達 Procurement Specialist	小林　宏昭 Hiroaki Kobayashi	OCG	1.13
				Total MM Work in Laos 72.51
国内業務 Work in Japan	総括/維持管理マネージメント Team Leader/ Road Management Expert	高橋　君成 Kiminari Takahashi	IDCJ	0.20
	システム改良・運用 4 System Management Expert 4	西川　貴文 Dr. Takafumi Nishikawa	IDCJ (Individual)	0.20
	人材育成/業務調整 1 Human Resource Development Expert/ Project Coordinator 1	小笠原未歩子 Mihoko Ogasawara	IDCJ	1.00
				Total MM Work in Japan 1.40



Note: * is that expert lives in Laos. The MM is calculated by 20 days.

Total MM 73.91

Legend
Work in Laos
Work in Japan

IDCJ： International Development Center of Japan
OCG： Oriental Consultants Global Co., Ltd
United：United Consulting and Development
Mine：Mine Planning Solutions
Mekong：Mekong Consultants Co., Ltd
ADB Project in Laos

Appendix 04

Appendix 05: Inputs from the Japanese Side

1. Assignment of JICA Experts

	Phase I (In Laos)	Phase I (In Japan)	Phase II (In Laos)	Phase II (In Japan)	Total
Team Leader/Road Management Expert	14.00	0.20	14.73	0.20	29.13
Deputy Team Leader/Construction Management Expert	16.77		4.17		20.94
Road Maintenance Expert (1)	16.20		9.60		25.8
Road Maintenance Expert (2)	1.47				1.47
Road Maintenance Expert (3)			7.93		7.93
Bridge Maintenance Expert	13.57		6.00		19.57
Contract Management Expert (1)	8.50		9.20		17.7
Contract Management Expert (2)			2.30		2.3
System Management Expert (1)	13.00				13
System Management Expert (2)	2.00				2
System Management Expert (3)			7.00		7
System Management Expert (4)			1.67	0.20	1.87
Human Resource Development Expert/Project Coordinator (1)	7.57	1.43	1.93	1.00	11.93
Human Resource Development Expert/Project Coordinator (2)			3.67		3.67
Road Disaster Management Expert	5.83				5.83
Natural Condition Expert	2.17				2.17
Road Planning Expert	2.00				2
Road Design	1.00				1
Road Design/Cost Estimation Specialist			0.53		0.53
Construction Supervision Specialist			2.65		2.65
Procurement Specialist			1.13		1.13
				Total	**179.62**

2. Local Operational Expenses Shared by the Japanese Side

Local Operational Expenses Shared by the Japanese Side (in JPY)

(Unit JPY)

Items	YR 2011	YR 2012	YR 2013	YR 2014	YR 2015	YR 2016	YR 2017	Total
Local Staff (Administration/Technicians)	61,516	3,216,450	2,285,423	1,441,219	845,598	940,968	82,167	8,873,341
Utilities cost	-	32,859	3,479,108	3,269,584	468,126	161,448	7,295	7,418,420
Consumption	11,112	115,070	288,130	142,982	1,935,703	987,570	-	3,480,567
Transportation and allowance	49,055	538,560	263,955	503,161	-	-	-	1,354,731
Communication costs	-	9,891	73,495	23,524	-	-	-	106,910
Printing and Bookbinding	6,201	4,008	526,746	801,646	112,403	280,460	46,348	1,777,812
Cost related to cars	491,592	1,517,388	4,524,907	1,507,897	2,307,705	2,544,706	332,386	13,226,581
Cost of meetings, events, seminars	999	1,231,041	12,241	-	298,176	882,015	-	2,424,472
Equipment	572,367	7,030,638	1,422,617	1,893,518	1,400,844	1,031,204	215,665	13,566,853
Local Contract	-	6,988,172	1,441,984	2,588,299	-	76,955	-	11,095,410
Others	28,125	20,250	415,625	459,375	-	-	-	923,375
Total	1,220,967	20,704,327	14,734,231	12,631,205	7,368,555	6,905,325	683,861	64,248,471

Appendix 06: Inputs from the Lao Side

1. List of C/Ps

(1) List of Counterpart personnel

	Name	Present Position, Organization	Assignment Period	Tasks Engaged in the Project
1	Mr. Phitsaphonh Philavong	Deputy Project Manager, Regional Office, DOR	Sep. 2011 to Feb. 2014	Overall project coordination
2	Mr. Laythong Phommavong	Deputy Director of Technical Division, DOR	Feb. 2014 until present	Overall project Coordination
3	Mr. Vongsak Malivanh	Head of Infrastructure Unit, PTI	Sep. 2011 until present	Project coordination for PTI
4	Mr. Khamlune Khathumphom	Engineer of Infrastructure Section, PTI	Sep. 2011 until present	Project coordination for PTI
5	Mr. Souvanh Sengchamphone	Deputy Head of Land Way Administration Section, DPWT Savannakhet	Sep. 2011 until present	Project coordination for DPWT Savannakhet
6	Mr. Korrakan Phimphanhak	Deputy Head of Land-Water way Management Section, DPWT Vientiane	Sep. 2011 until present	Project coordination for DPWT Vientiane
7	Mr. Somsanouk Phouthavong	Head of National Road Maintenance Unit, DPWT Vientiane	Sep. 2011 until present	Project coordination for DPWT Vientiane
8	Mr. Sisomphone Southammavong	Head of Engineering Section, PTTI	Sep. 2011 until Dec2015	Project coordination for PTTI
9	Mr. Kanyasith Nambanya	Technical staff of PTTI	Jan2016 until present	Project coordination of PTTI
10	Mr. Boualith Pathoumthong	Deputy Director General, DOT	Sep 2015 until present	Project coordination of DOT

2. Local Operational Expenses Shared by the Lao Side (Unit: Million USD) (Estimated)

Items	YR 2011	YR 2012	YR 2013	YR 2014	YR 2015	YR 2016	YR 2017	Total
Pilot Project								
1. Pilot Project 2011/12 – 3.1 Km road rehab project (NR-9)	0							0
2. Pilot Project 2012/13 – 15.8 Km road stop improvement project (NR-9)		0.1	0.1					0.2
3. Pilot Project 2014/15- 2016/17 – 180.5 km rehab project (NR-9)				10.7	21.5	21.5	21.5	75.1
4. Pilot Project– Bridge Maintenance in Savannakhet			0.2					0.2
5. Pilot Project – CFA (Cement Formed Asphalt) in Vientiane						1.0		1.0
Total of Pilot Project								**76.5**
Other operation cost								
1. C/P Staff remuneration 2. Office space/Vientiane Capital and Savannakhet/Vientiane Province 3. Electricity/water								--
Total of Other operation cost								**76.5**

(Source: The Project (estimated))

Appendix 06

Appendix 07: Trainings Conducted in Lao PDR

No.	Year	Title of Seminar / Training	place	Training Period			Number of Participants										
							Trainer		MPWT		DPWT/OPWT		Private firms/Contractors		M	F	Total
				From	To	Duration	M	F	M	F	M	F	M	F			
1	2012	Workshop for Pilot Project for Rehabilitation of National Road No.9	DPWT Savanakhet Province	2012/7/20	2012/7/20	1	4	1	3	0	16	0	8	0	31	1	32
2	2012	Training for Data Collection Survey for PRoMMS Database in Pilot Province	DPWT Vientiane Province	2012/11/15	2012/11/16	2	3	1	0	0	16	0	0	0	19	1	20
3	2012	Training for Data Collection Survey for PRoMMS Database in Pilot Province	DPWT Savanakhet Province	2012/11/20	2012/11/21	2	4	0	0	0	22	0	0	0	26	0	26
4	2012	The 1st Intensive Training for Bridge Maintenance	DPWT Savanakhet Province	2012/12/17	2012/12/20	4	5	0	4	0	19	0	6	0	34	0	34
5	2013	Intensive Training for Road Maintenance Manual	DPWT Savanakhet Province	2013/1/21	2013/1/25	5	4	0	6	0	18	0	7	0	35	0	35
6	2013	Intensive Training for Slope Maintenance	Vangvieng, Vientiane Province	2013/4/1	2013/4/5	5	4	0	5	0	15	0	1	0	25	0	25
7	2013	OJT Training on Bridge Maintenance Work	DPWT Savanakhet Province	2013/5/27	2013/5/30	4	1	0	3	1	12	0	6	0	22	1	23
8	2013	Workshop for Demonstration of AC Paving in Pilot Project Phase-2	DPWT Savanakhet Province	2013/8/26	2013/8/26	1	2	0	2	0	14	0	13	0	31	0	31
9	2014	The 1st Technical Workshop for Performance Based Contract	MPWT	2014/2/12	2014/2/14	3	8	0	22	1	0	0	0	0	30	1	31
10	2014	The 2nd Technical Workshop for Performance Based Contract	DPWT Savanakhet Province	2014/3/4	2014/3/7	4	6	0	0	0	40	0	33	1	79	1	80
11	2014	The 3rd Technical Workshop for Performance Based Contract	DPWT Luangprabang Province	2014/5/13	2014/5/16	4	3	0	2	0	38	1	41	2	84	3	87

No.	Year	Title of Seminar / Training	place	Training Period			Number of Participants										
							Trainer		MPWT		DPWT/OPWT		Private firms/Contractors		M	F	Total
				From	To	Duration	M	F	M	F	M	F	M	F			
12	2014	The 4th Technical Workshop for Performance Based Contract	Champasak Province	2014/7/1	2014/7/4	4	5	0	2	0	32	0	41	2	80	2	82
13	2014	The 5th Technical Workshop for Performance Based Contract	DPWT Udomxay Province	2014/9/23	2014/9/26	4	5	0	0	0	27	0	22	1	54	1	55
14	2015	GIS Training	CaRol Project Office	2015/11/9	2015/11/13	5	0	1	5	2	0	0	0	0	5	3	8
15	2016	Technical Workshop of Recycling of Existing Payment by Cement Foamed Asphalt(CFA) Method	DPWT Vientiane Province	2016/3/29	2016/3/29	1	6	0	16	1	44	0	16	1	82	2	84
16	2016	Technical Workshop of Recycling of Existing Payment by Cement Foamed Asphalt(CFA) Method	PTTI	2016/4/28	2016/4/28	1	6	0	11	0	2	0	12	0	31	0	31
17	2016	Technical Seminar for Asphalt Pavement Asphalt Mix Design Pavement Construction Management Design of Pavement Structure	DPWT Savanakhet Province	2016/2/25	2016/2/25	1	2	0	0	0	14	0	12	0	28	0	28
18	2016	Technical Seminar for Asphalt Pavement Weak Subgrade Treatment Design of Pavement Structure (AASHTO Overlay)	DPWT Savanakhet Province	2016/4/22	2016/4/22	1	2	0	0	0	11	0	16	0	29	0	29
19	2017	Training Seminar for Recycle Pavement Machine	DPWT Savanakhet Province	2017/2/16	2017/2/17	2	5	0	0	0	9	0	19	1	33	1	34
20	2017	Training on Road master data update with QGIS (1) (hands-on training)	MPWT (DOR)	2018/11/1,	2018/11/16	4 (half day x 8 days)	0	1	4	1	0	0	0	0	4	1	5
21	2018	Technical Seminar for Portland Cement Concrete Pavement Mix Design, Construction Management of Concrete Pavement, Concrete Pavement Structural Design	DPWT Savanakhet Province	2018/2/23	2018/2/23	1	2	0	12	1	0	0	1	0	15	1	16

No.	Year	Title of Seminar / Training	place	Training Period			Number of Participants										
							Trainer		MPWT		DPWT/OPWT		Private firms/Contractors		M	F	Total
				From	To	Duration	M	F	M	F	M	F	M	F			
22	2018	Training on Road master data update with QGIS (2) (OJT)	MPWT (DOR)	2018/1/23	2018/3/13	16	1	1	4	1	0	0	0	0	4	1	5
23	2018	MAC Training	PTTI	2018/4/27	2018/4/27	1	4	0	13	1	46	0	4	1	67	2	69
24	2018	Axle Load Control Workshop	DPWT Savanakhet Province	2018/4/23	2018/4/23	1	2	0	1	0	7	1	8	0	18	1	19
25	2018	Weigh Control Training	DPWT Savannakhet Province	2018/3/26	2018/3/27	2	4	2	11	2	39	2	2	0	56	6	62
					Total	**55**	**88**	7	126	11	441	**4**	268	9	922	29	951
						Grand total	**95**		**137**		**445**		**277**		**951**		

Appendix 07

Appendix 08: Training Conducted in Overseas

(1) List of Participants to the Training Programs in Japan

	Name	Present Position	Organization	Training/Duration
1	Mr. Phitsaphonh Philavong	Deputy Project Manager, Regional office 3	DOR/MPWT	1st External Training (September 1 - September 15, 2012)
2	Mr. Sengmany Thammavong	Engineer of Land-Water way Administration Section	DPWT Vientiane	
3	Mr. Souvanh Sengchamphone	Deputy Head of Land way Administration Section	DPWT Savannakhet	
4	Mr. Vongsak Malivanh	Head of Infrastructure Unit	PTI	
5	Mr. Sisomphone Southammavong	Head of Engineering Section	PTTC	
6	Mr. Siriphone Inthirath	Director General of PTTC	PTTC	2nd External Training (September 11 - September 2, 2013)
7	Mr. Sonephachanh Sivongdao	Engineer of Regional office 3	DOR/MPWT	
8	Mr. Khamlune Khathumphom	Engineer of Infrastructure Division	PTI	
9	Mr. Sonemixay Vorlabouth	Engineer of Land-Water way Administration Section	DPWT Vientiane	
10	Mr. Phouxay Phounthavy	Engineer of Land way Administration Section	DPWT Savannakhet	
11	Mr. Saphone Phounthavy	Trainer in Road Engineering	PTTC	3rd External Training (July 20 - August 2, 2014)
12	Mr. Laythong Phommavong	Deputy Director of Technical Division (TD)	DOR/MPWT	
13	Mr. Chanthavongso Oudomdeth	Director of Infrastructure and Transport Division	PTI	
14	Mr. Bounpasong Noykhamngon	Engineer of Road and Water Way Administration Division	DPWT Vientiane	
15	Mr. Souksavanh Nanthavong	Engineer of Land Way Administration Section	DPWT Savannakhet	
16	Mr. Phonephana Prommala	Deputy Director of Technical Division(TD)	DOR/MPWT	4th External Training (August 16 - August 29, 2015)
17	Mr. Kittisak Phommavongsy	Trainer in Civil Engineering Section	PTTC	
18	Mr. Chanthavisith Chanthoumphone	Staff of Infrastructure and Transport Section	PTI	
19	Mr. Somchay Saphakdy	Engineer of Road and Water Administration Section	DPWT Vientiane	
20	Mr. Akhalar Inthavongsa	Head of unit in Land Way Administration Section	DPWT Savannakhet	

(2) List of Participants to the Training Programs in Thailand

	Name	Present Position	Organization	Training/Duration
1	Mr. Phitsaphonh Philavong	Deputy Project Manager, Regional office 3	DOR/MPWT	1st External Training (October 14 - October 23, 2013)
2	Mr. Korrakan Phimphanhak	Deputy Head of Land-Water way Administration section	DPWT Vientiane	
3	Mr. Souvanh Sengchamphone	Deputy Head of Land way Administration Section	DPWT Savannakhet	
4	Mr. Soulitha Thanyakeo	Engineer of Infrastructure and Transport Division	PTI	
5	Mr. Sisomphone Southammavong	Head of Engineering Section	PTTC	
1	Mr. Litta KHATTIYA	Deputy Director General	DOR/MPWT	2nd External Training (November 6 – November 9, 2017)
2	Mr. Laythong PHOMMAVONG	C/P, Deputy Head of Technical Division	MPWT	
3	Mr. Boualith PATHOUMTHONG	Deputy Director General	DOT/MPWT	
4	Mr. Chanthavangso OUDOMDETH	Head of Infrastructure and Transport Division	PTRI	
5	Mrs. Saykham THAMMANOSOUTH	Deputy Director General	PTTI	
6	Mr. Soumountha SOMCHANMAVONG	Director	DPWT Vientiane	
7	Mr. Prasongsinh CHALEARNSOUK	Director	DPWT Savanakhet	

Appendix 09: List of Provisional Equipment

1. List of Equipment Provided by the Project

No.	Name of Machinery	Arrival Date	Purpose of Use	Product No.	Price (USD)	Price (JPY)	Exchange rate (1USD= JPY)	Installation Place	Procurement Place	Frequency of Use	Current Condition
1	Asphalt cutter (2)	5/Oct/2012	Maintenance	ORKA350/450	8,702	694,337	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
2	Vibration Plate compactor (2)	5/Oct/2012	Maintenance	BVP 18/45	4,186	334,003	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
3	Hand breaker (2)	22/Nov/2012	Maintenance	TEX07PE	3,350	267,298	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
4	Air Compressor (1)	5/Oct/2012	Maintenance	XAS46Dd	14,850	1,184,889	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
5	Asphalt Sprayer (1)	No record of purchasing						DPWT Savannakhet			
6	Hand guided Roller (1)	5/Oct/2012	Maintenance	BW65HD	17,970	1,433,835	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
7	Low-Pressure Filler Injection Pump (1)	No record of purchasing						DPWT Savannakhet			
8	Core Cutter (1)	No record of purchasing						DPWT Savanakhet	DKSH Thailand		
9	Electric Generator (1)	5/Oct/2012	Maintenance	C11D5	26,000	2,074,553	79.7905	DPWT Savanakhet	DKSH Thailand	2 times/month	Good condition
10	SDI Accelerometer Sensor (3)	5/Oct/2012	Roughness Survey		7,520	600,000	79.7905	PTI	Japan	1 time/year	Good condition
11	Accelerometer							PTI		1 time/	Good

No.	Name of Machinery	Arrival Date	Purpose of Use	Product No.	Price (USD)	Price (JPY)	Exchange rate (1USD= JPY)	Installation Place	Procurement Place	Frequency of Use	Current Condition
	Sensor Cable (3)									year	condition
12	Dedicated Blocks for Fixtures (3)							PTI		1 time/ year	Good condition
13	GPS logger (3)							PTI		1 time/ year	(1) battery of GPS is broken
14	Data Acquisition Device (3)							PTI		1 time/ year	Good condition
15	Bluetooth adapter (3)							PTI		1 time/ year	Good condition
16	Rubber hump set (1)				125	10,000	79.7905	PTI		1 time/ year	Good condition
17	DC/AC inverter (3)				125	10,000	79.7905	PTI		1 time/ year	Broken
18	PC Notebook computer (3)	18/Oct/2012	Roughness Survey	Notebook Acer Aspire V5-471(1) Notebook Aspire one 756-967(2)	1,136	90,642	79.7905	PTI	SOA Canon	Daily	Battery of (1) PC is broken
19	PC Desktop (2)	28/May/2013	RMS database server	HP Compaq Elite 8300 MT PC (Micro Tower)	4,616	450,502	97.5957	PTI	SOA Canon	Daily	Good condition
20	Digital Camera (3)	8/Jan/2013	Inspection		461	45,000	97.5957	PTI	Japan	1 time/ year	Good condition
21	Spare Battery (3)	8/Jan/2013	Inspection		154	15,000	97.5957	PTI	Japan	1 time/ year	(1) Camera is broken
22	SD Card (16GB) (3)	8/Jan/2013	Inspection		102	10,000	97.5957	PTI	Japan	1 time/ year	Good condition
23	Dedicated Camera Case (3)	8/Jan/2013	Inspection		61	6,000	97.5957	PTI	Japan	1 time/ year	Good condition
24	Mobile Asphalt Concrete Repairing	27/Jan/2017	Maintenance	CLYB-1500	93,000	10,593,704	113.9108	DPWT Savanakhet	DKSH Thailand		Good condition

No.	Name of Machinery	Arrival Date	Purpose of Use	Product No.	Price (USD)	Price (JPY)	Exchange rate (1USD= JPY)	Installation Place	Procurement Place	Frequency of Use	Current Condition
	Equipment										
25	Copier (1)	6/Oct/2011	Office Use	Canon IR2535	4,000	319,228	79.8070	CaRoL office	Canon Laos	Daily	Good condition
26	Printer (1)	6/Oct/2011	Office Use	Canon Inkjet ix5000	400	31,923	79.8070	CaRoL office	Canon Laos	Daily	Good condition
27	PC Notebook computer (1)	6/Oct/2011	Office Use	HP 430	825	65,841	79.8070	CaRoL office	Canon Laos	Daily	Good condition
28	PC Desktop (1)	6/Oct/2011	Office Use		900	71,826	79.8070	CaRoL office	Canon Laos	Daily	Good condition
	Total				188,483	18,308,581					

2. Equipment procured by JICA Lao Office (not included input of the Project)

No.	Name of Machinery	Arrival Date	Purpose of Use	Product No.	Price (USD)	Price (JPY)	Exchange rate (1USD= JPY)	Installation Place	Procurement Place	Frequency of Use	Current Condition
1	Toyota Prado (2)		Inspection					DPWT Savannakhet		Daily	Good condition
2	Toyota Hilux (1)		Inspection					DPWT Savannakhet		Daily	Good condition
3	Mitsubishi Triton (1)		Inspection					DPWT Savannakhet		Daily	Good condition
4	Truck		Maintenance					DPWT Savannakhet		2 times/month	Good condition
5	Dump Truck		Maintenance					DPWT Savannakhet		2 times/month	Good condition
6	Wheel Backhoe		Maintenance					DPWT Savannakhet		2 times/month	Good condition
7	Toyota Prado (2)		Inspection					DPWT Vientiane		Daily	Good condition
8	Toyota Hilux (1)		Inspection					DPWT		Daily	Good

No.	Name of Machinery	Arrival Date	Purpose of Use	Product No.	Price (USD)	Price (JPY)	Exchange rate (1USD= JPY)	Installation Place	Procurement Place	Frequency of Use	Current Condition
								Vientiane			condition
9	Mitsubishi Triton (1)		Inspection					DPWT Vientiane		Daily	Good condition
10	Truck (1)		Maintenance					DPWT Vientiane		3 times/month	Good condition
11	Dump Truck (1)		Maintenance					DPWT Vientiane		3 times/month	Good condition
12	Wheel Backhoe		Maintenance					DPWT Vientiane		3 times/month	Good condition

MINUTES OF MEETING
OF
1ST JOINT COORDINATING COMMITTEE
ON
WORK PLAN
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA LAOS OFFICE

Vientiane, 20th January, 2012

Mr. Litta Khattiya	Mr. Kiminari Takahashi
Deputy Director General,	Team Leader,
Department of Roads	JICA Expert Team

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the JICA Expert Team") on 21st September 2011, to kickoff the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the Project").

At the initial stage of the Project, the JICA Expert Team conducted current situation survey and training needs survey to understand current conditions on maintenance planning and physical maintenance works and identify issues and training needs on the same subjects. The JICA Expert Team prepared the Work Plan, which demonstrates a background of the Project, revised PDM (Project Design Matrix), planning issues, approaches and methodology of the Project, and project implementation plan.

2. Submission of Work Plan

Prior to the 1st Joint Coordinating Committee (hereinafter referred to as "JCC"), JICA Expert Team submitted 15 copies of the Work Plan to the MPWT (Ministry of Public Works and Transport) on 13th January, 2012 and briefed major contents of the report to the counterpart agencies, including DOR (Department of Roads), PTI (Public Works and Transport Institute) and PTTC (Public Works and Transport Training Center).

3. Opening Remarks

On behalf of the MPWT, Mr. Litta Khattiya, a chairperson of the 1st JCC, welcomed all participants in the meeting. Mr. Khattiya made opening remakes, briefing the background of the Project, and the 1st JCC started at 9:00 AM. Participants of the meeting are listed in the attachment 1.

4. Welcome Remarks

Following the opening remarks, Mr. Masato Togawa made welcome remarks, briefing the progress of two procurements; (i) procurement of maintenance vehicles and (ii) pilot project of road repairing works along the National Road No.9, and pointing out that tenders for those two procurements were completed and contracts of the procurements were already signed between JICA Laos Office and awarded supplier/contractor. Mr. Togawa also thanked the MPWT for provision of full cooperation extended to the JICA Expert Team for smooth implementation of the Project.

5. Presentation by JICA Expert Team

Mr. Kiminari Takahashi, Team Leader of the JICA Expert Team, made a presentation of the Work Plan, highlighting the following bullet points:

- Confirmation of minutes of previous meeting and actions taken

- Revision of PDM
- Planning issues, approach and methodology
- Project implementation plan
- Progress of the Project

6. Comments on the Inception Report

After the presentation of the Work Plan, members of the JCC were requested to ask questions and provide comments. As a result, all the participants agreed with overall project approach, methodology and implementation plan, including revised PDM, proposed during the presentation by the JICA Expert Team, with the following comments and suggestions:

- The implementation schedule of the Project needs to be further explained by the Expert Team, in order that the DPWT timely responds to take necessary actions for implementation of the Project. (Director, DPWT Vientiane)
- Necessary actions, which the DPWT should take prior to the implementation of the OJT, should be listed and explained by the Expert Team. (Director, DPWT Vientiane)
- Additional maintenance vehicles, including mobile mixer, might be necessary for the implementation of the Project and procurement of these additional vehicles should be considered by the Expert Team (DIC, MPI). Also, additional maintenance materials, including hot-mixed asphalt, should be procured through the Project (Director, DPWT Savannakhet).
- The results of current situation survey and training needs survey are very comprehensive and useful and methods of these surveys can be applied to the other exercises in which the MPI is engaged. The MPI would like to send the staff to participate in the training provided throughout the Project (DIC, MPI).
- Both security and operation cost for maintenance equipments and vehicles should be secured to ensure sustainability of the Project. Otherwise, those equipments procured through the Project cannot be sustainably utilized (Director, DPWT Vientiane)
- There remains financial issue in establishment of the maintenance unit. For instance, a current system does not allow part of the Road Maintenance Fund to direct to the force account at the province (Deputy Director General, DOR).
- Setup of the maintenance unit should be carefully studied, referring to experiences and lessons learnt from the Department of Highway in Thailand, where routine maintenance is carried out by the force account (Director, DPWT Savannakhet)
- The number of claims and complains the province receives against deteriorated road condition is increasing. The reason behind is non-prompt actions for rehabilitation and maintenance

works taken by local contractors (Deputy Director, DPWT Savannakhet).

- Establishment of the maintenance unit, as part of new institutional setup, is essential to accomplish 'early inspection and early maintenance' which significantly contributes to prolonging the life of the pavement and reduction in maintenance and rehabilitations cost borne in the project life (Deputy Director General, DOR).
- The maintenance unit should be established in the DPWT and execute only daily routine maintenance works (Deputy Director, DPWT Savannakhet).
- The establishment of maintenance unit should be further studied and optimum structure and necessary inputs for its establishment should be proposed by the Expert Team (Director, DPWT Vientiane). Also, the possible outcomes generated from the maintenance unit should be identified and presented by the Expert Team (Deputy Director, DPWT Savannakhet).
- The proposal that the PTTC can be the focal point of all the training activities, as suggested by the Expert Team, is good. The Expert Team should confirm their participation in the Project through further discussions to the PTTC and KfW (Deputy Director General, DOR).
- The progress of the Project and roles of the member agencies should be detailed and reported by the Expert Team. So, the DPWT can report the progress to the Provincial Governor (Director, DPWT Vientiane).
- All expenses borne by Lao Government for implementation of the Project should be listed in the budget plan. The budget plan should be approved before every September (DIC, MPI).
- Present Road Maintenance Fund might have sufficient amount of maintenance budget to cover routine maintenance by the force account. Any related law or regulation should be reviewed and revised, if necessary (JICA Expert, MPWT).
- The estimated cost for routine maintenance by the Expert Team should be reviewed and revised, referring to the unit costs prepared by the Ministry of Finance. The Project Coordinator was requested to work to prepare the cost estimates at earliest timing (Deputy Director General, DOR).
- When necessary, JICA Laos Office can meet high-ranking officers to discuss and confirm the cooperation necessary for implementation of the Project (Chief Representative, JICA Laos Office).
- The Project Coordinator was requested to prepare a brief progress report, including conceptual plan for establishment of the maintenance unit at earliest timing and present it to the Minister (Deputy Director General, DOR).

In response to comments raised by participants of the meeting, the JICA Expert Team responded as summarized below:

- The actual implantation of the 1st OJT will be commenced around September or October, 2012. The detailed tasks and schedule for implementation of the OJT will be listed and prepared at earliest timing by the Expert Team.
- The equipments procured through the Project will be utilized for routine maintenance works including small repair works. Some equipments, like mobile mixer, proposed by the members, are not required for the Project, since cold-mixed asphalt material is used for the repair work such as patching of potholes.
- The result of preliminary cost estimate found the cost borne by Lao Government for setting up new maintenance unit at the DPWT ranges between 40,000 USD and 70,000 USD per year per province. Considering the revenue and expenses of the Road Maintenance Fund, these figures were found available. The issues still remain where the current regulation and system of the Maintenance Fund do not allow to inject the force account.
- The Expert Team together with the counterparts will organize regular meetings to invite members of the Technical Working Group to further discuss optimum structure of the maintenance unit and possible financial sources to cover expenses for operation of the unit.

7. Closing Remarks

Mr. Litta Khattiya appreciated constructive comments and suggestions made by the participants to the Project and closed the 1st JCC at 11:00 AM.

ATTACHMENT 1

Attendees of the 1st JCC are listed below.

PARTICIPANTS

1	Mr. Litta Khattiya	Deputy Director General, Dept. of Roads	Chairperson
2	Ms. Vanpheng Sengmanithong	Director of International Cooperation, MPI	Member
3	Dr. Sengthong Vangkeomany	Director of DPWT Savannakhet	Member
4	Mr. Thenekham Thongbonh	Director of DPWT Vientiane	Member
5	Mr. Ngampasong Muongmany	Deputy Director of DPWT Savanakhet	Member
6	Mr. Khamphet Inthideth	Deputy Director General, PTI	Member
7	Mrs. Khanthaly Vongnalath	Deputy Director Department of International Cooperation, MPWT	Member
8	Mr. Noriyuki Mori	JICA Expert	Member
9	Mr. Phitsaphonh Philavong	Project Coordinator	Member

EOJ/JICA

1	Mr. Masato Togawa	Chief Representative	Member
2	Ms. Yoko Hattori	JICA Representative	Member
3	Ms. Monlatda Chanthavong	APO, JICA Laos	Member
4	Mr. Masahiko Mitsumoto	First Secretary, Embassy of Japan	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Invited
2	Mr. Masataka Fujikuma	Deputy Team Leader/Construction Management Expert	Invited
3	Mr. Hiroaki Kobayashi	Road Maintenance Expert	Invited
4	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Invited

MINUTES OF MEETING
OF
2ND JOINT COORDINATING COMMITTEE
ON
PROGRESS REPORT
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA EXPERT TEAM

Vientiane, 13th November, 2012

Mr. Ngampasong Muongmany	Mr. Masato Togawa
Deputy Director General,	Chief Representative,
Department of Roads	JICA Laos Office

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the Expert Team") on 21st September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the Project").

The Expert Team, together with the counterpart agencies, has been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, and (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance. Accordingly, the Expert Team demonstrated progress of the activities for the above outputs in the 2nd Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Submission of Work Plan

Prior to the 2nd JCC, JICA Expert Team submitted 15 copies of the Progress Report to the DoR (Department of Roads) ~~MPWT (Ministry of Public Works and Transport)~~ on 7th November, 2012. The Progress Report for the Project contains (i) introduction of the Project, (ii) major progress of the Project and (iii) matters raised during the past JCC and Technical Working Group (TWG) meetings and actions taken, following the recommendations the members provided in the said meetings.

3. Opening Remarks

On behalf of the MPWT, Mr. Ngampasong Muongmany, a chairperson of the 2nd JCC, welcomed all participants in the meeting. Mr. Ngampasong Muongmany made opening remakes, briefing the background of the Project, and the 2nd JCC started at 13:30 hours. Participants of the meeting are listed in the attachment 1.

4. Welcome Remarks

Following the opening remarks, Mr. Masato Togawa made welcome remarks, briefing the progress of two procurements; (i) completion of the procurement of maintenance vehicles and (ii) completion of the pilot project of road repairing works along the National Road No.9. Mr. Togawa also thanked the MPWT for setting aside some amount of the budget from the Road Maintenance Fund for operational cost of road maintenance ~~vehicles used for the OJT (on-the-job) training during the course of the Project.~~

5. Presentation by JICA Expert Team

Mr. Kiminari Takahashi, Team Leader of the JICA Expert Team, and Mr. Masataka Fujikuma, Deputy Team Leader made a presentation of the Progress Report, highlighting the following bullet points:

- Project outline

- Summary of discussion and agreement in the JCC/TWG
- Major progress of each project activity

6. Comments on the Progress Report

After the presentation of the Progress Report, members of the JCC were requested to ask questions and provide comments, and some of which are summarized below.

- Criteria for selection of the pilot project section should be further explained by the Expert Team (DDG/DOR)
- Further explanation for the tasks of the preparation, including contract revision, procurement of work force and budget allocation by the DPWT should be provided by the Expert Team (JICA Laos Office)
- The detailed cost estimates for the pilot project of each year by joint funds from both Lao and Japanese sides ~~(Phase 2)~~ should be further explained by the Expert Team (DDG/DOR)
- The project activities should not be limited to the pilot provinces and should be scaled out to other provinces (MPI)
- The OJT program should be revised, considering the budget constraint. For instance, the important activities, such as the routine patrol for the performance based contract, should be carried out, while the scale of the bridge and slope maintenance be downsized. (JICA Expert for MPWT)

In response to comments raised by members of the JCC, the Expert Team responded as summarized below:

- Considering available funds for the pilot project provided by JICA and the project purpose – capacity building for the routine maintenance, the spot replacement was selected as cost effective maintenance method for the pilot project phase-2 and looking at the contract for on-going periodic maintenance by the DPWT Savannakhet, the road section between Sta. 0 and Sta.15+575 along the National Road No.9 was selected for the pilot project section.
- Currently, the local contractor is undertaking the repair work on National Road No. 9 by applying borrow material and DBST under the contract with DPWT Savannakhet. The Expert Team proposes to revise the contract to apply asphalt concrete for the repair work, using crushed stone and hot asphalt mixture. To do so, the materials, technical instruction and the equipment will be provided to the contractor, following the contract to be made between JICA and selected supplier.
- The detailed cost estimates for the pilot project of each year will be ~~(phase 2) were already~~ prepared by the Expert Team and counterparts, and discussed with the DPWT Savannakhet. The Expert Team requested to organize a separate meeting, inviting DDG of DOR and DG of

DPWT Savannakhet to discuss the detailed cost estimates, after the JCC meeting.

- The PTTC was appointed as one of counterpart agencies for the Project in the 1st JCC meeting and PTTC is expected to become a focal point of the training activities in the course of the Project. To do so, the Expert Team is working to develop technical manuals and to provide a series of training sessions together with the PTTC. After all, the PTTC is expected to scale out the project activities to other provinces.

After the discussion on the Progress Report, members of the JCC were invited for the discussion on (i) revised Project Design Matrix (PDM), (ii) establishment of maintenance task force, (iii) OJT plan and its budget plan and (iv) scope of the pilot project.

- The members of the JCC confirmed that the PDM, agreed in the 1st JCC meeting, is still relevant to achieve the project goal. However, since some project activities lag behind the schedule, agreed in the 1st JCC meeting, the members agreed with minor alternation of the Operation Plan. Also, the member of the JCC suggested to organize the JCC meeting at least once a year (as agreed in the Record of Discussion on 22 July 2011) and preferably every September as it is the end month of the fiscal year.
- The members were briefed of the duties/manpower/equipment required for the maintenance task force and agreed to proceed the Project to test establishment of the maintenance task force in the pilot provinces.
- The members were also briefed of the outline of the OJT plan and budget plan for (i) routine inspection for the PBC, (ii) maintenance of asphalt concrete pavement, (iii) bridge maintenance and (iv) slope maintenance. The members of the JCC confirmed with relevance of the OJT plan and its budget plan for the next 3 years. However, the 2012/13 budget covered by Lao side cannot meet the budget required for the OJT program. Therefore, the members agreed to continuously seek for alternative sources of the fund and also agreed with alternation of the scope of the OJT program, considering the available fund from Lao side.
- The members of the JCC basically agreed with the scope the pilot project (phase-2). The members also confirmed with necessity of further discussions among DOR, DPWT Savannakhet and Expert Team to confirm the available budget and scope of works for the pilot project and amendment of the contract between local contractor and DPWT Savannakhet.

7. Closing Remarks

Mr. Ngampasong Muongmany appreciated constructive comments and suggestions made by the members to the Project and closed the 2nd JCC at 15:40 hours.

ATTACHMENT 1

Attendees of the 2nd JCC are listed below.

PARTICIPANTS

1	Mr. Ngampasong Muongmany	Deputy Director General, DOR	Chairperson
2	Dr. Sengthong Vangkeomany	Director of DPWT Savannakhet	Member
3	Mr. Korakan Phimpanhak	Representative of DPWT Vientiane	Member
4	Mr. Kitto Nanthavong	Representative of DPWT Vientiane	Member
5	Mr. Khamphet Inthideth	Deputy Director General, PTI	Member
6	Mr. Vongsack Malivanh	Chief of Infrastructure and Transport Section, PTI	Member
7	Mr. Kouthong Sommala	Department of International Cooperation, MPI	Member
8	Mr. Phetsamone Vilaphanh	Deputy Director General, DPC	Member
9	Mr. Phitsaphonh Philavong	Project Coordinator, DOR	Member
10	Mr. Noriyuki Mori	JICA Expert for MPWT	Member
11	Dr. Takafumi Nishikawa	Assistant Professor, Nagasaki University	Invited

EOJ/JICA

1	Mr. Masato Togawa	Chief Representative, JICA Laos Office	Member
2	Ms. Mayumi Miyata	Representative, JICA Laos Office	Member
3	Ms. Monlatda Chanthavong	APO, JICA Laos Office	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Invited
2	Mr. Masataka Fujikuma	Deputy Team Leader/Construction Management Expert	Invited
3	Mr. Hiroaki Kobayashi	Road Maintenance Expert	Invited
4	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Invited
5	Mr. Iwao Yokokawa	Road Disaster Prevention Expert	Invited
6	Mr. Yoshiyuki Arita	System Management Expert	Invited

MINUTES OF MEETING
OF
3RD JOINT COORDINATING COMMITTEE
ON
PROGRESS REPORT
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA EXPERT TEAM

Vientiane, 26th September, 2013

Mr. Laokham Somphet	Mr. Koichi Takei
Director General,	Chief Representative,
Department of Roads	JICA Laos Office

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the Expert Team") on 21st September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the Project" or "the CaRoL").

The Expert Team, together with the counterpart agencies, has been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, and (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance. Accordingly, the Expert Team demonstrated progress of the activities for the above outputs in the 3rd Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Opening Remarks

On behalf of the MPWT, Mr. Laokham Somphet, a chairperson of the 3rd JCC, welcomed all participants in the meeting. Mr. Laokham Somphet made opening remakes, briefing the background of the Project, and the 3rd JCC started at 9:00 hours. Participants of the meeting are listed in the attachment 1.

3. Welcome Remarks

Following the opening remarks, Mr. Koichi Takei made welcome remarks, briefing the achievement of the Project and, in order to establish a sustainable maintenance mechanism, Mr. Koichi Takei urged the importance of (i) mid and long-term planning prepared in realistic manner, (ii) transparent procurement to ensure fair competition, (iii) scaling out of the project activities to other provinces and (iv) enforcement against overloaded trucks. Mr. Koichi Takei also thanked the MPWT for the continuous supports, made by Lao side, extended to the Project.

4. Presentation by JICA Expert Team and Counterparts

Mr. Kiminari Takahashi (Team Leader/JICA Expert Team), Mr. Masataka Fujikuma (Deputy Team Leader/JICA Expert Team), Dr. Phamavanh Kongkeo (JICA Expert Team), Mr. Souvanh Sengchamphone (DPWT Savannakhet), Mr. Chanthavangso Oudomdeth (PTI), and Mr. Siriphone Inthirath (PTTC) made presentations of major progress and issues of the project, highlighting the following bullet points:

- Project Outline
- Issues arising and actions taken
- Summary progress of each project activity
- Organizational restructuring and amendment of PDM
- Draft OJT plan in 2013/14

- Proposed scope of pilot project in 2013/14
- Summary result of RMS analysis and budget plan in 2013/14

5. Comments on the Presentation

During and after the presentation, members of the JCC provided following comments.

- The progress of rehabilitation works of the 180-km remaining section (apart from the Grant Aid section) on National Road No.9 should be briefed by the DOR. In case Lao Government rehabilitates the remaining section of National Road No.9 by itself, the proposed contents of 2013/14 pilot projects should be revised. (JICA Laos Office)
- National Road No.9, part of the East-West Corridor, is an important asset for Lao PDR as well as ASEAN region. In order to well maintain road and bridge conditions, controlling of overloaded vehicle is a central issue. A further discussion on tackling the overloaded trucks is essential in the Project. (Embassy of Japan)
- Since the Regional Offices are to be established under the DOR and the Regional Office to be responsible for all the maintenance works of the National Roads and the DPWT for the other local roads, the Project Design Matrix of the Project, if necessary, should be amended , based on the discussion and agreement made in the JCC meeting. (JICA Expert Team)
- To enhance sustainability of the Project, the scope of work of the Project should be not limited to system improvement, manual development, and OJT. Part of the Project should focus on how to secure adequate funds for road and bridge maintenance. To achieve this, both efforts to increase budget and to decrease expenditure should be made throughout the remaining period of the Project. Transparency of bidding process should be ensured to reduce the expenditure and maintain sustainability of road maintenance. (JICA Laos Office)
- From a viewpoint of fairness, roads should be in principle free of charge and, if necessary, road users are equally charged the taxes and levies in accordance with their travel distance and vehicle weight. In this regards, the fuel levy is the most fair taxation system at this moment, and increase of the fuel levy should be considered as means of raising additional road maintenance fund. Also, the toll charge should not be introduced at the limited road routes or sections without alternative free-of-charge road. The toll charge, if necessary, should be introduced, covering all national and local roads. However it may be difficult in terms of technology and cost for installation and maintenance of toll collection system. (JICA Expert/MPWT)
- In addition to increase of the fuel levy, , the vehicle-weight based taxation should be introduced, and charged during the vehicle inspection. (JICA Expert/MPWT)
- The source of the RMF, currently limited to three sources including fuel levy, fine for

overloaded trucks and toll gate, will be added and the revenue from the current Road Tax will be utilized through the RMF. The Road Tax is similar to the vehicle-weight based taxation and can be amended and collected during the vehicle inspection. (JICA Expert Team)

- The amount of revenue from the toll charge was very limited and covered only 10% of all the revenues of the Road Maintenance Fund, when the toll gate was in full operation. If the toll charge is re-introduced and the amount of the toll charge remains the same to the previous toll charge, the revenue cannot be significantly increased. (JICA Expert)
- The PPP scheme can be one of the solutions to fill the gap between the revenue and expenditure for the road maintenance. In Myanmar, maintenance works of all truck roads are contracted out to the private sector by 40-year concession contract. The toll collection charge is directly collected by the private contractors and utilized timely for the road maintenance works. (JICA Expert)
- Project activities are well designed, from which the outstanding outcomes are already observed, and these activities should be scaled out to other provinces. To do so, the CaRoL was requested to allow additional counterparts from PTTC to join to work for the CaRoL project. (DG/PTTC)
- Since institutional/organizational proposals, including on-going institutional reform and maintenance financing, should be made in the policy documents. Therefore, the long-term policy and short-term actions should be prepared by the DOR. (JICA Expert Team)

In response to comments raised, members of the JCC responded as summarized below:

- The entire section of the National Road No.9 needs to be maintained in good condition. The rehabilitation works of the remaining sections of the National Road No.9 is under negotiation with two local contractors and is close to be concluded. The contractors will first rehabilitate with their own expense which will be reimbursed by the government in the future (IOU contract). Small-sized pot halls, ruts and cracks on the road shall be repaired at first, then overlaid with Asphalt Concrete. This work is expected to be funded by a part of RMF. The progress of the rehabilitation works of the remaining section will be well shared with the CaRoL. (DG/DOR)
- The contents of further pilot project shall be revised in response to the progress of rehabilitation works for remaining section of National Road No.9 to avoid any duplication. (DG/DOR)
- Re-installation of three weight control stations along National Road No.9 were already proposed to MPWT and DPWT Savannakhet. Further information on the progress of re-opening weight stations will be shared with JCC members and CaRoL. (DG/DOR)
- Controlling over-loaded vehicle requires every support from other organizations such as

Ministry of Forest, Ministry of Commerce and Ministry of Force. Three closed weight stations in Savannakhet Province shall be considered to reopen. (DPWT Savannakhet)

- Establishment of the Regional Offices under the DOR will not affect the project activities and therefore, the scope of work for the CaRoL, including the counterparts and pilot provinces will not change. Accordingly amendment of PDM is not necessary. The provided equipment, pilot provinces and system manager remain same as the first agreement between JICA and MPWT. (DG/DOR)
- Most of RMF in FY2012/13 was utilized for overlay works of DBST in accordance with rapid deterioration of the road surface due to increasing traffic and disaster recovery. On the other hand, RMF in FY 2013/14 is supposed to be used for maintenance works and rehabilitation of the critical sections and will not be used for any new construction works. (DG/DOR)
- Department of Inspection was established under MPWT with the aim of controlling bidding system and increasing transparency. (DG/DOR)
- In order to increase the budget, effective measures such as revision of tax revenue and introducing toll system shall be discussed among stakeholders. (DG/DOR)
- On 16th September, the Minister participated in the Inter-ministerial Meeting and spoke of the reinstatement of the weight bridges and reintroduction of the toll charges. The comments and suggestions raised in the meeting will be shared among the JCC members and CaRoL once the minutes of the meeting is submitted. (DG/DOR)

6. Closing Remarks

Mr. Laokham Somphet appreciated constructive comments and suggestions made by the members to the Project, confirming the 4th JCC shall be held in May 2014, end of Phase 1 of the Project. The 3rd JCC closed at 12.00 hours.

ATTACHMENT 1

Attendees of the 3rd JCC are listed below.

PARTICIPANTS

1	Mr. Laokham Somphet	Deputy General of DOR	Chairperson
2	Dr. Sengthong Vangkeomany	Director General of DPWT Savannakhet	Member
3	Mr. Souvanh Sengchamphone	Representative of DPWT Savanakhet	Member
4	Mr. Sumountha Somchannavong	Deputy Director General of DPWT VTE	Member
5	Mr. Somnam Douangphachan	Representative of DPWT VTE Province	Member
6	Mr. Khamphet Inthideth	Deputy Director General of PTI	Member
7	Mr. Chanthavangso	Representative of PTI	Member
8	Mr. Vongsack Malivanh	Representative of PTI	Member
9	Mr. Siriphone Inthirath	Director General of PTTC	Member
10	Mr. Phitsaphonh Philavong	Project Coordinator, DOR	Member
11	Mr. Vanpheng Sengmanothong	Representative of DIC, MPI	Member
12	Mr. Noriyuki Mori	JICA Expert for MPWT	Member

EOJ/JICA

1	Mr. Hideyuki Onishi	Embassy of Japan in Laos	Member
2	Mr. Koichi Takei	Chief Representative, JICA Laos Office	Co- chairperson
3	Ms. Mayumi Miyata	Representative, JICA Laos Office	Member
4	Ms. Monlatda Chanthavong	APO, JICA Laos Office	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Invited
2	Mr. Masataka Fujikuma	Deputy Team Leader/Construction Management Expert	Invited
3	Ms. Mihoko Ogasawara	Human Resource Development Expert	Invited
4	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Invited

MINUTES OF MEETING
OF
4TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA EXPERT TEAM

Vientiane, 3rd April, 2014

Mr. Ngampasong Muongmany
Deputy Director General,
Department of Roads

Mr. Koichi Takei
Chief Representative,
JICA Laos Office

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the CaRoL Experts") on 21st September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the CaRoL").

The CaRoL Experts, together with the counterpart agencies, have been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, and (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance. Also, the Mid-term Review Mission was dispatched by JICA Head Quarter on 24th March 2014 to monitor the performance of the CaRoL Project. The CaRoL Experts and counterparts demonstrated the progress of the activities for the CaRoL Project and the said Mission presented the findings during 2-week Mid-term Review in the 4th Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Opening Remarks

On behalf of the MPWT, Mr. Ngampasong Muongmany, a chairperson of the 4th JCC, welcomed all participants in the meeting. Mr. Ngampasong Muongmany made opening remarks, briefing the progress of the Project, and the 4th JCC started at 9:15 hours. Participants of the meeting are listed in the attachment 1.

3. Welcome Remarks

Following the opening remarks, Mr. Koichi Takei made welcome remarks, pointing out the importance of financial sustainability for road maintenance and that of enforcement against overloading trucks to maintain the maintenance sustainably. Mr. Koichi Takei also thanked the MPWT for providing continuous supports extended to the CaRoL Project.

4. Presentation by CaRoL and Mid-term Review

Mr. Kiminari Takahashi, Team Leader of the CaRoL Project, made a presentation, highlighting the following bullet points:

- Project outline
- Issues arising and actions taken
- Major progress of project activities

Mr. Souvanh Sengchamphone (Pilot project), Mr. Chanthavangso Oudomdeth (System improvement), Mr. Laythong Phommavong (Evaluation report on PBC workshop) also made presentations on each project activity.

Following the presentation by the CaRoL Project, Mr. Shigeki Miyake and Ms. Kinuko Mitani

made a presentation of the Mid-term Review for the CaRoL Project.

5. Comments on the Progress Report

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL members and the Mid-term Review Mission members responded these comments, and discussions and agreements during the meeting are summarized below.

- Although management of the maintenance budget and control of overloading trucks are beyond the scope of the CaRoL Project, it is important that the Lao side take actions to deal with these two issues to establish sustainable maintenance mechanism. (Chief Representative of JICA Laos Office)
- Since the road density against population in Laos is quite high, comparing that in neighboring countries, a regionally integrated maintenance funding mechanism should be established, especially for the international main roads such as Asian Highway, ASEAN Highway and GMS Economic Corridor(s), involving the ASEAN or GMS member countries. (JICA Expert for MPWT)
- An integrated maintenance funding mechanism could be a long-term solution. Lao side should also consider to take immediate actions to increase funding source, for instance, introducing PPP for road maintenance and Pay Road System, especially for international corridors including National Road No.9. (Mid-term Review Mission)
- The MPWT acknowledged a shortage of road maintenance fund. There are ongoing discussions among the PMO, MOF and MPWT (RMF and DOR) to increase the fuel levy from 420 Kip per litter to 450 Kip per litter. ASEAN member countries may accept the installation of toll collection for international transit traffic. (DDG of DOR)
- Increase in the fuel levy is one of the quick solution to raise maintenance fund, though it is understood that actual implementation is politically difficult. If the fuel levy is increased, the new regulation for the transit vehicles should be imposed, learning from the experience in Singapore. (e.g., the fuel tank of the transit vehicle, when going out from the country, is required to be filled, at least 75% of the fuel tank, to discourage the drivers of the transit vehicles to purchase cheaper fuel in neighboring countries.) (JICA Expert for MPWT)
- The on-going WB-funded SPM (Strategic Planning and Management) Project will study and is expected to provide recommendations on a sustainable financial mechanism for road maintenance. The progress of the SPM Project should be shared among the JCC members and the CaRoL Expert Team. (Mid-term Review Mission)
- The DOT and related local government (provincial government) should be invited for the JCC to discuss and take actions to control overloading trucks. (Mid-term Review Mission)

- A Task Force Committee, consisting of relevant Ministries, was set up last month in Savannakhet Province for revenue collecting promotion. One of the tasks of the Committee is to control over wood processing goods export including control of over loading trucks carrying the goods. However, this task so far is not fulfilled properly. The DPWT Savannakhet operates two weight stations along the National Road No.9, however, faces technical problems, such that the existing mobile weight scale is not working properly. In addition, the departments and parties concerned do not give proper cooperation on this matter. A discussion at high ranking level involving all the concerned parties including the Ministry of Commerce, Forestry and Agriculture, Customs, and Private Sectors is necessary to achieve the successful implementation for controlling overloading trucks. (DG of DPWT Savannakhet)
- RMF can cover only 30% of total demand for road maintenance in Laos. A transit fee is among the sources of RMF, however, is not yet introduced (Note: a transit fee collected exclusively from the transit vehicle is not allowed by the regulation under GMS). In recent years, the revenue of the RMF from fines for overloading trucks increases by 30% per year. In Year 2013/14, the revenue of the RMF reaches 400 billion Kip, while the expenditure approved by the National Assembly amounts to 370 billion Kip. (DOF)
- Prime Minister's Decree on the RMF is now under revision and and waiting for approval by MPWT to submit to the Prime Minister's Office for final decision. (DOF)
- Currently, almost half of the RMF is spent for repayment to local contractors for the rehab/overlay works done in the last three years. The DOR should prepare a long-term investment plan, well considering the repayment amount and period, since there seems no such a plan available in the DOR. (CaRoL Expert)
- The Technical Working Group (TWG) should be held to discuss the revision of the PDM (Project Design Matrix), conforming some of the findings and proposals explored in the Mid-term Review Report. The JCC should be held in September 2014 to approve the revised PDM, if necessary, which governs project approaches and activities of the CaRoL Project Phase-2. (JICA Laos Office)
- There should be continuous close discussions between the Lao side, especially the DPWT of Vientiane Province, and CaRoL Experts to implement the pilot project in Vientiane Province. (JICA Laos Office)
- The CaRoL Expert requested the DOR to report the progress of approval and disbursement of the fund for the pilot project. The DOR answered that the PMO, MPI and RMF basically agreed with disbursement of nearly 60% of original cost estimate for rehab/maintenance works on the National Road No. 9 by the RMF and which will covered only maintenance cost of the National Road No.9. The DOR is now seeking for the additional funding source to cover the remaining 40% of the cost required for rehabilitation works on the National Road

MINUTES OF MEETING
OF
5TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA LAOS OFFICE

Vientiane, 19th September, 2014

Mr. Laokham Sompheth	Mr. Koichi Takei
Director General,	Chief Representative,
Department of Roads	JICA Laos Office

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the CaRoL Experts") on 21st September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the CaRoL").

The CaRoL Experts, together with counterparts of the concerned departments, have been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, and (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance. The CaRoL Experts and counterparts demonstrated the progress of the activities for the CaRoL Project in the 5th Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Opening Remarks

On behalf of the MPWT, Mr. Laokham Sompheth, a chairperson of the 5th JCC, welcomed all participants in the meeting. Mr. Laokham Sompheth made opening remarks, briefing the progress of the Project, including on-going repair works along the National Road No.9 (NR-9) and preparation of technical manuals, and the 5th JCC started at 9:00 hours. Participants of the meeting are listed in the attachment 1.

3. Welcome Remarks

Following the opening remarks, Mr. Koichi Takei made welcome remarks, pointing out the importance of (i) a long-term maintenance plan based on the RMS/PRoMMS analysis, (ii) alignment of project activities with on-going institutional reorganization under the DOR, (iii) rolling-out of the project activities, utilizing the technical manuals, and (iv) enforcement against overloading trucks to maintain the road maintenance sustainably. Mr. Koichi Takei also thanked the MPWT for providing continuous supports extended to the CaRoL Project.

4. Handover of Technical Manuals Version-01

Mr. Koichi Takei handed over 200 copies of Technical Manuals Version-01 to Mr. Laokham Sompheth, composing of the following three volumes: Road Maintenance Manual, Bridge Maintenance Manual, Slope Maintenance Manual, Mr. Laokham Sompheth thanked Mr. Koichi Takei and CaRoL Experts for part of deliverables of the CaRoL Project, pointing out that the DOR would ensure the Technical Manuals would be fully utilized for actual maintenance works and the feedbacks would be made during the utilization of the manuals for further revision and finalization of the Technical Manuals.

5. Presentation by CaRoL and Mid-term Review

Mr. Kiminari Takahashi, Team Leader of the CaRoL Project, made a presentation, highlighting the

following bullet points:

- Project outline
- Issues arising and actions taken
- Summary progress of each project activity
- Overall achievement of the project
- Lessons leant from the project and recommendations

Mr. Souvanh Sengchamphone (Pilot project), Mr. Chanthavangso Oudomdeth (System improvement), and Mr. Laythong Phommavong (Preparation of manuals and external training in Japan) also made presentations on each project activity.

6. Comments on the Progress Report

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL Experts and counterparts responded these comments, and discussions and agreements during the meeting are summarized below.

- It was reported that the DOR is currently working for institutional reorganization, establishing four Regional Offices to maintain the national roads as jurisdiction of newly established Regional Offices. The Project Managers of the Regional Offices will be fully responsible for road maintenance of the national road and will be given similar duties as the CEO in the private company. It was noted that since the DPWTs still want to be responsible for maintaining the national roads within their provinces as before and the maintenance of the national roads under the Regional Office considered as a pilot project and there still needs to build consensus among the DPWTs to make the Regional Offices fully function and their roles and responsibilities to be decided and agreed. (DG of DOR)
- It was also reported that the DOR, as stated in their road development plan, recognizes eight national roads in Laos, including NR-9, as the international trunk road network and these national roads need to be upgraded to the ASEAN standards, allowing maximum loading capacity of 11.0 tons/axle. (DG of DOR)
- It was reported that the DOR considers overloading as a central issue and discussion on the overloading was also made during Sam Sang workshop held between 10th Sep and 12th Sep, 2014, involving all directors of the DPWTs in Laos. During the discussion, it was confirmed that all DPWTs support to reopen operation of the 24 weigh stations in total along the national roads and the minutes of the meeting during the discussion would be sent to the Minister for his action to address overloading issue. (DG of DOR)
- It was requested that the location and schedule of the Pilot Project should be well considered, taking into account the on-going Japan Grant Aid Project on Improvement of the NR-9 (e.g.,

the appropriate location of the handover ceremony of the Grand Aid Project). (Chief Representative of JICA) It was responded that CaRoL Experts would fully coordinate with the DPWT Savannakhet and Consultant Team for the on-going Project for Improvement of the NR-9. (CaRoL Expert)

- Further explanation on the coverage of the national roads by the RMS was requested. (Chief Representative of JICA) It was responded that nearly 5,500 km of the national roads, mainly paved national roads, were surveyed under the RMS inventory survey and nearly 80% of the entire national roads was covered by the RMS, saying that 7,000 km of the national roads exists and the remaining un-surveyed road section is considered as the committed projects, which are under improvement or will be improved. (Representative of PTI)
- It was suggested that the overloading issue needs to be addressed urgently and one of the measures that needs to be considered to address the overloading issue would be stakeholder involvement of the private sector, such as major trucking companies and operators. (Chief Representative of JICA)
- It was requested that the Pilot Project should be implemented in Vientiane during the Phase-2 since there are huge capacity gap between Savannakhet and Vientiane Provinces, identified by the capacity assessment survey conducted by the CaRoL Experts, and the capacity of DPWT Vientiane needs to be improved through the Pilot Project. (Director of DPWT Vientiane) It was responded that the CaRoL Experts will make close coordination with the DPWT Vientiane to realize such Pilot Projects in Vientiane as bridge maintenance and slope maintenance. (CaRoL Expert)
- Further explanations on the different pavement design applied to the Pilot Project in Savannakhet was requested. (Director of DPWT Vientiane) It was responded that two contractors are currently working for the urgent repair works along the NR-9 and different pavement design was applied since one contractor has already been equipped with asphalt concrete plant (the pavement designed, using asphalt concrete material) while the other contractor is still waiting for installation of the plant (the pavement designed with DBST). (Counterpart of DPWT Savannakhet)
- Further explanations on operation and maintenance of maintenance vehicles and equipment was requested. (Director of DPWT Vientiane) It was responded that all maintenance vehicles and equipment procured under the CaRoL Project are used by the private contractors without any charge for implementation of the past and on-going Pilot Projects and the operation of these vehicles and equipment is recorded and reported to the CaRoL Expert every month. (Counterpart of DPWT Savannakhet)
- It was suggested that the external training in Thailand is more effective and needs to be extended since local staffs of the DPWTs are not always capable to communicate in English and there is no language barrier for the DPWTs if they are trained in Thailand. (Director of

DPWT Vientiane) It was responded that the external training will continue in Phase-2 Project and there will be two external trainings during the next project: one in Japan and another in Thailand. (CaRoL Expert)

- It was pointed out that issues of overloading trucks is the agenda of the government meeting and that governors of all provinces will be invited for annual MPWT's meeting in October in order to discuss to reopen weight stations. It was suggested that the DOT should work to revise the law/regulations to control overloading trucks, since the current law/regulations are not sufficient which only allow the DPWTs to fine the overloaded trucks at very low rate and do not allow them to restrict the operation of overloaded trucks. It was also suggested that the all weigh scales at the DPWTs need to be upgraded or calibrated since these scales were not in use for the last three years. (Representative of DOR)
- It was suggested that synergy effects between the CaRoL Project and ADB's Road Maintenance Project should be maximized since both projects are contracted out to the same Japanese companies, e.g., allowing them flexible assignments between two projects. (JICA Advisor for the MPWT)
- It was suggested that the NR-13 North requires for improvement works rather than maintenance works because the deterioration of the NR-13 North is often observed due to the aged pavement (more than 20 years since constructed) and rapid increase in the traffic. (Director of DPWT Vientiane) It was responded that the NR-13 North could be maintained by the RMF with technical support by the CaRoL Expert when it is selected as part of the pilot project roads applied to the revised PBC. (CaRoL Expert)
- It was pointed out that the local counterpart of the PTTC is assigned for the CaRoL Project on full time basis, and is engaged in the project activities, including preparation of the technical manuals in the Phase-1 Project. It was suggested that the participation of the district level staffs in the OPWTs should be more extended to gain their skills and knowledge, using the technical manuals prepared under the CaRoL Project. (Director of PTTC)
- It was pointed out that the PDM Version 2.0 needs to be discussed and approved in the first JCC held in the course of Phase-2 Project. (CaRoL Expert) It was suggested that the manual developed through the project activities need to be fully utilized in Phase-2 Project in line with achieving the project outcomes. (Chief Representative of JICA)

7. Closing Remarks

Mr. Laokham Sompheth appreciated the progress made by the CaRoL Expert, together with the support by the JICA Laos Office and JICA HQ. Mr. Laokham Sompheth also thanked constructive comments and suggestions made by the members to the CaRoL Project and closed the 5th JCC at 11:30 hours.

ATTACHMENT 1

Attendees of the 5th JCC are listed below.

PARTICIPANTS

1	Mr. Laokham Sompheth	Director General of DOR	Chairperson
2	Mr. Thenekham Thongbonh	Director of DPWT Vientiane	Member
3	Mr. Korrankan Phimphanhak	Counterpart personnel of DPWT Vientiane	Member
4	Mr. Bounpasong Noykhamngonh	Counterpart personnel of DPWT Vientiane	Member
5	Mr. Souvanh Sengchamphone	Counterpart personnel of DPWT Savanakhet	Member
6	Mr. Siriphone Inthirath	Director of PTTC	Member
7	Mr. Chanthavangso Oudomdeth	Head of Infrastructure Section, PTI	Member
8	Mr. Chanthavong Bounsombath	Representative of DPC	Member
9	Mr. Somneuk Mektakul	Head of Section, DOT	Member
10	Mr. Laythong Phommavong	Project Coordinator of DOR	Member
11	Mr. Noriyuki Mori	JICA Advisor for MPWT	Member

EOJ/JICA

1	Mr. Koichi Takei	Chief Representative, JICA Laos Office	Co-chairperson
2	Ms. Akiko Kishiue	Representative, JICA Laos Office	Member
3	Ms. Monlatda Chanthavong	Assistant program officer, JICA Laos office	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader /Road Management Expert	Member
2	Mr. Makoto Nozawa	Contract Management Expert	Member
3	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Member

MINUTES OF MEETING
OF
6TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC (PHASE 2)

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA LAOS OFFICE

Vientiane, 23rd January, 2015

Mr. Ngampasong Muongmany
Deputy Director General,
Department of Roads

Mr. Koichi Takei
Chief Representative,
JICA Laos Office

Mr. Kiminari Takahashi
Team Leader,
JICA Expert Team

- Project background
- Issues arising and actions taken
- Revisit of Phase 1 Project
- Project outline – Draft Project Design Matrix
- Project implementation plan

6. Issues arising to be addressed during the Phase 2

Mr. Chanthavangso Oudomdeth (System improvement), Mr. Laythong Phommavong (Preparation of technical manuals) and Mr. Souvanh Sengchamphone (Pilot project) made presentations on each project activity. The following issues were raised in the meeting and suggested to be addressed during the course of the Phase 2 Project.

i. System improvement

For the improvement of RMS, (i) Update of unit cost/ VOC/ time value, (ii) Update of road administration data (by DOR/TED), (iii) Improvement of exporting/importing data (e.g., GIS format), (iv) Improvement of reporting system (e.g., time-series chart), (v) Improvement of data check function, (vi) Improvement of data collection method (e.g., tablet-based data collection).

For the implement of PRoMMS, (i) Improvement of data check function.

Others include (i) Development of GIS based road network data (by DOR/PTI) and (ii) Training for HDM-4.

i. Technical manual

For the Technical Manuals, (i) Compatibility with MAC code, (ii) Inspection result as input for RMS/PRoMMS, (iii) Translate part of manual (inspection /evaluation form, BOQ) into DOR's templates (i.e., bidding document, specification, contract and payment approval documents), and (iv) Monitoring and feedback of Manual Version-01 for its finalization.

For PBC, (i) Continuous technical workshops required and (ii) Monitoring and evaluation of revised PBC for further revision.

ii. Pilot project and OJT

For pilot project and OJT, (i) Maintenance work along other sections of the NR-9 (ii) Proper institutional set-up and technical transfer, including proposed maintenance unit, in line with on-going re-organization of DOR, (iii) Procurement of equipment for routine/periodic maintenance (e.g., mobile asphalt mixing plant, tamper, inspection equipment, etc.) and (iv) Absence of pilot project in Vientiane Province (e.g., slope maintenance, bridge maintenance, PBC)

7. **Comments on the Work Plan (2)**

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL Experts and counterparts responded these comments, and discussions and agreements during the meeting are summarized below.

- It was reported that a task force was formed by the Minister for MPWT to review the revenue and expenditure of the RMF and proposed to increase the fuel levy from 420 Kip/litter to 520 Kip/litter in the MPWT Annual Meeting held in January, 2015. The Minister approved the increase of the fuel levy and sent the request to the PM office for review and agreed by concerned Ministries. (DDG of DOR)
- It was requested that the DOR needs technical assistance from JICA, especially for design approval and supervision of the on-going maintenance work along the National Road No.9, since the maintenance work is to continue until 2017 whereas the CaRoL project is to come to end by 2016. (DDG of DOR)
- It was also reported that a task force also suggested to introduce other sources of revenue to be included in the RMF, including toll roads and road safety levy (such as alcohol tax). (Representative of RMFB)
- It was reported that the reinstallation of 29 weigh bridges across the country was discussed during the MPWT Annual Meeting held in January, 2015. It was agreed during the meeting that up-to-date weigh station would be built in 3 pilot provinces including that along the NR-9. (Representative of DOT) It was informed that the weigh station at KM 65 along the NR-9 should be equipped with the digital weigh scale and CCTV camera. (Director of DPWT Savannakhet)
- It was informed that JICA will dispatch a preparatory survey mission on the replacement of the bridges along the NR-9 in April, 2015. A sub-component of the bridge replacement project is still unknown but might not include the reinstallation of weigh station along the NR-9. Justification of the sub-component project and strong commitment of operation and enforcement of weigh control must be shown to the preparatory survey mission to include the sub-component project. (Chief Representative of JICA)
- It was informed that mandate of Regional Road Maintenance Project Office under DOR was discussed during the MPWT Annual Meeting held in January, 2015 and the Minister advised the DOR to define the responsibilities and duties among the DOR/Regional Road Maintenance Project Office/DPWTs, following the Sam Sang policy. Decision on mandate has not yet been made and the discussion is still undergoing. (DDG of DOR)
- It was informed that the budget for the pilot project in Vientiane is not included in the 2014/15 budget plan of the DOR. Thus, the DPWT Vientiane requested the JICA to consider to set aside the fund for implementation of the pilot project in Vientiane (Director of DPWT

Vientiane) It was suggested that JICA Laos Office discuss with JICA HQ if it is possible to provide the funds for the pilot project in Vientiane Province. (Chief Representative of JICA)

- It was suggested that the technical manual, prepared during the Phase 1 Project, should be utilized through the OJT and pilot project during the course of the Phase 2 Project and the result should be feed-backed for its finalization. (Director of DPWT Vientiane)
- It was requested that the designated road section along the NR-9 should be properly maintained to allow the VIPs to access to the handover ceremony of the Grant Aid Project. (Chief Representative of JICA) It was agreed that the DPWT Savannakhet will be responsible for maintaining the road in a proper condition between Seno and the location of the handover ceremony. (Director of DPWT Savannakhet)
- It was requested that the operation of the trucking companies should be properly managed since the Grand Aid Project observed that some trucks are still overloaded and sometimes spilling the oil which seriously damage the road surface condition. (Chief Representative of JICA)
- It was requested that the CaRoL Expert Team should share the training plan with the PTTC to enable the PTTC to incorporate some of the training into the PTTC's training and budget plan. (Director of PTTC)
- It was confirmed that the PTTI is fully involved in the CaRoL Project during the course of the Phase 2 Project. (Director of PTTC)
- It was suggested that the Project Director should emphasize the sustainability of the CaRoL Project and that the CaRoL Project should focus on the training to gain the technical capacity of the local staff during the course of the Phase 2 Project for sustainable road asset management. (Representative of MPI)
- It was suggested that the external trainings both in Japan and in Thailand could benefit the local staffs to gain the capacity so that the external training should continue during the Phase 2 Project (Director of DPWT Vientiane)

8. Agreement on Revised Project Design Matrix

The members of JCC discussed and confirmed that the Project Deign Matrix (PDM) ver 2.1 of which the monitoring indictors were amended, following the comments made by the Mid-term Review Mission, is relevant to monitor and evaluate the progress of the Project. The PDM ver 2.1 accordingly was accepted by the members of JCC. The PDM ver 2.1 is shown in the Attachment 2.

9. Closing Remarks

Mr. Ngampasong Muongmany appreciated the progress made by the CaRoL Expert, together with

the support by the JICA Laos Office. Mr. Ngampasong Muongmany also thanked constructive comments and suggestions made by the members to the CaRoL Project and closed the 6th JCC at 11:30 hours.

ATTACHMENT 1

Attendees of the 6th JCC are listed below.

PARTICIPANTS

1	Mr. Ngampasong Muongmany	Deputy Director General of DOR	Chairperson
2	Mr. Thenekham Thongbonh	Director of DPWT Vientiane	Member
3	Mr. Prasongsinh Chaleunsouk	Director of DPWT Savannakhet	Member
4	Mr. Siriphone Inthirath	Director of PTTC	Member
5	Mr. Phonethip Thammalath	Acting Head of RMF's Secretary	Member
6	Mr. Bounpheng Boudoudone	Representative of DOT	Member
7	Mr. Sarackchai Thongkeo	Representative of DPC	Member
8	Mr. Somkhit Kamahouang	Representative of DIC/MPI	Member
9	Mr. Chanthavangso Oudomdeth	Head division of PTI	Member
10	Mr. Laythong Phommavong	Project coordinator/DOR	Member
11	Mr. Phonephana Phrommala	Deputy Director of TD/DOR	Member
12	Mr. Souvanh Sengchamphone	Project coordinator of DPWT Savannakhet	Member
13	Mr. Korrakan Phimpanhak	Project coordinator of DPWT Vientiane	Member

EOJ/JICA

1	Mr. Koichi Takei	Chief Representative, JICA Laos Office	Member
2	Ms. Akiko Kishiue	Representative, JICA Laos Office	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Member
2	Mr. Hiroshi Ueda	Road Maintenance Expert	Member
3	Mr. Olivier de Peyrelongue	System Management Expert	Member

Project Design Matrix (PDM) Ver. 2.1
Project Title: The Project for Improvement of Road Maintenance Capability in Lao PDR
Term: September 2011 – September 2016
Target Group: DOR, PTI, DPWT, PTTC
Target Area: Pilot Provinces (Vientiane and Savannakhet) for On-the-Job Training (OJT), All Provinces for dissemination of technical manuals

Date: 12 Jan, 2015

Narrative Summary	Objectively verifiable indicators	Means of verifications	Important assumptions
Overall goad: 1. Roads and bridges in Laos are properly maintained.	1. RMS/PRoMMS are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of road is decreased and annual maintenance distance of road is increased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMMs 3. Records of road/bridge inspection/maintenance	Required budget for the planned activities based on the analysis result(s) by RMS/PRoMMs is allocated.
Project Purpose: 1. Roads and bridges in the pilot provinces are properly maintained.	1. RMS/PRoMMS in the pilot provinces are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan in the pilot provinces is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of pilot provincial road is decreased and annual maintenance distance of pilot provincial road is increased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance in the pilot provinces 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMM in pilot provinces 3. Record of road/bridge inspection/maintenance in pilot provinces	The Lao government policy on road and bridge sector remains consistent.

Outputs: 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.	1-1. Technical Capacity of more than 80% of RMS/PRoMMS operation officers in PTI is certified as 'Level 5'. 1-2. Technical capacity of at least one PRoMMS operation officer in each DPWT is certified as 'Level 3'. 1-3. Data in RMS/PRoMMS is up to date at the time of planning . 2-1. Technical manuals prepared in the Project are approved by concerned authorities. 2-2. Approved technical manuals are disseminated to officers and local contracts that are responsible for maintenance works across the country. . 3-1. More than 80% of maintenance officers of DPWT in the pilot provinces and DOR participate in seminars/workshops/trainings conducted under the Project. 3-2. Technical capacity of 5** maintenance officers in DOR/PTTC is certified as 'Level 5'. 3-3. Technical capacity of more than 80% of maintenance officers in DOR/DPWT who participated in the training programs conducted in the Project and are responsible for the pilot provinces is certified as 'Level 3'.	1-1. Record of Self-Assessment and examination cleared by the JCC 1-2. Record of Self-Assessment and examination cleared by the JCC 2-1. Approved technical manuals 2-2. Record of dissemination activities 3-1. Report of the training program 3-2. Record of examination 3-3. –Ditto–	• Trained officers continue to work in the area of expertise s/he is trained under the Project. • In case where counterparts or trained officers are promoted or reassigned, proper turn over and replacement will be done by MPWT at earliest possible. • MPWT Central Office adopts the manuals prepared by the Project without delay. • Budget for routine maintenance is secured.
1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.	**Inputs:** 1. Japanese side 1-1. Dispatch of Japanese Expert • Team Leader/Road Management Expert • Deputy Team Leader/Construction Management Expert • Road Maintenance Expert • Bridge Maintenance Expert • Contract Management Expert • System Management Expert		• Lao government makes necessary arrangement for setting up an institutional framework for road maintenance. • Lao government allocates budget for the project without any major delay. • Project sites for the OJT in provincial offices are secured.

1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	• Human Resource Development Expert/Project Coordinator • Road Disaster Management Expert • Natural Condition Expert • Road Planning Expert • Road Design Expert 1-2. Equipment/materials for training and pilot project 1-3. Counterpart training in Japan/third country 2. Lao side 2-1. Arrangement of counterpart personnel: PTI, DOR, DPWT, PTTC 2-2. Provision of facilities and equipment for the project implementation 2-3. Other necessary budget for the project implementation (e.g., O&M cost for RMS/PRoMMS, initial and operation cost for procured maintenance equipments and routine maintenance in the pilot provinces, O&M cost for road maintenance unit.)		• Assignments for counterparts (PTI, DOR, DPWT) are approved by MPWT.

Note1: The following criteria are used to assess the technical capacity level of local officers under the Project:
Level 1: I cannot or do not know how to achieve the results even with support provided by other skilled staff members/manuals.
Level 2: I can or know how to achieve the results with fully support provided by other skilled staff members /manuals.
Level 3: I can or know how to achieve the results with occasionally or proper support by skilled staff members/manuals.
Level 4: I can or know how to achieve the results without any support /manuals.
Level 5: I am able to train other staff members.

Note2: 4 project managers of Regional Office and 1 PTTC officer, totaling to 5 officers

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED
OF THE GOVERNMENT OF THE LAO PEOPLE'S DEMOCRATIC REPUBLIC
FOR AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY IN LAO PEOPLE'S DEMOCRATIC REPUBLIC

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Public Works and Transport (hereinafter referred to as "MPWT") hereby agree that the Record of Discussions on the Project for Improvement of Road Management Capability signed on July 22nd, 2011 is amended as follows;

1. Term of Cooperation

Before	Amended Version
IX. TERM OF COOPERATION The duration of the technical cooperation for the Project under this Attached Document will be five (5) years from the commencement of the Project.	IX. TERM OF COOPERATION The duration of the technical cooperation for the Project under this Attached Document will be six (6) years from the commencement of the Project.
Reason: The government of Laos requested JICA to provide a technical assistance to enhance capability for over-loading control through preparation of operational guideline and reinstallation of weigh station in the pilot province. Both parties confirmed that these additional activities, described in the revised PDM (PDM ver 3.1), are critically important to enhance the capacity for over-loading control in this project so that the overall goal and project purpose are absolutely achieved.	

2. Narrative Summary

Before[1]	Amended Version
ANNEX I MASTER PLAN III. Outputs 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of DOR/DPWT officers who	ANNEX I MASTER PLAN III. Outputs 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of DOR/DPWT officers who

[1] Several PDM modifications were approved in the 1st JCC on January 20th 2012 and in the 6th JCC on January 23rd 2015. These modifications have been already reflected.

are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.	are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced. 4. Capacity of DOT/DPWT officers for over-loading control in the pilot province(s) is enhanced.
VI. Activities 1. Activities for Output 1 1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2. Activities for Output 2 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3. Activities for Output 3 3-1. Review current situation and obtain	VI. Activities 1. Activities for Output 1 1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2. Activities for Output 2 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3. Activities for Output 3 3-1. Review current situation and obtain

baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works. 4. Activities for Output 4 4-1. Review current institutional framework for overloading control and suggest approaches to address institutional issues to develop sustainable overloading control. 4-2. Design, procure and install weigh bridge at one location along National Road No.9. 4-3. Develop operational manual(s) and conduct on-the-job training (OJT) for overloading control in the pilot province. 4-4. Develop regular check – reporting system and legal framework for strict enforcement on overloading control in the pilot province. 4-5. Disseminate the activities (4.1 to 4.4) to private trucking companies/forwarders/major shippers. 4-6. Assess progress of the activities and

	evaluate institutional capabilities for overloading control.
Reason: Same with the reason for "1. Term of Cooperation".	

3. Japanese Experts

Before[2]	Amended Version
ANNEX II LIST OF JAPANESE EXPERTS a) Team Leader/Road Management Expert b) Deputy Team Leader/Construction Management Expert c) Road Maintenance Expert d) Bridge Maintenance Expert e) Contract Management Expert f) System Management Expert g) Human Resource Development Expert/Project Coordinator h) Road Disaster Management Expert i) Natural Condition Expert j) Road Planning Expert k) Road Design Expert	ANNEX II LIST OF JAPANESE EXPERTS a) Team Leader/Road Management Expert b) Deputy Team Leader/Construction Management Expert c) Road Maintenance Expert d) Bridge Maintenance Expert e) Contract Management Expert f) System Management Expert g) Human Resource Development Expert/Project Coordinator h) Road Disaster Management Expert i) Natural Condition Expert j) Road Planning Expert k) Road Design Expert l) Equipment (Weigh Bridge / IT) Specialist
Reason: Same with the reason for "1. Term of Cooperation".	

4. Equipment

Before	Amended Version
ANNEX III LIST OF MACHINERY AND EQUIPMENT 1) Equipment for road inspection 2) Equipment for routine maintenance work	ANNEX III LIST OF MACHINERY AND EQUIPMENT 1) Equipment for road inspection 2) Equipment for routine maintenance work 3) Weigh Bridge(s)
Reason: Same with the reason for "1. Term of Cooperation".	

5. Counterpart

Before	Amended Version
ANNEX IV LIST OF LAO COUNTERPART AND ADMINISTRATIVE	ANNEX IV LIST OF LAO COUNTERPART AND ADMINISTRATIVE

[2] Several PDM modifications were approved in the 1st JCC on January 20th, 2012 and in the 6th JCC on January 23rd, 2015. These modifications have been already reflected.

PERSONNEL

Activities	Counter part
1. Maintenance planning ability for road and bridge maintenance is enhanced.	
1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities.	PTI
2. Technical manuals for road/bridge maintenance are prepared.	
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.	DOR
3. Capability of DOR/DPWT officers who are responsible for physical road/bridge	

PERSONNEL

Activities	Counter part
1. Maintenance planning ability for road and bridge maintenance is enhanced.	
1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities.	PTI
2. Technical manuals for road/bridge maintenance are prepared.	
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.	DOR
3. Capability of DOR/DPWT officers who are responsible for physical road/bridge	

maintenance work in the pilot provinces is enhanced.	
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	DPWT

maintenance work in the pilot provinces is enhanced.	
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	DPWT
4. Capacity of DOT/DPWT officers for over-loading control in the pilot province(s) is enhanced.	
4-1. Review current institutional framework for overloading control and suggest approaches to address institutional issues to develop sustainable overloading control. 4-2. Design, procure and install weigh bridge at one location along National Road No.9. 4-3. Develop operational manual(s) and conduct on-	DOT

	the-job training (OJT) for overloading control in the pilot province. 4-4. Develop regular check – reporting system and legal framework for strict enforcement on overloading control in the pilot province. 4-5. Disseminate the activities (4.1 to 4.4) to private trucking companies/forwarders/major shippers. 4-6. Assess progress of the activities and evaluate institutional capabilities for overloading control.		
Reason: Same with the reason for "1. Term of Cooperation".			

6. Joint Coordinating Committee

Before	Amended Version
ANNEX VI JOINT COORDINATING COMMITTEE 2. Chairperson and Members (2) Members from the Lao side - Project Manager: Representative of DOR - Director General of PTI, MPWT - Director of DPWT in Vientiane Province and Savannakhet Province - Director of Division of Cooperation, Department of Planning and Cooperation, MPWT - Department of International Cooperation, Ministry of Planning and Investment	ANNEX VI JOINT COORDINATING COMMITTEE 4) Chairperson and Members (2) Members from the Lao side - Project Manager: Deputy Director General of DOR, MPWT - Deputy Director General of Department of Transport, MPWT - Director General of PTI, MPWT - Director of DPWT in Vientiane Province and Savannakhet Province - Director of Division of Cooperation, Department of Planning and Cooperation, MPWT - Department of International Cooperation, Ministry of Planning and Investment
Reason: Same with the reason for "1. Term of Cooperation".	

This amendment becomes effective as of November 13th, 2015.

Annex 1 : Record of Discussions (signed on July 22nd, 2011)
Annex 2 : M/M of the 1st JCC (signed on January 20th, 2012)
Annex 3 : M/M of the 6th JCC (signed on January 23rd, 2015)
Annex 4 : PDM ver 3.1

Vientiane, November 13th, 2015

Mr. Yusuke Murakami
Chief Representative
Laos Office
Japan International Cooperation Agency

Mr. Pheng Douangnegeun
Director General
Department of Roads
Ministry of Public Works and Transport

Mr Viengsavath Siphandone
Director General
Department of Transport
Ministry of Public Works and Transport

RECORD OF DISCUSSIONS
BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE LAO PEOOLE'S DEMOCRATIC REPUBLIC ON JAPANESE TECHNICAL COOPERATION FOR THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY

The Japanese Detailed Planning Survey Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Yoshiharu Yoneyama, visited the Lao People's Democratic Republic (hereinafter referred to as "Lao P.D.R.") from January 31, 2011 to February 4, 2011 for the purpose of working out the details of the technical cooperation program concerning the Project in the Lao P.D.R..

During its stay in the Lao P.D.R., the Team exchanged views and had a series of discussions with the Lao authorities concerned, particular the Ministry of Public Works and Transport (hereinafter refereed to as "MPWT"), with respect to desirable measures to be taken by JICA and the Government of the Lao P.D.R. for the successful implementation of the above-mentioned Project.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of the Lao P.D.R., signed in Tokyo on December 12, 2003 (hereinafter referred to as "the Agreement"), the Team and the Lao authorities concerned agreed on the matters referred to in the document attached hereto.

Vientiane, 22nd July, 2011

Mr. Masato TOGAWA
Chief Representative
JICA Laos Office

for Mr. Laokham SOMPHETH
Director General
Department of Roads
MPWT

Ms. Villaykham PHOSALATH
Director General
Public Works and Transport Institute
MPWT

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF THE LAO P.D.R.

1. The Government of the P.D.R., represented by MPWT will implement the Project for Improvement of Road Management Capability (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article of the Agreement, JICA, as the executing agency for technical cooperation by the Government of JAPAN, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
   JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article V of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
   JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article VII of the Agreement will be applied to the Equipment.

3. TRAINING OF LAO PERSONNEL IN JAPAN
   JICA will receive the Lao personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE LAO P.D.R.

1. The Government of the Lao P.D.R. in particular MPWT will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of the Lao P.D.R. in particular MPWT will ensure that the technologies and knowledge acquired by the Lao nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of the Lao P.D.R..

3. In accordance with the provisions of Article V of the Agreement, the Government of the Lao P.D.R. will grant in the Lao P.D.R. privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

4. In accordance with the provisions of Article VII of the Agreement, the Government of the Lao P.D.R. in particular MPWT will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

5. The Government of the Lao P.D.R. in particular MPWT will take necessary measures to ensure that the knowledge and experience acquired by the Lao personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

6. In accordance with the provision of Article V of the Agreement, the Government of the Lao P.D.R. in particular MPWT will provide the services of the Lao counterpart personnel and administrative personnel as listed in Annex IV.

7. In accordance with the provision of Article V of the Agreement, the Government of the Lao P.D.R. in particular MPWT will provide the buildings and facilities as listed in Annex V.

8. In accordance with the laws and regulations in force in the Lao P.D.R., the Government of the Lao P.D.R. in particular MPWT will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.

9. In accordance with the laws and regulations in force in the Lao P.D.R., the Government of the Lao P.D.R. in particular MPWT will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Director General of Department of Roads, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. Representative of Department of Roads, as the Project Manager, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Team Leader will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to the Lao counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Lao authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI of the Agreement, the Government of the Lao P.D.R. undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Lao P.D.R. except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of the Lao P.D.R. in particular MPWT on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Lao P.D.R., the Government of the Lao P.D.R. will take appropriate measures to make the Project widely known to the people of the Lao P.D.R..

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be five (5) years from the dispatch of first expert from Japan.

ANNEX I	MASTER PLAN
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF MACHINERY AND EQUIPMENT
ANNEX IV	LIST OF THE LAO COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX V	LIST OF BUILDINGS AND FACILITIES
ANNEX VI	JOINT COORDINATING COMMITTEE

ANNEX I

MASTER PLAN

I. Overall Goal

1. Roads and Bridges in Lao nationwide will be properly maintained based on the lesson learnt of the Project

II. Project Purpose

1. Roads and Bridges in the pilot provinces* will be properly maintained

*Pilot provinces are Vientiane Province and Savannakhet Province

III. Outputs

1. Planning ability for road and bridge maintenance is enhanced
2. Technical manuals for road/bridge maintenance are improved
3. Capability of DPWT engineers in the pilot provinces are enhanced

VI. Activities

1. Activities for Output 1
   - 1-1 Improvement of RMS & PRoMMS and database update through the trial run in the pilot provinces
   - 1-2 Draft of road maintenance budget plan in the pilot provinces using RMS and PRoMMS.
   - 1-3 Conduct on the job training for maintenance budget plan and database update of RMS and PRoMMS
2. Activities for Output 2
   - 2-1. Technical manual to be developed, such as Road/Bridge Repair Manual and Road/Bridge Maintenance Patrol Guideline, are prepared.
   - 2-2. Existing technical manual to be improved, such as Condition Manual and Inventory Manual are reviewed and revised.
   - 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance.
3. Activities for Output 3
   - 3-1. Conduct on the job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, such as inspection, small repair and quality control, and formulate training plan and follow-up scheme for Central Office and Provincial Offices.
   - 3-2. Evaluate OJT on routine maintenance work and improve training modules and training programs.
   - 3-3. Develop the procedures to conduct OJT on routine maintenance work as an official function of MPWT.
   - 3-4. Conduct Pilot Project on repair work for Supervising and Quality Control of Asphalt concrete pavement in Savannakhet province.

ANNEX II

LIST OF JAPANESE EXPERTS

For the effective and successful implementation of the Project, following Japanese Experts will be assigned.

a) Chief Adviser/ Maintenance Management Specialist
b) Road Maintenance Engineer
c) Bridge Maintenance Engineer
d) Maintenance Work Supervision Engineer
e) Database Engineer

Other experts necessary for effective implementation of the Project will be discussed in the Project.

ANNEX III

LIST OF MACHINERY AND EQUIPMENT

Machinery and equipment necessary for the implementation of the Project will be provided by JICA within budgetary limitations. The list of machinery will be prepared in the Project with collaboration of the Experts and counterparts.
Also, input of necessary machinery and equipment will be added through mutual consultation throughout the Project, though it is subject to JICA's budgetary constraint.

1) Equipment for road inspection
2) Equipment for routine maintenance work

ANNEX IV

LIST OF THE LAO COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Project Director
   - Director General of Department of Roads will be assigned as the Project Director.
2. Project Manager
   - Representative of Department of Roads will be assigned as the Project Manager.
3. Counterpart Personnel
   - Counterpart Personnel will be assigned from relevant organization as shown in the following chart.

Activities	Counter part
1. Planning ability for road and bridge maintenance is enhanced.	
1-1 Improvement of RMS & PRoMMS and database update through the trial run in the pilot provinces 1-2 Draft of road maintenance budget plan in the pilot provinces using RMS and PRoMMS. 1-3 Conduct on the job training for maintenance budget plan and database update of RMS and PRoMMS	PTI
2. Technical manuals for road/bridge maintenance are improved.	
2-1. Technical manual to be developed, such as Road/Bridge Repair Manual and Road/Bridge Maintenance Patrol Guideline, are prepared. 2-2. Existing technical manual to be improved, such as Condition Manual and Inventory Manual are reviewed and revised. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance.	DoR
3. Capacity of DPWT engineers in the pilot provinces are enhanced	
3-1. Conduct on the job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, such as inspection, small repair and quality control, and formulate training plan and follow-up scheme for Central Office and Provincial Offices. 3-2. Evaluate OJT on routine maintenance work and improve training modules and training programs. 3-3. Develop the procedures to conduct OJT on routine maintenance work as an official function of MPWT. 3-4. Conduct Pilot Project on repair work for Supervising and Quality Control of Asphalt concrete pavement in Savannakhet province.	DPWT

PTI: Public Works and Transport Institute
DOR: Department of Roads
DPWT: Department of Public Works and Transport in Vientiane Province and Savannakhet Province

ANNEX V

LIST OF BUILDINGS AND FACILITIES

1. Project team office at DoR of MPWT and DPWT in the pilot provinces
2. Office furniture
3. Communication facility

ANNEX VI

JOINT COORDINATING COMMITTEE

1. Function

The Joint Coordinating Committee will meet at least once a year and whenever the necessity arises, in order to fulfill the following functions;

(1). To discuss and approve the annual work plan of the Project based on the approved annual budget in line with the Tentative Schedule of the Implementation formed under the framework of the Record of Discussion;

(2). To review the overall progress and annual expenditure of the Project as well as the achievement of the Annual Work Plan mentioned above; and

(3). To review and exchange views on major issues arising from or in connection with the Project.

2. Chairperson and Members

(1). Chairperson

- Project Director: Director General of DOR

(2). Members from the Lao side

- Project Manager: Representative of DOR
- Counterpart Personnel
- Director General of PTI, MPWT
- Director of DPWT in Vientiane Province and Savannakhet Province
- Director of Division of Cooperation, Department of Planning and Cooperation, MPWT
- Department of International Cooperation, Ministry of Planning and Investment

(3). Member of the Japanese side

- Japanese experts
- Chief Representative, JICA Lao Office
- Personnel concerned to be decided by the Japanese side

(4). Others

- Officials of Embassy of Japan may attend the JCC meeting as observers.
- Persons who are invited by the Chairperson may attend the JCC meeting as observers.

MINUTES OF MEETING
OF
1ST JOINT COORDINATING COMMITTEE
ON
WORK PLAN
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA LAOS OFFICE

Vientiane, 20th January, 2012

Mr. Litta Khattiya	Mr. Kiminari Takahashi
Deputy Director General,	Team Leader,
Department of Roads	JICA Expert Team

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the JICA Expert Team") on 21st September 2011, to kickoff the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the Project").

At the initial stage of the Project, the JICA Expert Team conducted current situation survey and training needs survey to understand current conditions on maintenance planning and physical maintenance works and identify issues and training needs on the same subjects. The JICA Expert Team prepared the Work Plan, which demonstrates a background of the Project, revised PDM (Project Design Matrix), planning issues, approaches and methodology of the Project, and project implementation plan.

2. Submission of Work Plan

Prior to the 1st Joint Coordinating Committee (hereinafter referred to as "JCC"), JICA Expert Team submitted 15 copies of the Work Plan to the MPWT (Ministry of Public Works and Transport) on 13th January, 2012 and briefed major contents of the report to the counterpart agencies, including DOR (Department of Roads), PTI (Public Works and Transport Institute) and PTTC (Public Works and Transport Training Center).

3. Opening Remarks

On behalf of the MPWT, Mr. Litta Khattiya, a chairperson of the 1st JCC, welcomed all participants in the meeting. Mr. Khattiya made opening remakes, briefing the background of the Project, and the 1st JCC started at 9:00 AM. Participants of the meeting are listed in the attachment 1.

4. Welcome Remarks

Following the opening remarks, Mr. Masato Togawa made welcome remarks, briefing the progress of two procurements; (i) procurement of maintenance vehicles and (ii) pilot project of road repairing works along the National Road No.9, and pointing out that tenders for those two procurements were completed and contracts of the procurements were already signed between JICA Laos Office and awarded supplier/contractor. Mr. Togawa also thanked the MPWT for provision of full cooperation extended to the JICA Expert Team for smooth implementation of the Project.

5. Presentation by JICA Expert Team

Mr. Kiminari Takahashi, Team Leader of the JICA Expert Team, made a presentation of the Work Plan, highlighting the following bullet points:

- Confirmation of minutes of previous meeting and actions taken

- Revision of PDM
- Planning issues, approach and methodology
- Project implementation plan
- Progress of the Project

6. Comments on the Inception Report

After the presentation of the Work Plan, members of the JCC were requested to ask questions and provide comments. As a result, all the participants agreed with overall project approach, methodology and implementation plan, including revised PDM, proposed during the presentation by the JICA Expert Team, with the following comments and suggestions:

- The implementation schedule of the Project needs to be further explained by the Expert Team, in order that the DPWT timely responds to take necessary actions for implementation of the Project. (Director, DPWT Vientiane)
- Necessary actions, which the DPWT should take prior to the implementation of the OJT, should be listed and explained by the Expert Team. (Director, DPWT Vientiane)
- Additional maintenance vehicles, including mobile mixer, might be necessary for the implementation of the Project and procurement of these additional vehicles should be considered by the Expert Team (DIC, MPI). Also, additional maintenance materials, including hot-mixed asphalt, should be procured through the Project (Director, DPWT Savannakhet).
- The results of current situation survey and training needs survey are very comprehensive and useful and methods of these surveys can be applied to the other exercises in which the MPI is engaged. The MPI would like to send the staff to participate in the training provided throughout the Project (DIC, MPI).
- Both security and operation cost for maintenance equipments and vehicles should be secured to ensure sustainability of the Project. Otherwise, those equipments procured through the Project cannot be sustainably utilized (Director, DPWT Vientiane)
- There remains financial issue in establishment of the maintenance unit. For instance, a current system does not allow part of the Road Maintenance Fund to direct to the force account at the province (Deputy Director General, DOR).
- Setup of the maintenance unit should be carefully studied, referring to experiences and lessons learnt from the Department of Highway in Thailand, where routine maintenance is carried out by the force account (Director, DPWT Savannakhet)
- The number of claims and complains the province receives against deteriorated road condition is increasing. The reason behind is non-prompt actions for rehabilitation and maintenance

works taken by local contractors (Deputy Director, DPWT Savannakhet).

- Establishment of the maintenance unit, as part of new institutional setup, is essential to accomplish 'early inspection and early maintenance' which significantly contributes to prolonging the life of the pavement and reduction in maintenance and rehabilitations cost borne in the project life (Deputy Director General, DOR).
- The maintenance unit should be established in the DPWT and execute only daily routine maintenance works (Deputy Director, DPWT Savannakhet).
- The establishment of maintenance unit should be further studied and optimum structure and necessary inputs for its establishment should be proposed by the Expert Team (Director, DPWT Vientiane). Also, the possible outcomes generated from the maintenance unit should be identified and presented by the Expert Team (Deputy Director, DPWT Savannakhet).
- The proposal that the PTTC can be the focal point of all the training activities, as suggested by the Expert Team, is good. The Expert Team should confirm their participation in the Project through further discussions to the PTTC and KfW (Deputy Director General, DOR).
- The progress of the Project and roles of the member agencies should be detailed and reported by the Expert Team. So, the DPWT can report the progress to the Provincial Governor (Director, DPWT Vientiane).
- All expenses borne by Lao Government for implementation of the Project should be listed in the budget plan. The budget plan should be approved before every September (DIC, MPI).
- Present Road Maintenance Fund might have sufficient amount of maintenance budget to cover routine maintenance by the force account. Any related law or regulation should be reviewed and revised, if necessary (JICA Expert, MPWT).
- The estimated cost for routine maintenance by the Expert Team should be reviewed and revised, referring to the unit costs prepared by the Ministry of Finance. The Project Coordinator was requested to work to prepare the cost estimates at earliest timing (Deputy Director General, DOR).
- When necessary, JICA Laos Office can meet high-ranking officers to discuss and confirm the cooperation necessary for implementation of the Project (Chief Representative, JICA Laos Office).
- The Project Coordinator was requested to prepare a brief progress report, including conceptual plan for establishment of the maintenance unit at earliest timing and present it to the Minister (Deputy Director General, DOR).

In response to comments raised by participants of the meeting, the JICA Expert Team responded as summarized below:

- The actual implantation of the 1st OJT will be commenced around September or October, 2012. The detailed tasks and schedule for implementation of the OJT will be listed and prepared at earliest timing by the Expert Team.
- The equipments procured through the Project will be utilized for routine maintenance works including small repair works. Some equipments, like mobile mixer, proposed by the members, are not required for the Project, since cold-mixed asphalt material is used for the repair work such as patching of potholes.
- The result of preliminary cost estimate found the cost borne by Lao Government for setting up new maintenance unit at the DPWT ranges between 40,000 USD and 70,000 USD per year per province. Considering the revenue and expenses of the Road Maintenance Fund, these figures were found available. The issues still remain where the current regulation and system of the Maintenance Fund do not allow to inject the force account.
- The Expert Team together with the counterparts will organize regular meetings to invite members of the Technical Working Group to further discuss optimum structure of the maintenance unit and possible financial sources to cover expenses for operation of the unit.

7. Closing Remarks

Mr. Litta Khattiya appreciated constructive comments and suggestions made by the participants to the Project and closed the 1st JCC at 11:00 AM.

ATTACHMENT 1

Attendees of the 1st JCC are listed below.

PARTICIPANTS

1	Mr. Litta Khattiya	Deputy Director General, Dept. of Roads	Chairperson
2	Ms. Vanpheng Sengmanithong	Director of International Cooperation, MPI	Member
3	Dr. Sengthong Vangkeomany	Director of DPWT Savannakhet	Member
4	Mr. Thenekham Thongbonh	Director of DPWT Vientiane	Member
5	Mr. Ngampasong Muongmany	Deputy Director of DPWT Savanakhet	Member
6	Mr. Khamphet Inthideth	Deputy Director General, PTI	Member
7	Mrs. Khanthaly Vongnalath	Deputy Director Department of International Cooperation, MPWT	Member
8	Mr. Noriyuki Mori	JICA Expert	Member
9	Mr. Phitsaphonh Philavong	Project Coordinator	Member

EOJ/JICA

1	Mr. Masato Togawa	Chief Representative	Member
2	Ms. Yoko Hattori	JICA Representative	Member
3	Ms. Monlatda Chanthavong	APO, JICA Laos	Member
4	Mr. Masahiko Mitsumoto	First Secretary, Embassy of Japan	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Invited
2	Mr. Masataka Fujikuma	Deputy Team Leader/Construction Management Expert	Invited
3	Mr. Hiroaki Kobayashi	Road Maintenance Expert	Invited
4	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Invited

Project Design Matrix (PDM) Ver. 1
Project Title: The Project for Improvement of Road Maintenance Capability in Lao PDR
Project Site: Lao PDR
Term: September, 2011 – September, 2016
Target Group: DoR, PTI, DPWT

Date: 4th Jan, 2012

Narrative Summary	Objectively verifiable indicators	Means of verifications	Important assumptions
Overall goad: 1. Roads and bridges in Laos will be properly maintained.	1. RMS/PRoMMS are properly improved and updated. 2. Maintenance budget plan is prepared, following analysis by RMS/PRoMMS. 3. Annual damaged distance of road is decreased and annual maintenance distance of road is increased.	1. Changes in budget for road maintenance. 2. Records of road/bridge inspection/maintenance	The budget for the activities is allocated.
Project Purpose: 1. Roads and bridges in the pilot provinces will be properly maintained.	1. RMS/PRoMMS in the pilot provinces are properly improved and updated. 2. Maintenance budget plan in the pilot provinces is prepared, following analysis by RMS/PRoMMS. 3. Annual damaged distance of pilot provincial road is decreased and annual maintenance distance of pilot provincial road is increased.	1. Changes in budget for road maintenance. 2. Record of road/bridge inspection/maintenance	Lao government policy on road and bridge sector remains consistent.
Outputs: 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.	1-1. RMS/PRoMMS operation engineers (60) are secured. 1-2. RMS/PRoMMS are properly improved and updated in the pilot provinces. 2-1. Revised/developed technical manuals are disseminated for actual maintenance works. 2-2. Damaged area (100 points/year) are repaired using technical manuals in pilot provinces. 3-1. All maintenance engineers of DPWT, DOR, PTI participate the technical training and over 80% of training participants pass the post training examination. 3-2. Road maintenance unit is newly formed with charter of operations in the pilot provinces.	1-1. Data update record 1-2. Data of DOR (record of budget proposal and allocation) 2-1. Number of manuals distributed to engineers 2-2. Number of damaged area repaired 3-1. (1) Report of the training program, (2) Record of examination 3-2. Progress report on road maintenance unit	• Trained engineers continue to work. • In case where counterparts or trained engineers are promoted or reassigned, proper turn over and replacement will be done by MPWT. • MPWT Central Office adopts the manuals without delay. • Budget for routine maintenance is secured.

1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	**Inputs:** 1. Japanese side 1-1. Dispatch of Japanese Expert • Team Leader/Road Management Expert • Deputy Team Leader/Construction Management Expert • Road Maintenance Expert • Bridge Maintenance Expert • Contract Management Expert • System Management Expert • Human Resource Development Expert/Project Coordinator 1-2. Equipment/materials for training and pilot project 1-3. Counterpart training in Japan 2. Lao side 2-1. Arrangement of counterpart personnel: Public Works and Transport Institute (PTI), Department of Roads (DOR), Department of Public Works and Transport (DPWT) 2-2. Provision of facilities and equipment for the project implementation 2-3. Other necessary budget for the project implementation (e.g., O&M cost for RMS/PRoMMS, initial and operation cost for procured maintenance equipments and routine maintenance in the pilot provinces, O&M cost for road maintenance unit.)		• Lao government makes necessary arrangement for setting up an institutional framework for road maintenance. • Lao government allocates budget for the project without any major delay. • Project sites for the OJT in provincial offices are secured. • Assignment for counterparts (PTI, DOR, DPWT) are approved by MPWT.

Activities	2011				2012												2013												2014												2015												2016								
	9	#	#	#	1	2	3	4	5	6	7	8	9	#	#	#	1	2	3	4	5	6	7	8	9	#	#	#	1	2	3	4	5	6	7	8	9	#	#	#	1	2	3	4	5	6	7	8	9	#	#	#	1	2	3	4	5	6	7	8	9
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3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.																																																										

Appendix 10

MINUTES OF MEETING
OF
6TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC (PHASE 2)

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT

AND

JICA LAOS OFFICE

Vientiane, 23rd January, 2015

Mr. Ngampasong Muongmany
Deputy Director General,
Department of Roads

Mr. Koichi Takei
Chief Representative,
JICA Laos Office

Mr. Kiminari Takahashi
Team Leader,
JICA Expert Team

- Project background
- Issues arising and actions taken
- Revisit of Phase 1 Project
- Project outline – Draft Project Design Matrix
- Project implementation plan

6. Issues arising to be addressed during the Phase 2

Mr. Chanthavangso Oudomdeth (System improvement), Mr. Laythong Phommavong (Preparation of technical manuals) and Mr. Souvanh Sengchamphone (Pilot project) made presentations on each project activity. The following issues were raised in the meeting and suggested to be addressed during the course of the Phase 2 Project.

i. System improvement

For the improvement of RMS, (i) Update of unit cost/ VOC/ time value, (ii) Update of road administration data (by DOR/TED), (iii) Improvement of exporting/importing data (e.g., GIS format), (iv) Improvement of reporting system (e.g., time-series chart), (v) Improvement of data check function, (vi) Improvement of data collection method (e.g., tablet-based data collection).

For the implement of PRoMMS, (i) Improvement of data check function.

Others include (i) Development of GIS based road network data (by DOR/PTI) and (ii) Training for HDM-4.

i. Technical manual

For the Technical Manuals, (i) Compatibility with MAC code, (ii) Inspection result as input for RMS/PRoMMS, (iii) Translate part of manual (inspection /evaluation form, BOQ) into DOR's templates (i.e., bidding document, specification, contract and payment approval documents), and (iv) Monitoring and feedback of Manual Version-01 for its finalization.

For PBC, (i) Continuous technical workshops required and (ii) Monitoring and evaluation of revised PBC for further revision.

ii. Pilot project and OJT

For pilot project and OJT, (i) Maintenance work along other sections of the NR-9 (ii) Proper institutional set-up and technical transfer, including proposed maintenance unit, in line with on-going re-organization of DOR, (iii) Procurement of equipment for routine/periodic maintenance (e.g., mobile asphalt mixing plant, tamper, inspection equipment, etc.) and (iv) Absence of pilot project in Vientiane Province (e.g., slope maintenance, bridge maintenance, PBC)

7. **Comments on the Work Plan (2)**

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL Experts and counterparts responded these comments, and discussions and agreements during the meeting are summarized below.

- It was reported that a task force was formed by the Minister for MPWT to review the revenue and expenditure of the RMF and proposed to increase the fuel levy from 420 Kip/litter to 520 Kip/litter in the MPWT Annual Meeting held in January, 2015. The Minister approved the increase of the fuel levy and sent the request to the PM office for review and agreed by concerned Ministries. (DDG of DOR)
- It was requested that the DOR needs technical assistance from JICA, especially for design approval and supervision of the on-going maintenance work along the National Road No.9, since the maintenance work is to continue until 2017 whereas the CaRoL project is to come to end by 2016. (DDG of DOR)
- It was also reported that a task force also suggested to introduce other sources of revenue to be included in the RMF, including toll roads and road safety levy (such as alcohol tax). (Representative of RMFB)
- It was reported that the reinstallation of 29 weigh bridges across the country was discussed during the MPWT Annual Meeting held in January, 2015. It was agreed during the meeting that up-to-date weigh station would be built in 3 pilot provinces including that along the NR-9. (Representative of DOT) It was informed that the weigh station at KM 65 along the NR-9 should be equipped with the digital weigh scale and CCTV camera. (Director of DPWT Savannakhet)
- It was informed that JICA will dispatch a preparatory survey mission on the replacement of the bridges along the NR-9 in April, 2015. A sub-component of the bridge replacement project is still unknown but might not include the reinstallation of weigh station along the NR-9. Justification of the sub-component project and strong commitment of operation and enforcement of weigh control must be shown to the preparatory survey mission to include the sub-component project. (Chief Representative of JICA)
- It was informed that mandate of Regional Road Maintenance Project Office under DOR was discussed during the MPWT Annual Meeting held in January, 2015 and the Minister advised the DOR to define the responsibilities and duties among the DOR/Regional Road Maintenance Project Office/DPWTs, following the Sam Sang policy. Decision on mandate has not yet been made and the discussion is still undergoing. (DDG of DOR)
- It was informed that the budget for the pilot project in Vientiane is not included in the 2014/15 budget plan of the DOR. Thus, the DPWT Vientiane requested the JICA to consider to set aside the fund for implementation of the pilot project in Vientiane (Director of DPWT

Vientiane) It was suggested that JICA Laos Office discuss with JICA HQ if it is possible to provide the funds for the pilot project in Vientiane Province. (Chief Representative of JICA)

- It was suggested that the technical manual, prepared during the Phase 1 Project, should be utilized through the OJT and pilot project during the course of the Phase 2 Project and the result should be feed-backed for its finalization. (Director of DPWT Vientiane)
- It was requested that the designated road section along the NR-9 should be properly maintained to allow the VIPs to access to the handover ceremony of the Grant Aid Project. (Chief Representative of JICA) It was agreed that the DPWT Savannakhet will be responsible for maintaining the road in a proper condition between Seno and the location of the handover ceremony. (Director of DPWT Savannakhet)
- It was requested that the operation of the trucking companies should be properly managed since the Grand Aid Project observed that some trucks are still overloaded and sometimes spilling the oil which seriously damage the road surface condition. (Chief Representative of JICA)
- It was requested that the CaRoL Expert Team should share the training plan with the PTTC to enable the PTTC to incorporate some of the training into the PTTC's training and budget plan. (Director of PTTC)
- It was confirmed that the PTTI is fully involved in the CaRoL Project during the course of the Phase 2 Project. (Director of PTTC)
- It was suggested that the Project Director should emphasize the sustainability of the CaRoL Project and that the CaRoL Project should focus on the training to gain the technical capacity of the local staff during the course of the Phase 2 Project for sustainable road asset management. (Representative of MPI)
- It was suggested that the external trainings both in Japan and in Thailand could benefit the local staffs to gain the capacity so that the external training should continue during the Phase 2 Project (Director of DPWT Vientiane)

8. Agreement on Revised Project Design Matrix

The members of JCC discussed and confirmed that the Project Deign Matrix (PDM) ver 2.1 of which the monitoring indictors were amended, following the comments made by the Mid-term Review Mission, is relevant to monitor and evaluate the progress of the Project. The PDM ver 2.1 accordingly was accepted by the members of JCC. The PDM ver 2.1 is shown in the Attachment 2.

9. Closing Remarks

Mr. Ngampasong Muongmany appreciated the progress made by the CaRoL Expert, together with

the support by the JICA Laos Office. Mr. Ngampasong Muongmany also thanked constructive comments and suggestions made by the members to the CaRoL Project and closed the 6th JCC at 11:30 hours.

ATTACHMENT 1

Attendees of the 6th JCC are listed below.

PARTICIPANTS

1	Mr. Ngampasong Muongmany	Deputy Director General of DOR	Chairperson
2	Mr. Thenekham Thongbonh	Director of DPWT Vientiane	Member
3	Mr. Prasongsinh Chaleunsouk	Director of DPWT Savannakhet	Member
4	Mr. Siriphone Inthirath	Director of PTTC	Member
5	Mr. Phonethip Thammalath	Acting Head of RMF's Secretary	Member
6	Mr. Bounpheng Boudoudone	Representative of DOT	Member
7	Mr. Sarackchai Thongkeo	Representative of DPC	Member
8	Mr. Somkhit Kamahouang	Representative of DIC/MPI	Member
9	Mr. Chanthavangso Oudomdeth	Head division of PTI	Member
10	Mr. Laythong Phommavong	Project coordinator/DOR	Member
11	Mr. Phonephana Phrommala	Deputy Director of TD/DOR	Member
12	Mr. Souvanh Sengchamphone	Project coordinator of DPWT Savannakhet	Member
13	Mr. Korrakan Phimpanhak	Project coordinator of DPWT Vientiane	Member

EOJ/JICA

1	Mr. Koichi Takei	Chief Representative, JICA Laos Office	Member
2	Ms. Akiko Kishiue	Representative, JICA Laos Office	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader / Road Management Expert	Member
2	Mr. Hiroshi Ueda	Road Maintenance Expert	Member
3	Mr. Olivier de Peyrelongue	System Management Expert	Member

Project Design Matrix (PDM) Ver. 2.1
Project Title: The Project for Improvement of Road Maintenance Capability in Lao PDR
Term: September 2011 – September 2016
Target Group: DOR, PTI, DPWT, PTTC
Target Area: Pilot Provinces (Vientiane and Savannakhet) for On-the-Job Training (OJT), All Provinces for dissemination of technical manuals

Date: 12 Jan, 2015

Narrative Summary	Objectively verifiable indicators	Means of verifications	Important assumptions
Overall goad: 1. Roads and bridges in Laos are properly maintained.	1. RMS/PRoMMS are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of road is decreased and annual maintenance distance of road is increased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMMs 3. Records of road/bridge inspection/maintenance	Required budget for the planned activities based on the analysis result(s) by RMS/PRoMMs is allocated.
Project Purpose: 1. Roads and bridges in the pilot provinces are properly maintained.	1. RMS/PRoMMS in the pilot provinces are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan in the pilot provinces is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of pilot provincial road is decreased and annual maintenance distance of pilot provincial road is increased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance in the pilot provinces 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMM in pilot provinces 3. Record of road/bridge inspection/maintenance in pilot provinces	The Lao government policy on road and bridge sector remains consistent.

Outputs: 1. Maintenance planning ability for road and bridge maintenance is enhanced. 2. Technical manuals for road/bridge maintenance are prepared. 3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.	1-1. Technical Capacity of more than 80% of RMS/PRoMMS operation officers in PTI is certified as 'Level 5'. 1-2. Technical capacity of at least one PRoMMS operation officer in each DPWT is certified as 'Level 3'. 1-3. Data in RMS/PRoMMS is up to date at the time of planning . 2-1. Technical manuals prepared in the Project are approved by concerned authorities. 2-2. Approved technical manuals are disseminated to officers and local contracts that are responsible for maintenance works across the country. . 3-1. More than 80% of maintenance officers of DPWT in the pilot provinces and DOR participate in seminars/workshops/trainings conducted under the Project. 3-2. Technical capacity of 5** maintenance officers in DOR/PTTC is certified as 'Level 5'. 3-3. Technical capacity of more than 80% of maintenance officers in DOR/DPWT who participated in the training programs conducted in the Project and are responsible for the pilot provinces is certified as 'Level 3'.	1-1. Record of Self-Assessment and examination cleared by the JCC 1-2. Record of Self-Assessment and examination cleared by the JCC 2-1. Approved technical manuals 2-2. Record of dissemination activities 3-1. Report of the training program 3-2. Record of examination 3-3. –Ditto–	• Trained officers continue to work in the area of expertise s/he is trained under the Project. • In case where counterparts or trained officers are promoted or reassigned, proper turn over and replacement will be done by MPWT at earliest possible. • MPWT Central Office adopts the manuals prepared by the Project without delay. • Budget for routine maintenance is secured.
1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.	**Inputs:** 1. Japanese side 1-1. Dispatch of Japanese Expert • Team Leader/Road Management Expert • Deputy Team Leader/Construction Management Expert • Road Maintenance Expert • Bridge Maintenance Expert • Contract Management Expert • System Management Expert		• Lao government makes necessary arrangement for setting up an institutional framework for road maintenance. • Lao government allocates budget for the project without any major delay. • Project sites for the OJT in provincial offices are secured.

1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2. Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	• Human Resource Development Expert/Project Coordinator • Road Disaster Management Expert • Natural Condition Expert • Road Planning Expert • Road Design Expert 1-2. Equipment/materials for training and pilot project 1-3. Counterpart training in Japan/third country 2. Lao side 2-1. Arrangement of counterpart personnel: PTI, DOR, DPWT, PTTC 2-2. Provision of facilities and equipment for the project implementation 2-3. Other necessary budget for the project implementation (e.g., O&M cost for RMS/PRoMMS, initial and operation cost for procured maintenance equipments and routine maintenance in the pilot provinces, O&M cost for road maintenance unit.)		• Assignments for counterparts (PTI, DOR, DPWT) are approved by MPWT.

Note1: The following criteria are used to assess the technical capacity level of local officers under the Project:
Level 1: I cannot or do not know how to achieve the results even with support provided by other skilled staff members/manuals.
Level 2: I can or know how to achieve the results with fully support provided by other skilled staff members /manuals.
Level 3: I can or know how to achieve the results with occasionally or proper support by skilled staff members/manuals.
Level 4: I can or know how to achieve the results without any support /manuals.
Level 5: I am able to train other staff members.

Note2: 4 project managers of Regional Office and 1 PTTC officer, totaling to 5 officers

Project Design Matrix (PDM) Ver. 3.1
Project Title: The Project for Improvement of Road Maintenance Capability in Lao PDR
Term: September 2011 – September 2017
Target Group: DOR, DOT, PTI, DPWT, PTTC
Target Area: Pilot Provinces (Vientiane and Savannakhet) for On-the-Job Training (OJT), All Provinces for dissemination of road management system/technical manuals

Date: 29th October, 2015

Narrative Summary	Objectively verifiable indicators	Means of verifications	Important assumptions
Overall goad: 1. Roads and bridges in Laos are properly maintained.	1. RMS/PRoMMS are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of road is decreased and annual maintenance distance of road is increased. 4. Number of overloaded trucks surveyed at national road(s) is decreased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMMs 3. Records of road/bridge inspection/maintenance 4. Records of overloading control at weigh station	Required budget for the planned activities based on the analysis result(s) by RMS/PRoMMs is allocated.
Project Purpose: 1. Roads and bridges in the pilot provinces are properly maintained.	1. RMS/PRoMMS in the pilot provinces are properly improved and updated by PTI and DPWT. 2. Maintenance budget plan in the pilot provinces is prepared, following analysis by RMS/PRoMMS by DOR. 3. Annual damaged distance of pilot provincial road is decreased and annual maintenance distance of pilot provincial road is increased. 4. Number of overloaded trucks surveyed at pilot national road(s) is decreased.	1. Version of the RMS/PRoMMS and Record of budget allocation to PTI and DPWT for road maintenance in the pilot provinces 2. Record of maintenance budget plan based on the analysis result(s) by RMS/PRoMM in pilot provinces 3. Record of road/bridge	The Lao government policy on road and bridge sector remains consistent.

		inspection/maintenance in pilot provinces 4. Records of overloading control at pilot weigh station	
Outputs: 1. Maintenance planning ability for road and bridge maintenance is enhanced.	1-1. Technical Capacity of more than 80% of RMS/PRoMMS operation officers in PTI is certified as 'Level 5'. 1-2. Technical capacity of at least one PRoMMS operation officer in each DPWT is certified as 'Level 3'. 1-3. Data in RMS/PRoMMS is up to date at the time of planning	1-1. Record of Self-Assessment and examination cleared by the JCC 1-2. Record of Self-Assessment and examination cleared by the JCC	• Trained officers continue to work in the area of expertise s/he is trained under the Project. • In case where counterparts or trained officers are promoted or reassigned, proper turn over and replacement will be done by MPWT at earliest possible. • MPWT Central Office adopts the manuals prepared by the Project without delay. • Budget for routine maintenance is secured. • O&M budget for pilot weigh station is secured.
2. Technical manuals for road/bridge maintenance are prepared.	2-1. Technical manuals prepared in the Project are approved by concerned authorities. 2-2. Approved technical manuals are disseminated to officers and local contracts that are responsible for maintenance works across the country.	2-1. Approved technical manuals 2-2. Record of dissemination activities	
3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.	3-1. More than 80% of maintenance officers of DPWT in the pilot provinces and DOR participate in seminars/workshops/trainings conducted under the Project. 3-2. Technical capacity of 5** maintenance officers in DOR/PTTC is certified as 'Level 5'. 3-3. Technical capacity of more than 80% of maintenance officers in DOR/DPWT who participated in the training programs conducted in the Project and are responsible for the pilot provinces is certified as 'Level 3'.	3-1. Report of the training program 3-2. Record of examination 3-3. –Ditto–	
4. Capacity of DOT/DPWT officers for over-loading control in the pilot province(s) is enhanced.	4-1. Operation of the weigh bridge is reinstalled and DPWT at pilot province(s) reports operational records to DOT on a regular basis. 4-2. More than 90% of loaded trucks are checked its axle load at pilot weigh station(s). 4-2. Percentage of overloaded trucks surveyed at pilot	4-1. Record of operation at pilot weigh station 4-2. Ditto 4-3. Ditto	

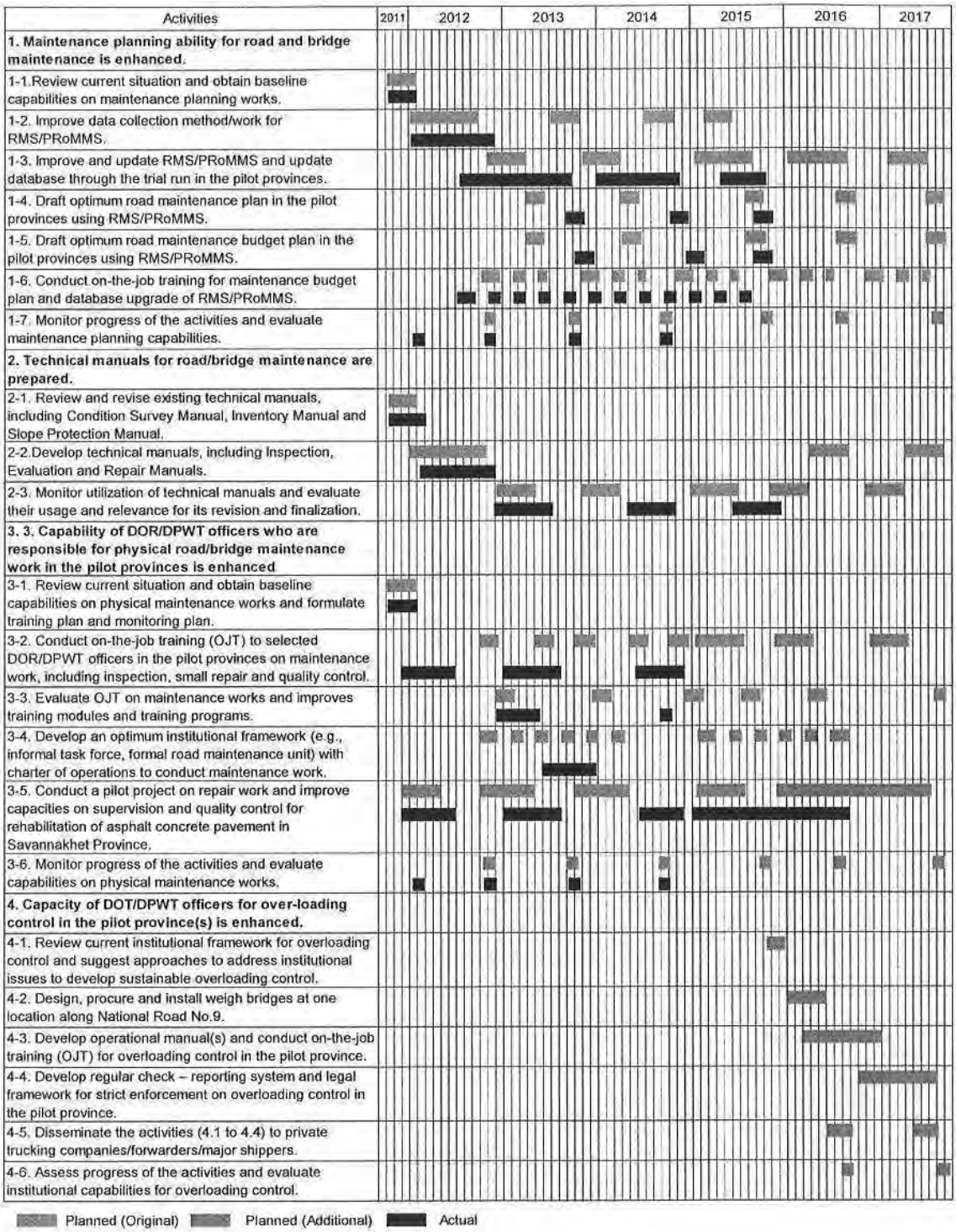
	weigh station are reduced from 35 % to less than 10 %.		
1-1. Review current situation and obtain baseline capabilities on maintenance planning works. 1-2. Improve data collection method/work for RMS/PRoMMS. 1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces. 1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS. 1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS. 1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS. 1-7. Monitor progress of the activities and evaluate maintenance planning capabilities. 2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization. 3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control. 3-3. Evaluate OJT on maintenance works and improves training modules and training programs. 3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work. 3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.	**Inputs:** 1. Japanese side 1-1. Dispatch of Japanese Expert • Team Leader/Road Management Expert • Deputy Team Leader/Construction Management Expert • Road Maintenance Expert • Bridge Maintenance Expert • Contract Management Expert • System Management Expert • Human Resource Development Expert/Project Coordinator • Road Disaster Management Expert • Natural Condition Expert • Road Planning Expert • Road Design Expert • Equipment (Weigh Bridge/IT) Specialist 1-2. Equipment/materials for training and pilot project 1-3. Counterpart training in Japan/third country 2. Lao side 2-1. Arrangement of counterpart personnel: PTI, DOR, DPWT, PTTC, DOT 2-2. Provision of facilities and equipment for the project implementation 2-3. Other necessary budget for the project implementation (e.g., O&M cost for RMS/PRoMMS, initial and operation cost for procured maintenance equipments and routine maintenance in the pilot provinces, O&M cost		• Lao government makes necessary arrangement for setting up an institutional framework for road maintenance. • Lao government allocates budget for the project without any major delay. • Project sites for the OJT in provincial offices are secured. • Assignments for counterparts (PTI, DOR, DPWT) are approved by MPWT.

4-1. Review current institutional framework for overloading control and suggest approaches to address institutional issues to develop sustainable overloading control. 4-2. Design, procure and install weigh bridges at one location along National Road No.9. 4-3. Develop operational manual(s) and conduct on-the-job training (OJT) for overloading control in the pilot province. 4-4. Develop regular check – reporting system and legal framework for strict enforcement on overloading control in the pilot province. 4-5. Disseminate the activities (4.1 to 4.4) to private trucking companies/forwarders/major shippers. 4-6. Assess progress of the activities and evaluate institutional capabilities for overloading control.	for road maintenance unit.)		

Note1: The following criteria are used to assess the technical capacity level of local officers under the Project:
Level 1: I cannot or do not know how to achieve the results even with support provided by other skilled staff members/manuals.
Level 2: I can or know how to achieve the results with fully support provided by other skilled staff members /manuals.
Level 3: I can or know how to achieve the results with occasionally or proper support by skilled staff members/manuals.
Level 4: I can or know how to achieve the results without any support /manuals.
Level 5: I am able to train other staff members.

Note2: 4 project managers of Regional Office and 1 PTTC officer, totaling to 5 officers

Plan of Operation (for Project Design Matrix (PDM) Ver. 3.1)



MINUTES OF MEETING
OF
8TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT,

JICA LAOS OFFICE

AND

JICA EXPERT TEAM

Vientiane, 6th April, 2017

Mr. Litta Khattiya
Deputy Director General,
Department of Roads

Mr. Shunsuke Sakudo
Senior Representative,
JICA Laos Office

Mr. Kiminari Takahashi
Team Leader,
JICA Expert Team

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the CaRoL Experts") in September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the CaRoL").

The CaRoL Experts, together with the counterpart agencies, have been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance and (iv) improvement of overloading control. Also, the Terminal Evaluation Mission was dispatched by JICA Head Quarter on 23rd March 2017 to evaluate the performance of the CaRoL Project. The CaRoL Experts and counterparts demonstrated the progress of the activities for the CaRoL Project and the said Mission presented the findings during 2-week Mid-term Review in the 8th Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Opening Remarks

On behalf of the MPWT, Mr. Litta Khattiya, a chairperson of the JCC, welcomed all participants in the meeting. Mr. Litta Khattiya made opening remarks, briefing the progress of the Project, and the 8th JCC started at 9:00 hours. Participants of the meeting are listed in the attachment 1.

3. Welcome Remarks

Following the opening remarks, Mr. Shunsuke Sakudo made welcome remarks, pointing out the importance of institutional strengthening, especially prioritization for road maintenance and rehabilitation works and enforcement against overloading trucks to maintain the maintenance sustainably. Mr. Sakudo also thanked the MPWT for providing continuous supports extended to the CaRoL Project.

4. Presentation by CaRoL Expert and Terminal Evaluation

Mr. Kiminari Takahashi, Team Leader of CaRoL Project, made a presentation, highlighting the following bullet points:

- Project outline
- Matters arising and actions taken
- Major progress of project activities
- Overall progress
- Lessons leant and pending issues

Following the presentation by the CaRoL Project, Mr. Akira Ogasawara, Evaluation Consultant, made a presentation of the Terminal Evaluation Report for the CaRoL Project.

- Outline of Terminal Evaluation Study

- Evaluation Result
- Conclusion and recommendation

Mr. Tomoki Kanenawa, Leader of Terminal Evaluation Mission, also made a presentation of the Strategic Plan of JICA Scholarship Program in Road Sector.

5. Comments on the Progress Report

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL and Terminal Evaluation members responded these comments, and discussions and agreements during the meeting are summarized below.

(1) System improvement

- Deputy Director General of PTI requested CaRoL to continue to provide technical assistance to PTI for improvement of RMS/PRoMMS, pointing out that though RMS/PRoMMS be transferred to DOR, PTI remains as a system manager and DOR functions as a system user.
- CaRoL Expert responded that CaRoL Project would provide technical assistance to both PTI and DOR continuously.

(2) Technical Manual

- Deputy Director General of PTTI requested CaRoL to engaged all DPWTs and private sectors to review and finalize the technical manuals. Also requested CaRoL Expert to set up Technical Groups; one group involves DOR/DPWTs/PTTI's junior staffs as practitioners and another involves senior staffs as authorizer.
- CaRoL Expert responded that CaRoL Project re-established a sub-working group in March 2017, involving DOR, DPWTs in pilot provinces and PTTI. CaRoL Project also organized a technical workshop in Savannakhet in April 2017 for revision of the manuals, involving all DPWTs where AC pavement exists. CaRoL Expert appreciated the advice, setting up a working group engaging senior staffs and will follow it during the course of finalization of the manuals.

(3) Bridge Maintenance

- Deputy Director General of DPWT Savannakhet requested JICA to provide bridge inspection equipment for detailed bridge survey to inspect 52 bridges (including 5 long-span bridges) along the National Road No.9.
- A Chairperson also requested JICA to provide training courses for bridge inspection/evaluation, mentioning a focus of these trainings should be put on inspection/evaluation of concrete bridges.

(4) Overloading control

- Deputy Director General of DOT requested CaRoL to provide training courses for transport companies, especially those in SEZ in Savannakhet, to improve understanding of importance of overloading control and new rules such as scale of overloading fines.
- CaRoL Expert responded that dissemination seminars and workshops will be organized as part of CaRoL Project during the project period.
- JICA Senior Representative emphasized importance of (i) institutional, (ii) technical and (iii) physical capacity for road asset management and stressed DOT to establish a proper enforcement mechanism for overloading control.
- CaRoL Expert requested DOT to legislate a new rule for overloading control as soon as possible (before completion of installation of weigh scale, including increase in overloading fine.
- Deputy Director General of DOT requested JICA to provide technical assistance to DOT to strengthen overloading control across the country.
- Leader of Terminal Evaluation Mission from JICA urged that DOT through CaRoL Project needs to establish an overloading control mechanism, including full operation of pilot weigh scale, by the end of the project.

(5) Training

- Deputy Director General of PTTI requested JICA to provide short-term training courses in Japan and third countries to update the technologies for road maintenance. Deputy Director General of PTTI requested JICA to provide short-term training courses in Japan, especially that for senior staffs.
- Leader of Terminal Evaluation Mission from JICA responded that JICA provides a series of training courses in Japan and is willing to invite MPWT for various training courses, responding the official request made by MPWT.

6. Signing of Minutes of Meeting for Terminal Evaluation

Mr. Litta Khattiya and Mr. Tomoki Kanenawa confirmed the contents of Minutes of the Meeting as well as Terminal Evaluation Report for CaRoL Project and signed two copies of the minutes for the record.

7. Closing Remarks

Mr. Litta Khattiya appreciated the progress made by CaRoL Expert and counterparts, together with the support by JICA Laos Office. Mr. Litta Khattiya also thanked constructive comments and suggestions made by members to CaRoL Project and closed the 8th JCC at 12:20 hours.

ATTACHMENT 1

Attendees of the 8th JCC are listed below.

PARTICIPANTS

1	Mr. Litta Khattiya	Deputy Director General of DOR	Chairperson
2	Mrs. Saykham Thammanosouth	Deputy Director General of PTTI	Member
3	Mr. Khamphet Inthideth	Deputy Director General of PTI	Member
4	Mr. Boualith Pathoumthong	Deputy Director General of DOT	Member
5	Mr. Prasongsongsinh Chaleunsouk	Director of DPWT Savanakhet	Member
6	Mr. Soumountha Somchanmavong	Director of DPWT Vientiane	Member
7	Mr. Sengthong	DIC/MPI	Member
8	Mr. Chao Yang	Representative of DPC	Member
9	Mr. Phonethip Thammalath	Road Maintenance Fund/DOF	Member
10	Mr. Bounthipasert Soumphonphady	Technical Division/DOR	Member
11	Ms. Amphaphone Bounnak	Officer of DOT	Member
12	Mr. Pakasone Xoumphonphakdy	Officer of DOT	Member
13	Mr. Chanthavangso Oudomdeth	Counterpart personnel of PTI	Member
14	Mr. Kanyasith Nambanya	Counterpart personnel of PTTI	Member
15	Mr. Souvanh Sengchamphone	Counterpart personnel of DPWT Savanakhet	Member
16	Mr. Somsanouk Phouthavong	Counterpart personnel of DPWT Vientiane	Member
17	Mr. Hiroshi Nomura	JICA Expert for MPWT	Member

EOJ/JICA

1	Mr. Tomoki Kanenawa	JICA Headquarter	Member
1	Mr. Tatsuhito Kondo	JICA Headquarter	Member
3	Mr. Shunsuke Sakudo	Senior Representative, JICA Lao Office	Member
4	Mr. Toru Ogura	JICA Lao Office	Member
5	Mr. Phouthaphone Vorabouth	Infrastructure specialist/JICA Laos Office	Member
6	Mr. Akira Ogasawara	Evaluation Mission Consultant	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader/Management Expert	Invited
2	Mr. Masataka Fujikuma	Deputy Team Leader/Construction Management Expert	Invited
3	Mr. Hiroaki Kobayashi	Road Maintenance Expert	Invited
4	Mr. Makoto Nozawa	Contract Management Expert	Invited

MINUTES OF MEETING
OF
9TH JOINT COORDINATING COMMITTEE
FOR
THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT CAPABILITY
IN
LAO PEOPLE'S DEMOCRATIC REPUBLIC

Agreed upon between

THE MINISTRY OF PUBLIC WORKS AND TRANSPORT,

JICA LAOS OFFICE

AND

JICA EXPERT TEAM

Vientiane, 30th April, 2018

Mr. Litta Khattiya
Deputy Director General,
Department of Roads

Mr. Shunsuke Sakudo
Senior Representative,
JICA Laos Office

Mr. Kiminari Takahashi
Team Leader,
JICA Expert Team

1. Introduction

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a team of JICA Experts (hereinafter referred to as "the CaRoL Experts") in September 2011, to commence the project, namely, the Project for Improvement of Road Management Capability in Lao PDR (hereinafter referred to as "the CaRoL").

The CaRoL Experts, together with the counterpart agencies, have been actively involved in delivering three project outputs: (i) improvement of road maintenance system, (ii) development of technical manuals, (iii) implementation of pilot project and on-the-job training for routine and periodic maintenance and (iv) improvement of overloading control. The CaRoL Experts and counterparts demonstrated the progress of the activities for the CaRoL Project in the 9th Joint Coordinating Committee (hereinafter referred to as "JCC").

2. Opening Remarks

On behalf of the MPWT, Mr. Litta Khattiya, a chairperson of the JCC, welcomed all participants in the meeting. Mr. Litta Khattiya made opening remarks, briefing the progress of the Project, and the 9th JCC started at 9:40 hours. Participants of the meeting are listed in the attachment 1.

3. Welcome Remarks

Following the opening remarks, Mr. Shunsuke Sakudo made welcome remarks, pointing out the importance of institutional strengthening, especially prioritization for road maintenance and rehabilitation works using RMS/PRoMMS, utilization of technical manuals and enforcement against overloading trucks to maintain the maintenance sustainably. Mr. Sakudo also thanked the MPWT for providing continuous supports extended to the CaRoL Project.

4. Presentation by CaRoL Expert/Counterparts

Mr. Kiminari Takahashi, Team Leader of CaRoL Project, and Mr. Hiroaki Kobayashi, Road Maintenance Expert, as well as counterparts from DOR and DOT made a presentation, highlighting the following bullet points:

- Project outline
- Matters arising and actions taken
- Summary progress report
- Recommendations to achieve overall project goal

5. Comments on the Progress Report

After the presentation, members of the JCC were requested to ask questions and provide comments, and the CaRoL and counterparts responded these comments, and discussions and agreements during the meeting are summarized below.

(1) Overall achievement

- Deputy Director General of DOR appreciated major achievements made by the Expert Team and counterparts during the course of the Project. These achievements include (i) revision of PBC, which was rolled out to the ADB and World Bank's projects, (ii) CFA as a new pavement technology applied in NR-13N as part of pilot project, (iii) On-the-job training and workshops associated with development of technical manuals/standard specifications which contribute to increasing understanding of practioners, (iv) Installation of modernized weigh station in Donghen which again would be rolled out to ADB and World Bank's projects.

(2) Overloading control

- Senior Representative of JICA emphasized the importance of overloading control, pointing out that the overloaded trucks would result in accelerating the pavement damage and DOT/DPWT need to challenge to control overloaded trucks.
- Director of DPWT Savannakhet reported the progress of overloading control, mentioning that DOT tries to enact a new regulation and strictly enforce it and the Government prohibited importation of logs which significantly reduced overloading in recent years. He also mentioned DPWT Savannakhet tries to employ a new IT staff(s) to operate the modernized weigh station.
- Director of DPWT Savannakhet also stressed the importance of overloading control, requesting DOT (i) to enact a new regulation, which allows more staff assigned to the operation of weigh station, (ii) to purchase a mobile scale(s) for random check and (iii) to procure equipment and facilities to off-load the overloaded cargos at the weigh station.
- Senior Representative of JICA also suggested that DOT should develop and adopt the overloading control policy, stipulating that overloading control measures, including restoration of 25 weigh stations and random check by mobile scale, should be taken in a strategic manner.

(3) CFA

- Deputy Director General of DOR pointed out the application of the CFA in the urban area and interests of the private local contractor(s) to adopt the CFA technology.
- CaRoL Expert responded the CFA as a suitable paving method in the urban area since the CFA contributes to reducing construction period which enables early open to the traffic and the CFA allows to use existing pavement material as the basecourse material in the place where difficult to obtain fine aggregates and construction materials.

(4) Rolling out project activity

- Representative of JICA emphasized the importance of continuation of project activities by the counterpart departments themselves. He also appreciated a significant achievement made by

CaRoL Expert and counterparts, pointing out some of project outcome, including RMS/PRoMMS, manuals and specifications as well as overloading control system are rolled out to ADB and World Bank's projects.

- Deputy General Director of DOR showed commitments in rolling out the project activities applied to the ADB and World Bank's projects and pointed out RMS would be continuously operated, adding climate resilient function, and revised MAC developed by CaRoL Expert, was appreciated by participants in the technical workshops and technical manuals and specifications, once finalized under ADB project, would be fully utilized by implementing agencies.

(5) Training

- Deputy Director General of PTTI congratulated the achievement made by CaRoL Expert and counterparts.
- CaRoL Expert briefed PTTI, as a focal training institute under the Ministry, was involved in the project during/from an initial stage of the Project in order to role out the project activity to other provinces and all the technical manuals and teaching materials were prepared and used by the counterpart(s) from the PTTI.

(6) Future Assistance

- Senior Representative of JICA explained the future assistance in road asset management, mentioning that the technical cooperation program on improvement of bridge maintenance capability was officially requested by DOR and the said program was highly appreciated by both JICA Laos Office and EOJ through a joint evaluation. He further explained that overloading control and operation of Donghen Weigh Station should be considered as a precondition of the further technical cooperation program.

6. Monitoring proposed Action Plan

Mr. Litta Khattiya confirmed relevance of tasks proposed in the short-term Action Plan and committed to realizing the proposed tasks as planned in the Action Plan. He also agreed to report the progress of the proposed Action Plan to JICA Laos Office periodically.

7. Closing Remarks

Mr. Litta Khattiya appreciated the progress made by CaRoL Expert and counterparts, together with the support by JICA Laos Office. Mr. Litta Khattiya also thanked constructive comments and suggestions made by members to CaRoL Project and closed the 8th JCC at 11:40 hours.

ATTACHMENT 1

Attendees of the 9th JCC are listed below.

PARTICIPANTS

1	Mr. Litta Khattiya	Deputy Director General of DOR	Chairperson
2	Mr. Boualith Pathoumthong	Deputy Director General of DOT	Member
3	Mr. Prasongsinh Chaleunsouk	Director of DPWT Savannakhet	Member
4	Mr. Soumountha Somchanmavong	Director of DPWT Vientiane Province	Member
5	Mrs. Saykham Thammanosouth	Deputy Director General of PTTI	Member
6	Mr. Khamphet Inthideth	Deputy Director General of PTRI	Member
7	Mr. Laythong Phommavong	C/P of DOR	Member
8	Mr. Souvanh Sengchamphone	C/P of DPWT Savannakhet Province	Member
9	Mr. Pakasone Xoumphonphakdy	C/P of DOT	Member
10	Mr. Lamphoun Khounphakdy	DOR	Member
11	Mr. Phonethip Thammalath	Road Maintenance Fund Secretariat Committee	Member

EOJ/JICA

1	Mr. Shunsuke Sakudo	Senior Representative of JICA Laos Office	Co-Chairperson
2	Mr. Phouthaphone Vorabouth	Representative of JICA Laos Office	Member
3	Mr. Hiroshi Nomura	JICA Expert of MPWT	Member

JICA EXPERT TEAM

1	Mr. Kiminari Takahashi	Team Leader/Management Expert	Invited
2	Mr. Hiroaki Kobayashi	Road Maintenance Expert	Invited
3	Dr. Phamavanh Kongkeo	Bridge Maintenance Expert	Invited

11. Other Project Activities

11-1 Presentation Materials and Minutes of Meetings

8-1-1 Presentation Material of JCC

8-1-2 Minutes of Meeting of TWG

8-1-3 Presentation Material of TWG

11-2 Deliverables for Output 1 (System Improvement and Database Update)

11-2-1 PRoMMS Manual

11-2-2 DRIMS Manual

11-2-3 Q-GIS Operation Manual

11-2-4 PRoMMS Training Reports

11-3 Deliverables for Output 2 (Development of Technical Manuals)

11-3-1 Draft Technical Manuals

- Draft Road Maintenance Manual
- Draft Bridge Maintenance Manual
- Draft Slope Maintenance Manual
- Comment Form of Technical Manual

11-3-2 Intensive Training Materials

- Intensive Training of Road Maintenance Manual
- Intensive Training of Bridge Maintenance Manual
- Intensive Training of Slope Maintenance Manual
- Intensive Training of Amended PBC

11-3-3 Training Evaluation Report

- Evaluation Report on Bridge Inspection Works
- Evaluation Report on Slope Maintenance Manual

11-4 Deliverables for Output 3 (Pilot Projects)

11-4-1 Report of Bridge Condition Survey Route 13N

11-4-2 Preliminary Report Site Visit for Road Disaster on NR13

11-4-3 Concept Design Report NR9

11-4-4 Training Evaluation Report

- Evaluation Report on Workshop of Asphalt Pavement Work
- Evaluation Report of Recycling Pavement

11-5 Deliverables for Output 4 (Overloading Control)

11-5-1 Weighing System Data Management Training

11-5-2 Bid Document of Weigh Station

11-5-3 Manual of Weighing System and Data Management

The Project for Improvement of Road Management Capability in Lao PDR

Work Plan

20 Jan 2012

International Development Center of Japan Inc. (IDCJ)
Oriental Consultants Co., Ltd. (OC)

Agenda

- Confirmation of the minutes of previous meeting
- Presentation of Work Plan
  - Introduction
  - Revision of PDM
  - Planning Issues, Approach and Methodology
  - Project Implementation Plan
- Progress of the Project
- Q&A, Discussion

Confirmation of Minutes of Previous Meeting

Agreement:

- Contents of the Project were discussed and agreed among the participants. Project implementation structure, including members of JCC/TWG, was also agreed.

Progress:

- Project offices at Vatnak and PTI were provided by MPWT.
- Full-time counterparts (DOR and PTI) were assigned to the Project.
- Consultation meetings with WB and ADB were organized to inform project outline.
- Meetings with PTTC and KfW consultants were also organized.
- An initial contact with DOH was made and training materials collected.

Presentation of Work Plan

1. Introduction

1.1 Background

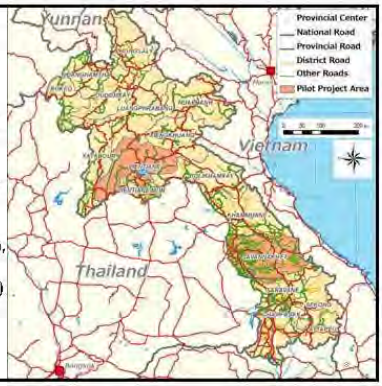
- Lao transport infrastructure and system heavily rely on road transport.
- 55% of 7,200 km national roads already paved. 90% of paved national roads paved by DBST.
- Pavement of national roads being deteriorated, due to a lack of local planning/ technical/financial capability in road maintenance.
- World Bank completed Road Maintenance Program in 2010. There still need further supports to realize self reliant road maintenance cycle.

→ JICA's Detailed Planning Study conducted in March 2011 and MM and RD agreed in July 2011.

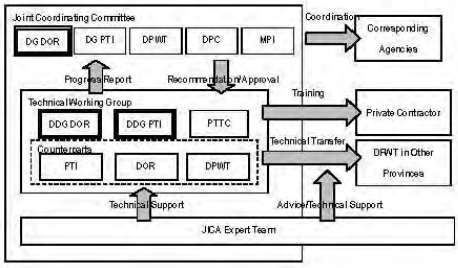
1.2 Project Goal, Purpose and Outputs

- **Overall Goal;**
  - Roads and bridges in Lao PDR will be properly maintained.
- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1) → PTI
  - Technical manuals for road/bridge maintenance are prepared. (Output 2) → DoR
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3) → DPWT

- **Project Area;**
  - Savannakhet and Vientiane are selected as pilot provinces.
- **Project Period;**
  5 Years
  *Phase 1 (Sep 2011 – Jun 2014), Phase 2 (Aug 2014 – Sep 2016)



1.3 Project Implementation Structure



→ PTTC proposed to be engaged as one of key stakeholders.

2. Revision of PDM

2.1 Principle for Revision of PDM

- Through situation survey and training needs survey, key project outputs proposed to remain same;
  (i) improvement and updates of RMS/PRoMMS and development of road maintenance plan
  (ii) development of technical manuals
  (iii) conduct of on-the-job training on routine maintenance works and rehabilitation works.
- Project activities were reviewed and revised, by adopting **project cycle approach**, incorporating survey of baseline monitoring indicators and monitor and evaluation of these indicators as part of project activities.

2.2 Revision of PDM (Activity 1)

Original PDM	Revised PDM
1-1 Improvement of RMS and PRoMMS and database upgrade through a trial run in the pilot provinces	1-1 Review current situation and obtain baseline capabilities on maintenance planning works.
1-2 Draft of road maintenance budget plan in the pilot provinces using RMS and PRoMMS	1-2 Improve data collection method/work for RMS/PRoMMS.
1-3 Conduct on-the-job training for maintenance budget plan and database update of RMS and PRoMMS	1-3 Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.
	1-4 Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.
	1-5 Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.
	1-6 Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.
	1-7 Monitor progress of the activities and evaluate maintenance planning capabilities.

2.2 Revision of PDM (Activity 2)

Original PDM	Revised PDM
2-1 Technical manual to be developed, such as Road/Bridge Repair Manual and Road/Bridge Maintenance Patrol Guideline, are prepared. 2-2 Existing technical manual to be improved, such as Condition Manual and Inventory Manual, are reviewed and revised. 2-3 Monitor utilization of technical manuals and evaluate their usage and relevance.	2-1 Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual. 2-2 Develop technical manuals, including Inspection, Evaluation and Repair Manuals. 2-3 Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.

2.2 Revision of PDM (Activity 3)

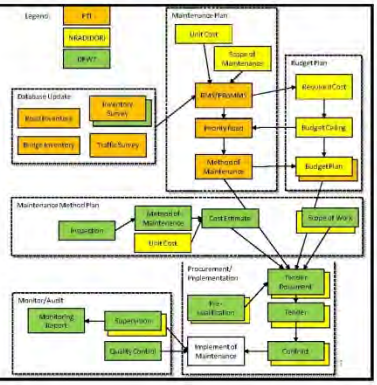
Original PDM	Revised PDM
3-1 Conduct on-the-job training to DPWT engineers in the pilot provinces on routine maintenance work, such as inspection, small repair and quality control, and formulate training plan and follow-up scheme for Central Office and Provincial Offices. 3-2 Evaluate OJT on routine maintenance work and improve training modules and training program. 3-3 Develop the procedures to conduct OJT on routine maintenance work as an official function of MPWT. 3-4 Conduct Pilot Project on repair work for supervising and quality control of Asphalt Concrete pavement in Savannakhet Province.	3-1 Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan. 3-2 Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control. 3-3 Evaluate OJT on routine maintenance work and improve training modules and training programs. 3-4 Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work. 3-5 Conduct a pilot project on repair work and improve capacities on supervision and quality control of large-scale rehabilitation of asphalt concrete pavement in Savannakhet Province. 3-6 Monitor progress of the activities and evaluate capabilities on physical maintenance works.

3. Planning Issues, Approach and Methodology

3.1 Planning Issues

- **Issues to be addressed during the Project;**
  - i. Need for improved management of road maintenance system and database,
  - ii. Need for sound planning between road maintenance plan and budget plan,
  - iii. Need for effective implementation of road maintenance cycle (inspection, evaluation, implementation),
  - iv. Need for appropriate procurement and auditing system to manage performance-based contract.

Overall goal of project approach is to establish **self-reliant road maintenance cycle.**



3.2 Project Approaches

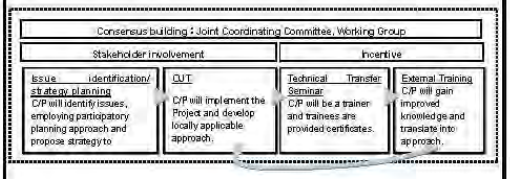
Five project approaches to establish self-reliant maintenance cycle;

1. Effective technical transfer throughout the Project
2. Technical transfer in cooperation with Grant Aid Project
3. Assessment of training needs and monitor of capacity indicators
4. Effective utilization of existing and related projects
5. Exit strategy – Formulation of institutional framework (e.g, road maintenance unit at DPWT)

3.2 Project Approaches

Effective technical transfer throughout the Project

- Technical transfer will be carried out by means of a series of OJTs, seminars and external trainings (Japan/Thai/Vietnam).



3.2 Project Approaches

Assessment of training needs and monitor of capacity indicators

- Technical Transfer Plan is prepared, obtaining baseline and desired capability to identify training needs.
- Capacity will be upgraded throughout the Project; able to accomplish task with support (by 2012), able to do without support (by 2013) and able to instruct others (by 2014)

Year	Level	Goal
2012	Possible with support	- Trainee can conduct road inventory/traffic survey using manual - Trainee can do data entry and update database using manual
2013	Possible without support	- Trainee can verify road inventory data - Trainee can verify database
2014	Possible to instruct	- Trainee can revise manuals for road inventory survey - Trainee can prepare specification for system and database improvement

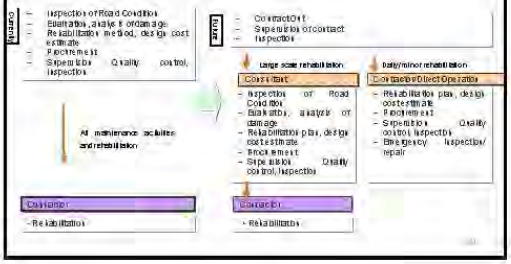
3.2 Project Approaches

Effective utilization of existing and related projects

- PTTC is a training institution under the MPWT and currently provides more than 30 technical courses, related to road planning, construction and maintenance.
- PTTC be soon upgraded, receiving external supports from KfW: construction of the training centre, and procurement of training equipments.
- The Project will provide a series of OJT and seminars, in collaboration with the PTTC. At the end of the Project, PTTC is expected to function as a focal point to scale out the Project to other provinces.

3.2 Project Approaches

Exit strategy – Formulation of new institutional framework (e.g., maintenance unit at DPWT)



3.3 Project Methodology

Work Items by JICA Experts:

i. Preparation and Discussion of Drat Work Plan

ii. Improvement of RMS &PRoMMS and Update of Road Inventory Database — **Output 1**

iii. Development of Road Maintenance Plan and Budget Plan

iv. Preparation and Revision of Technical Manuals

v. Monitor and Evaluation of Usage/Relevance of Technical Manuals — **Output 2**

vi. Conduct of On-the-Job Training for Routine Maintenance

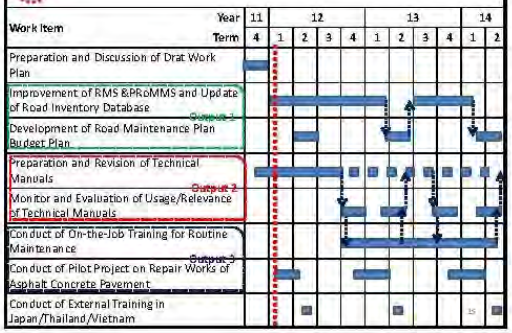
vii. Conduct of Pilot Project on Repair Works of Asphalt Concrete Pavement — **Output 3**

viii. Conduct of External Training in Japan/Thailand/Vietnam

ix. Preparation and Discussion of Progress Report at JCC

4. Project Implementation Plan

4.1 Project Schedule (Phase 1)



4.2 JICA Expert Team

Position Assigned	Name of Expert	Affiliation
Team Leader/Road Management Expert	Kiminari Takahashi	IDCJ
Deputy Team Leader/Construction Management Expert	Masataka Fujikuma	OC
Road Maintenance Expert	Hiroaki Kobayashi	OC
Bridge Maintenance Expert	Phamavanh Kongkeo	OC
Contract Management Expert	Hiroshi Ueda	OC
System Management Expert	Yoshiyuki Arita	IDCJ
Human Resource Development Expert/Project Coordinator	Mihoko Ogasawara	IDCJ

4.3 Deliverables

Report	Schedule of Submission	Major Contents
Work Plan Phase 1 (Phase 2)	January 2012 (December 2014)	• Approach and methodology of the Project • Project implementation plan • PDM • Undertakings by Lao/Japanese side, etc.
Project Progress Report	April 2013 June 2014	• Project outline • Project activities • Issues and lessons from the Project • Progress toward project goals • Project implementation plan in the next phase
Project Completion Report	September 2016	• Project outline • Project activities • Issues and lessons from the Project • Progress toward project goals

Progress of the Project

1. Situation Survey at Pilot Provinces

	Savannakhet Province	Vientiane Province
General		
Number of staff	17	32
Total length of responsible road	5645 km	3746 km
Total number of responsible bridge	564 bridges	473 bridges
Owned equipment	2 pick-up trucks (old)	None
Trainings		
Training1	Road maintenance	None
Type of trainee	Engineer	
Number of trainee	2person	
Trainer	MPWT	
Length of training	2 weeks	
Frequency	annual	
Training2	Road maintenance	None
Type of trainee	Engineer	
Number of trainee	1 person	
Trainer	DOH (organized by JICA)	
Length of training	2 weeks	
Frequency	annual	

	Savannakhet Province	Vientiane Province
Road & Bridge maintenance		
Inspection		
Inspection plan	Yes	Yes
Inspection method	Visual	Visual
Frequency	2 times/month (Dry season) 1 time/week (Rainy season)	1 time/year
Inspection sheet	Yes	No
Equipment	Measure, GPS, Camera, Whiteboard, Spray	Measure, Crack scale, Rebound hammer
Update the PRoMMS based on inspection	Every time after inspection	None
Repairing		
Repairing method	Performance based	Performance based Specified contract
Labor based maintenance by contract out	No experience	No experience
Labor based maintenance by force account	No experience	No experience
Record		
Record of maintenance work	Yes	Yes
Type of record	Sheet	Sheet
Update the PRoMMS based on the records	Yes	No

1. Situation Survey at Pilot Provinces

Issues on routine maintenance identified during Situation Survey;

- Insufficient equipments for routine maintenance.
- Inspection and evaluation of damages rely upon visual judgment.
- No experience of force account for repairing exercise.
- Current manual of routine maintenance is not fully utilized.
- Opportunity for attendance of relevance training are unequal.

1. Situation Survey at Selected Provinces

Issues on maintenance system identified during Situation Survey;

- PRoMMS is not compatible with Windows Vista & 7.
- An interface of PRoMMS is complicated and not user-friendly.
- PRoMMS requires considerable CPUs and memories.
- Insufficient equipments for road inventory survey (trip meter, GPS, vehicle etc.)
- Unreliable data since the survey result varies between surveyors.
- Shortage of trained staffs because of the job hopping/transfer.
- No regular updates of unit costs of maintenance works.

1. Situation Survey at Selected Provinces

Issues on maintenance planning and budgeting identified during Situation Survey;

- There is a time lag between inventory survey and actual maintenance work.
- The process of budget approval/allocation takes time and the urgent requests are not met.
- Check and balance function is not visible in the process of road maintenance planning and budgeting.
- Budget for road maintenance is scarce, especially that for local road maintenance.

2. Training Needs Survey

- A training needs survey was conducted at pilot provinces to understand current capacity level and identify training needs.
- Overall capacity in maintenance planning and works achieved to **'capable with external supports'**.
- Critical training needs are identified: exploiting PRoMMS **(calculation of maintenance costs, data export and import)**, inspection **(evaluation of damages and selection of maintenance method)**, and maintenance skill and knowledge **(routine and periodic maintenance** and **rehabilitation works)**.

→ The result provides useful inputs for the Project: (i) scoping contents of OJT and (ii) monitoring indicators.

2. Training Needs Survey

1: Procedures/routines under development (none)
2: Operated with external support
3: Operated with limited external support
4: Operated without external support
5: Able to act as advisor and trainer (full capacity)

S/N	Tasks	Capacity Achieved	Desired Capacity	Gap	Priority Subject
1	Database Update	2.5	3.6	-1.1	
1.1	Road inventory of local roads	3.0	4.0	-1.0	
1.2	Bridge inventory of local roads	3.0	4.5	-1.5	Priority
1.3	Traffic survey of local roads	2.0	3.0	-1.0	
1.4	Socio-economic survey of local roads	2.0	3.0	-1.0	
2	Exploiting PRoMMS	2.3	3.3	-1.1	
2.1	Basic Skill of PRoMMS	2.5	3.5	-1.0	
2.2	Data Entry	2.0	3.5	-1.5	
2.3	Calculation of Maintenance Costs	3.5	4.5	-1.0	Priority
2.4	Maintenance Analyses	1.0	3.0	-2.0	Priority
2.5	Data Import and Export	2.5	4.5	-2.0	Most priority
3	Budget Plan of Road and Bridge Maintenance	2.3	4.0	-1.5	
3.1	Calculation of Required Budget	2.5	4.0	-1.5	
3.2	Preparation of Budget Plan of Road & Bridge Maintenance	2.0	4.0	-2.0	Priority

2. Training Needs Survey

S/N	Tasks	Average			Priority Subject
		Capacity Achieved	Desired Capacity	Gap	
4	Routine/Periodic Inspection	2.5	4.1	-1.3	
4.1	Inspection Work	3.0	4.0	-1.0	
4.2	Evaluation of Damages and Selection of Maintenance Method	3.0	4.5	-1.5	Priority
4.3	Calculation of the Cost	3.5	4.0	-0.5	
4.4	Preparation of Maintenance Plan	2.0	4.0	-2.0	Priority
5	Procurement / Implementation for Maintenance Work	2.6	3.6	-1.0	
5.1	Contract Out	2.9	3.9	-1.0	
	Preparation of Scope of Work	3.0	3.5	-0.5	
	Preparation of Tender Document	2.5	4.0	-1.5	
	Tender Evaluation	2.5	3.5	-1.0	
	Preparation of Contract	3.5	4.5	-1.0	Priority
5.2	Force Account	2.3	3.3	-1.0	
	Preparation of Scope of Work	2.0	3.0	-1.0	
	Preparation of Contract with Labor	2.0	3.5	-1.5	
	Training Labor	2.5	3.0	-0.5	
	Implementation Work	2.5	3.5	-1.0	

2. Training Needs Survey

1: Procedures/routines under development (none)
2: Operated with external support
3: Operated with limited external support
4: Operated without external support
5: Able to act as advisor and trainer (full capacity)

S/N	Tasks	Average			Priority Subject
		Capacity Achieved	Desired Capacity	Gap	
6	Monitor / Audit	2.7	3.5	-0.8	
6.1	Preparation of Monitoring Report	2.0	3.5	-1.5	
6.2	Supervision	3.0	3.5	-0.5	
6.3	Quality Control	3.0	3.5	-0.5	
7	Maintenance Skill/ Knowledge	2.5	4.3	-1.8	
7.1	Routine maintenance of paved road	1.5	3.5	-2.0	Priority
7.2	Routine maintenance of unpaved road	3.0	4.5	-1.5	Priority
7.3	Routine maintenance of drainage	3.0	4.5	-1.5	Priority
7.4	Routine maintenance of bridge	2.5	4.5	-2.0	Most priority
7.5	Periodic maintenance of paved road	1.5	3.5	-2.0	Priority
7.6	Periodic maintenance of unpaged road	3.0	4.5	-1.5	Priority
7.7	Periodic maintenance of bridge repairs	3.0	4.5	-1.5	Priority
7.8	Rehabilitation of paved road	2.5	4.0	-1.5	
7.9	Rehabilitation of unpaved road	2.5	5.0	-2.5	Most priority
7.10	Rehabilitation of drainage	2.5	4.5	-2.0	Most priority

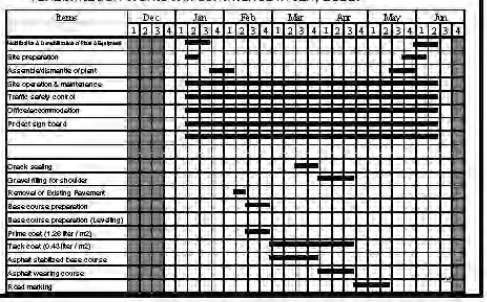
3. Procurement of Equipments

- 14 unites of maintenance vehicles will be procured by JICA Lao Office. Other maintenance equipments, including asphalt cutter, vibration plate compactor, hand breaker, will be procured through the Project.

Item	Quantity	Specification	Installed
Dump Truck	2	Loading Capacity 8 ton class	Savannaket and Vientiane (PTTC)
Truck with Crane (Hiab Truck)	2	Loading Capacity 4 ton class with 2.8ton crane	ditto
Maintenance car	4	4WD, Double-cabin Truck	ditto
Patrolling car	4	Passenger 7 person or more	ditto
Backhoe Loader	2	Load lift capacity 3.4t , Loading capacity 1.1m3	ditto

4. Pilot Project

3.1 km (Sta.15+800 – Sta.18+900) of NR-9 was selected and rehabilitation works will commence in Jan, 2012.



Discussion

1. **Undertakings by Lao side**
   - Estimated annual project costs borne by Lao Government ranges between **40,000 USD** (only direct expenses for O&M of the Project, including insurance, fuel, other vehicle maintenance fee) and **70,000 USD** (including wages for additional engineers engaged in maintenance unit) per pilot province.
2. **PTTC as focal training institution in the Project**
   - Through organizational analysis, PTTC is expected to function as a focal point to scale out the Project to other provinces. To realize it, PTTC will be fully engaged in the Project, e.g., scoping contents of training to avoid overlapping, sharing training material, co-hosting training, etc.

Appendix

The Project for Improvement of Road Management Capability in Lao PDR

2nd Joint Coordinating Committee

13 November, 2012
DOR Meeting Room

Secretariat for the CaRoL Project and JICA Expert Team





Contents of Presentation

1. **Project outline**
2. **Summary of discussion and agreement in the JCC/TWG**
3. **Major progress of each project activity**

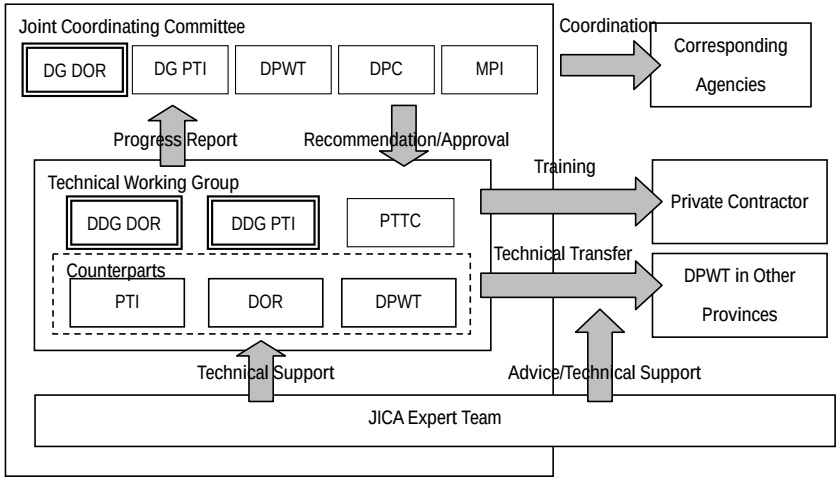
Discussion and Agreement

1. Project outline

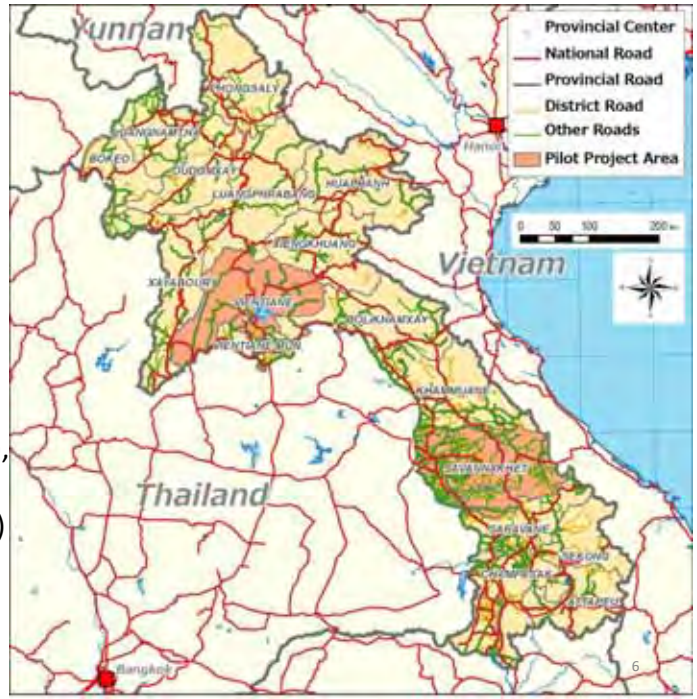
1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1) → PTI/DPWT
  - Technical manuals for road/bridge maintenance are prepared. (Output 2) → DoR/DPWT
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3) → DPWT

1.2 Project implementation structure



- **Project Area**;
  - Savannakhet and Vientiane are selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Jun 2014), Phase 2 (Aug 2014 – Sep 2016)



2. Summary of discussion and agreement in the JCC/TWG

Discussion and agreement in the JCC/TWG

JCC/TWG	Agenda	Major Discussion and Agreement
1st JCC 20/Jan/12	Presentation of Work Plan - Planning issues, approaches and methodology - Project implementation plan - Revision of PDM Progress of the project - Situation survey - Training needs survey	• Work Plan was approved by the members, which contains revised PDM and project implementation structure of JCC/TWG • Full-time/part-time project coordinators were appointed by the DOR/PTI/DPWT. • PTTC was included as one of members.
1st TWG 24/Feb/12	Progress of the project - Technical transfer plan - Scope of PRoMMS revision works - Review of existing manual - Components of procurement - Components of pilot project	• Scope of system revision works, components of maintenance vehicles, and scope of pilot project were all approved. • Preparation of detailed budget plan was requested and reconsideration of location of storage of maintenance vehicles was requested.

Discussion and agreement in the JCC/TWG

JCC/TWG	Agenda	Major Discussion and Agreement
2nd TWG 31/May/12	Progress of the project - Progress of system improvement - Coordination with WB project - Introduction of VIMS - Interview to local contractors for usage of technical manuals - Site survey report on NR13 North - Contents of OJT plan - Progress of pilot project	• Demarcation of JICA and WB project for the capacity building on RMS operation/data collection was discussed and agreed. • Procurement of VIMS was requested. • Issue on the location of maintenance vehicles was resolved. • Preparation of the budget was requested for further discussion.
3rd TWG 20/Jul/12	Progress of the project - Progress of system improvement - Training plan for PRoMMS/RMS - Outline and contents of technical manuals - Detailed OJT plan - Proposal on maintenance task force - Progress of pilot project	• OJT plan was approved with minor comments and suggestions. • TOR for establishment of maintenance task force was requested.

Discussion and agreement in the JCC/TWG

JCC/TWG	Agenda	Major Discussion and Agreement
4th TWG 10/Sep/12	Progress of the project - Progress of system improvement - Report on demonstration of VIMS - Progress of manual preparation - TOR for maintenance task force - Revised budgeting plan for OJT - Completion of pilot project	• VIMS was confirmed relevant for roughness survey in Laos. • A further discussion with DOR was requested to budget OJT.
5th TWG 25/Oct/12	Progress of the project - Progress of system improvement - Report on PRoMMS training - Inspection/evaluation/implmentation manual - Intensive training program - Contents of pilot project phase-2 - Report on external training	• The budget was set aside for OJT. • Technical manual was suggested to be developed, ensuring compatibility with existing system.

3. Major progress of each project activity

3.1 Progress of system improvement

1. **Improvement of PRoMMS**
2. **Training of PRoMMS**
3. **Procurement/Training of VIMS**
4. **Coordination with WB project**
5. **Outline of Vehicle Intelligent Monitoring System**

3.1 Progress of system improvement

(1) Improvement of PRoMMS

- A series of workshops were organized, involving the DPWT Vientiane Province, DPWT Vientiane Capital and LRD to determine the scope of system improvement work.
- PRoMMS ver. 3.0 was developed by (i) system conversion (to Visual Basic .Net), (ii) improvement of data entry/data check function and (iii) data import/export function.


3.1 Progress of system improvement

(2) Training of PRoMMS

- PTI organized PRoMMS training for DPWT staff in Khammuanh (2nd – 4th Oct.) and Luang Prabang Province (9th – 11th Oct.).
- Training focused on operation of PRoMMS and data collection survey.
- Over 60% of participants answered training was “understandable”. And over 80% of participants answered “ results of the training is enough to apply to their work”.


3.1 Progress of system improvement

(3) Procurement/Training of VIMS

- PTI requested to procure 3 sets of the Vehicle Intelligent Monitoring System (VIMS) to conduct the road roughness survey.
- Dr. Nishikawa, Assistant Professor of Nagasaki University, was invited for demonstration of the VIMS and provision of the training in mid September.
- VIMS will be delivered to the PTI by mid Nov.



3.1 Progress of system improvement

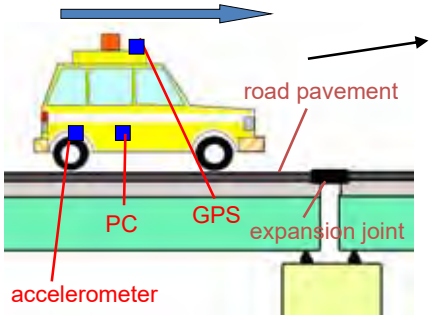
(4) Coordination with WB project

- PTI, WB and JICA agreed in-house capability for data collection works at PTI should be improved. Demarcation between WB and JICA was confirmed.
  - WB: Procurement of survey vehicles, financial support for RMS and PRoMMS data collection survey and financial support for quality control on the data collection survey.
  - JICA: Improvement of system, procurement of VIMS, technical support for planning and training for data collection survey.

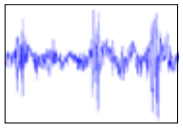
3.1 Progress of system improvement

(5) Outline of Vehicle Intelligent Monitoring System: VIMS

- A simple and inexpensive road monitoring system to check condition of road surface



vertical acceleration response



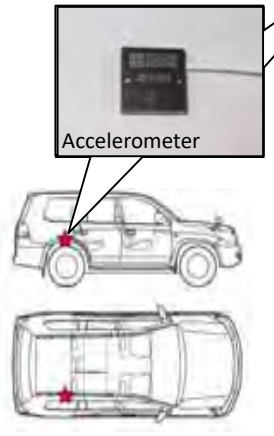
IRI

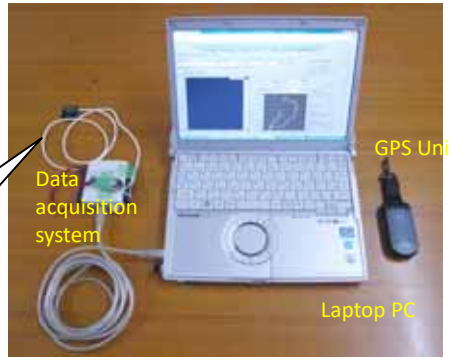
Road roughness is estimated with IRI from vehicle's dynamic responses.

3.1 Progress of system improvement

System components:

- ✓ accelerometer
- ✓ GPS unit
- ✓ laptop PC





System components (mounted on vehicle inside)

Collecting and analyzing data with a Laptop

3.1 Progress of system improvement

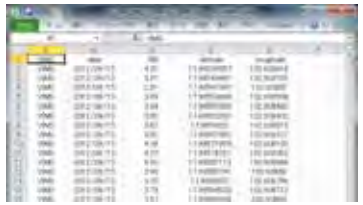
Output of the system:

IRI and Location

- How rough the road is.
- Where it is.

➢ Figure

➢ Data Table



Adapted to RMS

➢ Data on Map

3.2 Progress of manual development

1. **Review of existing manuals**
2. **Interview survey to private contractors**
3. **Preparation of technical manuals**
   - **Maintenance of Road /Bridge/ Slope**
4. **Review of revised PBC**

3.2 Progress of manual development

(1) Review of existing manuals

Road maintenance manual, for instance, was reviewed which found;

(i) The contents of the manual is not comprehensive and does not cover maintenance routine such as inspection to repair works,

(ii) Criteria for evaluation of defects are not clearly described, and

(iii) Format of the sheets such as inspection and working record are absent or not relevant for the local use.

3.2 Progress of manual development

(2) Interview to the manual users (private contractors);

Findings from the interviews are;

(i) Only 3 out of 10 major/middle contractors have technical manuals for road maintenance.

(ii) The existing manuals are not used at maintenance site and fully relies on the site experiences

(iii) Insufficient understanding for necessary bridge maintenance work/bridge condition survey.

(iv) Lack of knowledge in purpose and methodology of inspection.

(v) Lack of knowledge in the evaluation of damage.

3.2 Progress of manual development

Draft Contents of Maintenance Manuals

1. Introduction
- 1.1 Background
- 1.2 Objective
- 1.3 Glossary of terms
- 1.4 Work flow

2. Inspection
- 2.1 General
- 2.2 Type of inspection
- 2.3 Tool & manpower
- 2.4 Inspection sheet
- 2.5 Type of defects
- 2.6 Inspection & recording methods
- 2.7 Frequency of inspections
- 2.8 Safety measures at work

3. Evaluation
- 3.1 General
- 3.2 Ranking criteria
- 3.3 Condition ranking of defect
- 3.4 Evaluation method
- 3.5 Selection method of treatment

4. Execution
- 4.1 General
- 4.2 Type of treatment
- 4.3 Work description
  - (1) labor/equipment/material for use
  - (2) work procedure
  - (3) Technical specifications
  - (4) Method of measurement
- 4.4 Recording method of work
- 4.5 Safety measures at work

3.2 Progress of manual development

(3) Preparation of technical manuals

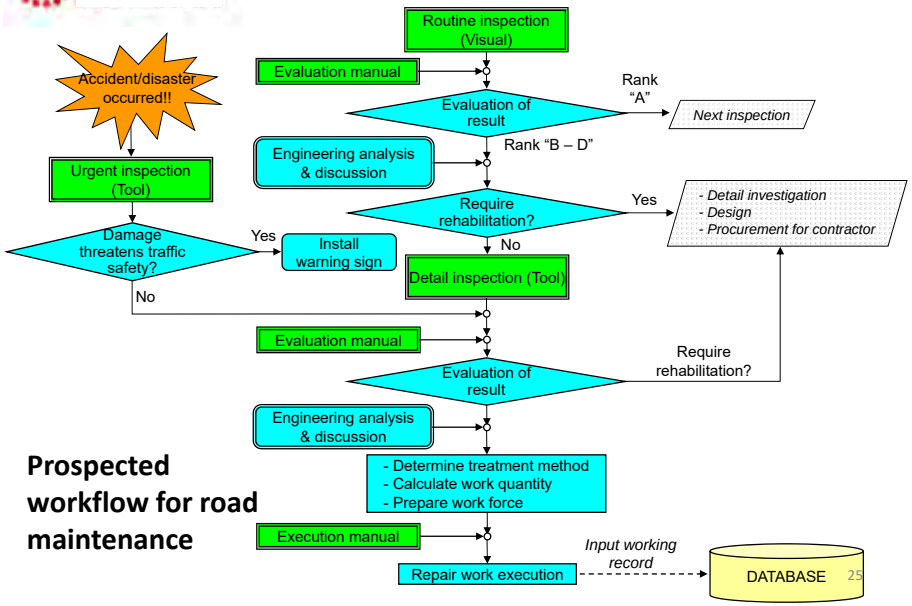
Design policy of the manuals are;

(i) The contents of the manual to be comprehensive, covering inspection, evaluation and repair works.

(ii) Technical manuals to be integrated into decision making process: e.g., available standard forms, reporting system for monitoring and evaluation of the work, and technical specification.

(iii) Inspection and evaluation items carefully developed, considering existing system, such as RMS, BMS and PBC.

3.2 Progress of manual development



Prospected workflow for road maintenance

3.2 Progress of manual development

(4) Review of revised PBC

Necessary actions for better use of PBC;

- Corrections of errors in PBC documents
- Provision of guidelines for usage of PBC documents (including formats of inspection sheets, certificate and statement, etc.)
- Orientation for use of PBC documents especially process of payment and inspection methods

Actions to be taken by CaRoL

✓Revision of PBC documents

✓Preparation of guidelines for supervision of PBC

✓Workshop for control of PBC

3.3 Progress of OJT and pilot project

List of Vehicles and Equipment

No.	Items	Savannakhet	Vientiane	Total
1	Dump Truck	1	1	2 unit
2	Truck with Crane	1	1	2 unit
3	Wheel Backhoe Loader	1	1	2 unit
4	Double Cab Truck	2	2	4 unit
5**	Station Wagon	1(1)	1(1)	2(2) unit
6*	Asphalt Cutter	2	-	2 unit
7*	Vibration Plate Compactor	2	-	2 unit
8*	Hand Breaker	2	-	2 unit
9*	Air Compressor	1	-	1 unit
10*	Asphalt Sprayer	1	-	1 unit
11*	Hand-guided Roller	1	-	1 unit
12*	Low-pressure Filler Injection Pump	3	3	6 unit
13*	Core Cutter	1	1	2 unit
14*	Electric Generator	1	1	2 unit

Remarks:
"*" in the list are subject to the discussion with the counterparts for the necessary equipments upon finalizing the scheduled activities in technical transfer program (OJT).
"**" of the number in parenthesis are to be used by JICA Expert Team for the activities of project including site survey, technical transfer program, pilot project, and other purpose required for the project.

3.3 Progress of OJT and pilot project

- **Completion of pilot project (phase-1: 2011-12)**
  - Rehabilitation (AC overlay) L=3.15km
  - Final inspection on 18 July and handover ceremony on 19 July 2012

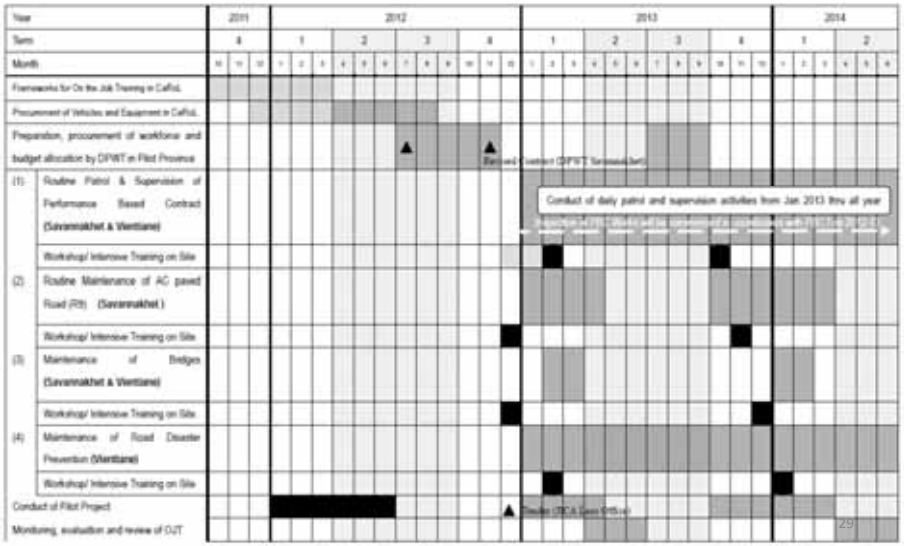
Before rehabilitation

After rehabilitation

- **Preparation of pilot project (phase-2: 2012-13)**
  - Routine maintenance (AC) L=15.725km

3.3 Progress of OJT and pilot project

Implementation Schedule of OJT (Phase-I)



Discussion and Agreement

Revised Project Design Matrix

- The Project Design Matrix and Project Operation Plan were discussed and agreed by the members of the JCC in the 1st JCC meeting.
- Some project activities lag behind the schedule, agreed in the Operation Plan.
- JCC should be organized in the 3rd quarter year (e.g., Sep or Oct) to confirm the scope of pilot project.

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Revised Project Design Matrix

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

OJT plan/budget plan

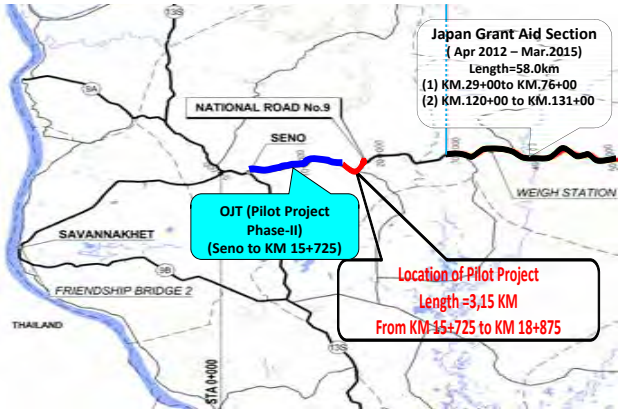
	Vientiane Province	Savannkahet Province
Technical Transfer Program for Road Maintenance (Routine Maintenance)		
(1) **Capacity Building of Performance Based Contract** - Inspection vehicle/ tool/ records - Contract documents, guideline & manuals	National Road (DBST) NR13N&S NR10	National Road (DBST) NR13S NR9A /B
(2) **Capacity Building of Asphalt Pavement Maintena** - Inspection vehicle/ tools - Maintenance vehicle/ equipment - Guideline & manuals	*Nil during CaRoL Phase-1* *Join OJT in Savannakhet*	National Road (AC) NR9
(3) **Capacity Building of Bridge Maintenance** - Inspection vehicle/ tools - Guideline & manuals	Bridges on National Road NR13N/S	Bridges on National Road NR13S NR9
(4) **Capacity Building of Road Disaster Management** - Inspection vehicle / tools - Guideline & manuals	National Road (Mountain) NR13N Bypass (Kasi – Muang Nan)	

OJT plan/budget plan

Estimated operation cost borne by GOL (2012 – 2015)

Description		Unit	SVN	VTN	Amount
(1) Routine Maintenance (PBC)	104days / year	USD	13,740	13,740	27,480
(2) Maintenance of AC Pavement	60days/ year	USD	324,650	0	324,650
(3) Maintenance of Bridge	6 bridges/ year	USD	23,060	23,060	46,120
(4) Maintenance of Slope/ Drainage	60days/ year	USD	0	162,150	162,150
	Total	USD	361,450	198,950	560,400

Scope of pilot project phase-2



OJT (Pilot Project-Phase II) to be undertaken by CaRoL

✓Routine Maintenance from DBST to AC, conducted by Lao Contractor

✓Maintenance works, conducted by JICA & RMF

✓First challenge for direct supervision by DPWT Savannakhet

CaRoL
Capacity building project for
Road maintenance in Lao PDR

"Early inspection, early maintenance, truly loved nation"

CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

3rd Joint Coordinating Committee

26 Sep, 2013
DOR Meeting Room

Secretariat for the CaRoL Project and JICA Expert Team

CaRoL

Contents of Presentation

- **Presentation of Progress Report**
  1. **Project outline**
  2. **Issues arising and actions taken**
  3. **Summary progress of each project activity**
- **Major progress of the Project and issues arising**
  4. **Organizational restructuring and amendment of PDM**
  5. **Draft OJT plan in 2013/14**
  6. **Proposed scope of pilot project in 2013/14**
  7. **Summary result of RMS analysis and budget plan in 2013/14**

Discussion

CaRoL

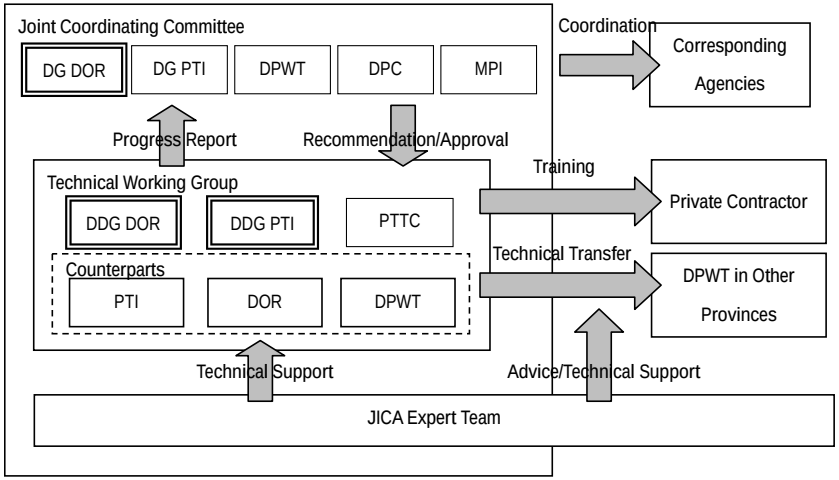
1. Project outline

CaRoL

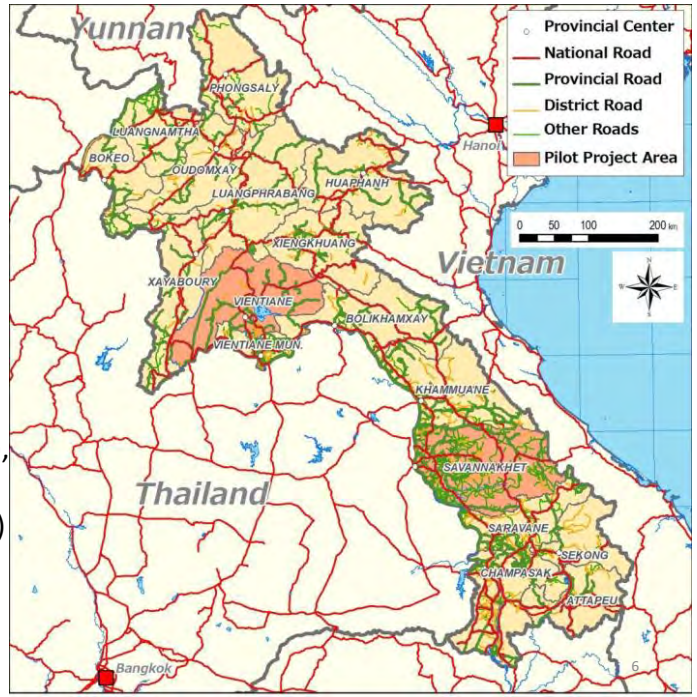
1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1)
  - Technical manuals for road/bridge maintenance are prepared. (Output 2)
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3)

1.2 Project implementation structure



- **Project Area**;
  - Savannakhet and Vientiane selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Jun 2014), Phase 2 (Aug 2014 – Sep 2016)



1.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Planned Actual

1.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

Planned Actual

2. Issues arising and actions taken

Issues arising and actions taken

JCC/TWG	Issues arising	Actions taken
Technical training (2nd JCC)	The project activities should not be limited to the pilot provinces and should be scaled out to other provinces (MPI)	• PTTC, as a focal point of training, fully involved in the CaRoL project. • DOP to set aside 800,000 USD in YR 2013/14 for capacity building training in MPWT. • CaRoL and DOR are working to slot the intensive training course of road/bridge/slope maintenance in the training course in YR 2013/14 to scale out the project activities to other provinces. • CaRoL also to work closely with KfW's capacity building project for PTTC and organized consultative meetings with KfW.

Issues arising and actions taken

Subject	Issues arising	Actions taken
PBC (6th TWG)	The CaRoL should consider to procure additional VIMS to be utilized to province level for monitoring and evaluating the PBC. (DDG, DOR)	• CaRoL is revising the PBC and IRI to be introduced as one of monitoring/evaluation indictors. • The revised PBC to be soon introduced in pilot provinces. If the pilot project is successfully implemented, the CaRoL to consider to procure additional sets of VIMS.
Pilot project (6th TWG)	The JICA Laos Office was requested to consider to provide technical supports by the CaRoL to conduct the design work for the remaining road section along the NR-9. (DDG, DOR)	• The JICA amended the contract of the CaRoL, assisting the CaRoL to assign Road Design Expert to support the conceptual design of the NR-9. • The CaRoL started the conceptual design work. • (Details discussed in 3.3)

Issues arising and actions taken

Subject	Issues arising	Actions taken
OJT (6th TWG)	DPWT Savannakhet and CaRoL should work together to use the budget as part of OJT program for bridge maintenance. (DDG, DOR) The scope of the bridge maintenance work in Savannakhet is still flexible and should be determined by the result of the inspection works conducted as part of the OJT under the CaRoL. (DDG, DOR)	• CaRoL consulted with the DPWT Savannakhet to scope the bridge maintenance work as OJT program under the CaRoL. • CaRoL organized the intensive training for detailed inspection mainly for the DOR/DPWT/OPWT staff in Savannakhet. • The inspection, evaluation and supervision works were carried out under the support of CaRoL. • (Details reported in 3.3)

Issues arising and actions taken

Subject	Issues arising	Actions taken
Pilot project (6th TWG)	The JICA Laos Office is requested to consider to provide additional funds to procure the asphalt concrete pavement materials (300 m^2) for remaining deteriorated road section at on-going spot maintenance works in the pilot project. (DDG, DOR)	• The JICA Laos Office provided additional funds for procurement of the asphalt concrete pavement materials. • Using the additional pavement materials, the pilot project (spot improvement works) was carried out and completed in early July. • (Details discussed in 3.3)
RMS (7th TWG)	PTI was suggested to formulate the road maintenance plan by the end of September and present it in the next JCC meeting scheduled in September. (JICA Office/CaRoL Expert)	• (Discussed in 7.1)

Issues arising and actions taken

Subject	Issues arising	Actions taken
OJT (7th TWG)	CaRoL was suggested to conduct the OJT program in Vientiane Province. (C/P, DOR) CaRoL Expert requested DPWT Vientiane to allocate the budget for maintenance for next fiscal year, particular that for slope protection, and to utilize the maintenance budget in close collaboration with the CaRoL.	• (Discussed in 5)
OJT/pilot project (7th TWG)	CaRoL was requested to change OJT/pilot project section from the NR-9 to other road section, since the NR-9 to be rehabilitated by the Lao Government. (C/P, DPWT Savannakhet)	• (Discussed in 6.2)

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (7th TWG)	CaRoL was suggested to focus on "sustainability" of the project, proposing development of the sustainable mechanism, especially that of financial capability, and strict enforcement of the control on the overloading trucks. (JICA Office)	• (Discussed in AOB)

3. Summary progress report

3.1 Progress of system improvement

Principle of system improvement;

- **Objectives**: Maintenance planning ability for road/bridge maintenance is enhanced.
- **Target**: PTI, DPWT/OPWT, DOR
- **Expected individual capacity level**: Trainer (PTI), Capable with manuals (DPWT/OPWT)
- **Approach**:
- PTI to develop in-house capacity through equipped with data collection and analysis tools.
- DPWT/OPWT to develop understanding/skills of data collection and analysis.
- DOR to improve maintenance/budgeting plan, based on numerical analysis.
- Full coordination with WB

3.1 Progress of system improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. **Improvement of RMS/PRoMMS**
5. Training for PRoMMS
6. Procurement of/training for VIMS
7. **Data collection and update of the RMS/PRoMMS**
8. Data analysis of RMS

3.1 Progress of system improvement

(1) Improvement of RMS/PRoMMS

- System improvement of PRoMMS ver. 3.0 to be finalized, through compiling the data into the RMS.
- System improvement of RMS to be finalized, through analyzing data collected by PTI.
- Input data of RMS, like traffic adjustment factors and unit cost, updated in Aug.
- VIMS ver.2.2 under revision and to be finalized in Nov by Prof. Nishikawa and PTI.
- Reporting system of RMS to be improved, reviewing comments from WB/JICA Expert. *(Evaluation report prepared)*

3.1 Progress of system improvement

(2) Data collection and update of RMS/PRoMMS

- PTI and Experts organized PRoMMS data collection survey training in Oct and Nov 2012. *(Training evaluation report prepared)*.
- LRD received the PRoMMS data by early April. Data validation test carried out, resulting only 3 provinces accepted and the result shared with LRD/PTI/WB in April
- LRD requested DPWTs to resubmit the data in May and received the revised PRoMMS data by June. 2nd data validation carried out, resulting 15 provinces accepted. *(Data validation reports prepared)*

3.1 Progress of system improvement

- Budget plan for RMS data collection survey prepared and approved by MPWT in April. *(Budget planning memo prepared)*
- 3 sets of VIMS procured in May. 2 sets of computers and software procured for operation of RMS in July. *(VIMS operation manual provided)*
- PTI completed traffic/condition/roughness surveys by June. Data entry work completed by Aug.
- Roughness survey carried out under technical support by Nagasaki Univ.

3.2 Progress of manual development

Principle of manual development;

- **Objectives**: Technical manuals for road/bridge maintenance are prepared.
- **Target**: DOR, DPWT, PTTC
- **Expected individual capacity level**: Trainer (PTTC/DOR), Capable with manuals (DPWT)
- **Approach**:
- DOR/DPWT/PTTC involved in preparation/revision of the technical manuals.
- Technical manuals fully utilized, absorbed in existing planning and procurement procedure.
- Scale out to other provinces
- Full coordination with KfW

3.2 Progress of manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. **Intensive training**
6. **Revision of PBC**
7. **Revision of technical manuals**

3.2 Progress of manual development

(1) Intensive Training

- 4 to 5 day intensive trainings organized in Dec 2012 (Bridge), Jan (Road) and April (Slope) to disseminate and develop understanding of application of the manual. *(A set of Technical Manuals disseminated)*
- Trainees invited from DPWT, MPWT and local contractors. In total, 81 trainees participated. Trainers from CaRoL, PTTC and local contractors/suppliers.
- Both classroom training and fieldwork
- Training evaluation through skill test and self-evaluation *(Evaluation report prepared)*

3.2 Progress of manual development

Fieldwork

(Road maintenance training in Jan)

22/Jan: Routine inspection (pavement)

22/Jan: Routine inspection (culvert)

22/Jan: Detailed inspection (pavement)

22/Jan: Detailed inspection (pavement)

3.2 Progress of manual development

Fieldwork

(Road maintenance training in Jan)

22/Jan: Repair work (spot replacement)

22/Jan: Repair work (spot replacement)

22/Jan: Repair work (spot replacement)

22/Jan: Repair work (crack seal)

3.2 Progress of manual development

Classroom Training, Skill Test

(Road maintenance training in Jan)

25/Jan: Presentation of report

25/Jan: Skill test

25/Jan: Handover of certificate

25/Jan: End of training

3.2 Progress of manual development

(2) Revision of PBC

- PBC revised by July and provisional PBC proposed to increase local capability towards full operation, by narrowing down the scope of work →**PBC applied ONLY to the pavement maintenance**. *(PBC contract documents revised)*

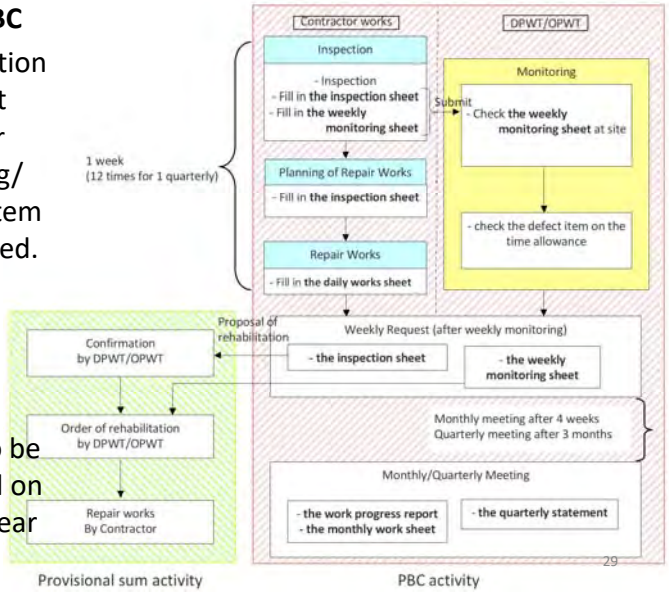
Item	Maintenance	Rehabilitation
Pavement	PBC	PBC
Road facility	PBC	-
Slope	PBC	-
Structure	PBC	-
Emergent work	PBC	-

Maintenance	Rehabilitation
PBC	PBC
PBC	-
PBC	-
PBC	-
PBC	-

3.2 Maintenance activity

(2) Revision of PBC

- Clear demarcation between Client and Contractor and monitoring/ evaluation system to be established.
- In July, CaRoL organized workshop for DOR.
- Revised PBC to be finalized based on result of one year trial.



3.2 Progress of manual development

(3) Revision of technical manual

- Sub-working group organized in April and Aug.
- 11 officials working to translate and review the manuals.

REVISED SCHEDULE OF REVISION WORK OF TECHNICAL MANUALS

Work Item	Done by		2013 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2014 Jan	Feb	Mar	Apr	May	Jun	Jul
Translation work of draft manual (English => Laotian)	Lao members (contracting out is available)	Plan	←		→													
		Revised	●				●											
Submission of draft Laotian Ver.	Lao members => CaRoL	Plan				*												
		Revised					*											
Review & analysis (Lao Ver.)	Lao members	Plan				←	→				←	→						
		Revised					●	●			●	●						
Summarizing discussion points	Lao members	Plan						↔					↔					
		Revised						●	●				●					
Meeting	All members	Plan	*						*		*			*	*			
		Revised							*		*			*	*			
Revision work	Laotian: Lao members English: CaRoL	Plan							←	→				←	→			
		Revised							●	●				●	●			
Final check	Laotian: Lao members English: CaRoL	Plan													↔			
		Revised													●	●		
Editing, printing & binding	CaRoL	Plan														↔		
		Revised														●	●	
Submission of final Ver.	CaRoL => MPWT	Plan																*
		Revised																*
Apply draft manual in field level	DPWT-SVK		←															→

3.3 OJT and Pilot Project

Principle of OJT and pilot project;

- **Objectives**: Capability of physical road/bridge maintenance work in pilot provinces is enhanced.
- **Target**: DOR, DPWT
- **Expected individual capacity level**: Capable with manuals (DPWT)
- **Approach**:
- Contribution from Lao side to create ownership.
- Private sector participated both as trainer and trainee in the OJT/pilot project.
- Organizational reform (e.g., maintenance unit for routine maintenance)

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12)
5. **Pilot project (YR 2012/13)**
6. **OJT**

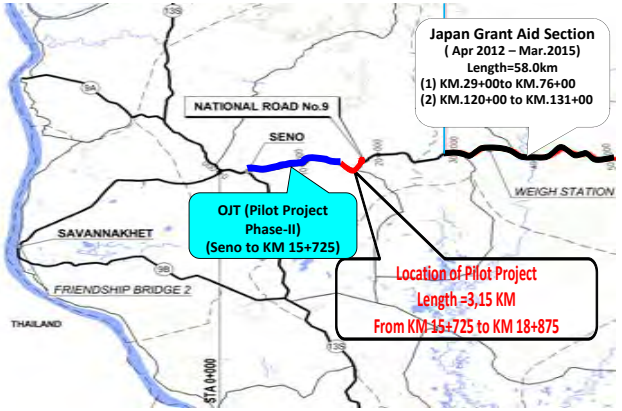
3.3 OJT and Pilot Project

(1) Pilot Project (YR 2012/13)

- On-going spot improvement project (totaling 1.2 M USD) partly selected as pilot project and contract between DPWT and local contractor amended to accommodate CaRoL and JICA's support.
- Materials for repair work (e.g. hot mixed asphalt, crushed stone) provided by JICA Office.
- Equipment for repair work (roller, dump truck, compactors etc.) provided by the CaRoL.
- Project management works (i.e. administration and site supervision) conducted by DPWT Savannakhet with the assistance of the CaRoL.
- Technical workshop held in April and Aug. Pilot project completed in July.

3.3 OJT and Pilot Project

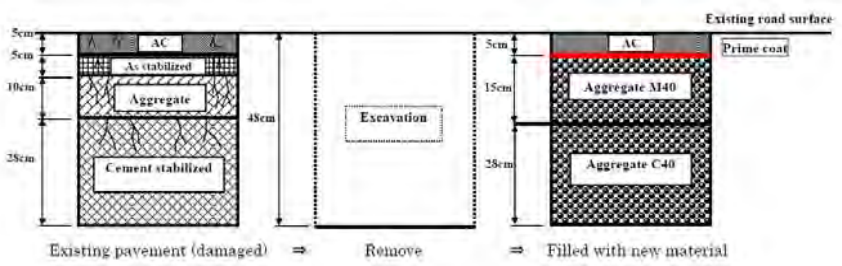
(1) Pilot Project (YR 2012/13)



Location Map

3.3 OJT and Pilot Project

(1) Pilot Project (YR 2012/13)



Work Procedure

3.3 OJT and Pilot Project

(1) Pilot Project (YR 2012/13)

3.3 OJT and Pilot Project

(1) Pilot Project (YR 2012/13)


Base course installation work


Base course completed


Repair work completed (large)


Repair work completed (narrow)

3.3 OJT and Pilot Project

(2) OJT (Bridge Maintenance Work)

- DOR set aside 120,000 USD for bridge maintenance in Savannakhet and agreed with bridge maintenance budget utilized under supervision of CaRoL as part of OJT program.
- CaRoL organized intensive training for periodic and detailed inspection and bridge repair work in May.


Inspection of
Bridge Expansion Joint


Inspection of
Crack in Main Girder of the Bridge


Lecture and Discussion

3.3 OJT and Pilot Project

(2) OJT (Bridge Maintenance Work)

- CaRoL together with DPWT Savannakhet supervised repair work


Damage of Main Girder


Supervised by DPWT Staff


After Finished of Repair


Repair of Expansion Joint


Repair of Structural Crack

3.3 OJT and Pilot Project

(2) OJT (Bridge Maintenance Work)

- **Output**

➢ Inspection work (Periodic/Detailed Inspection) done properly by using inspection sheet/BOQ collection sheet prepared by CaRoL;

➢ DPWT Staff supervised repairing works based on Technical Manual prepared by CaRoL;

➢ Contractor implemented repair work through intensive training and Technical Manual provided by CaRoL;

➢ Bridges along Route No.9 and No.13S maintained.

3.3 OJT and Pilot Project

(2) OJT (Bridge Maintenance Work)

- **Issue arising**

➢ Detailed inspection should be carried out before the implementation of repair work;

➢ BOQ should be prepared based on the inspection results;

→ Procurement procedure to be re-designed.

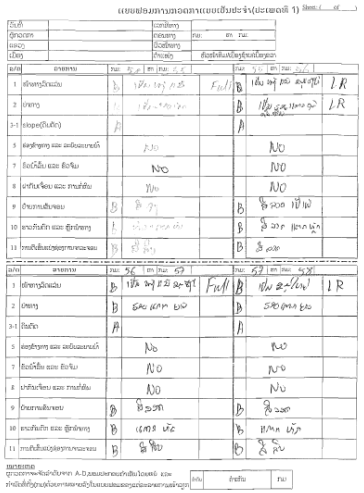
➢ Bridge for maintenance (through periodic inspection) and repair work (detailed inspection) should be chosen by priority of the damage and allocated budget;

➢ Completed works and remaining works should be reported to DOR.

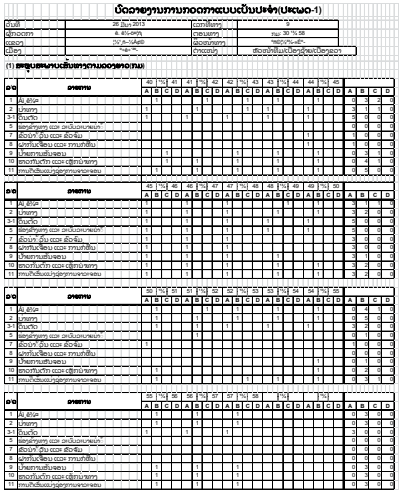
→ Project selection, budget planning /approval , reporting to be introduced as a system

(2) OJT (Road Maintenance Work)

- In the pilot project, DPWT conducted inspection, evaluation and supervision works as OJT program.



Routine inspection sheet



Routine inspection report

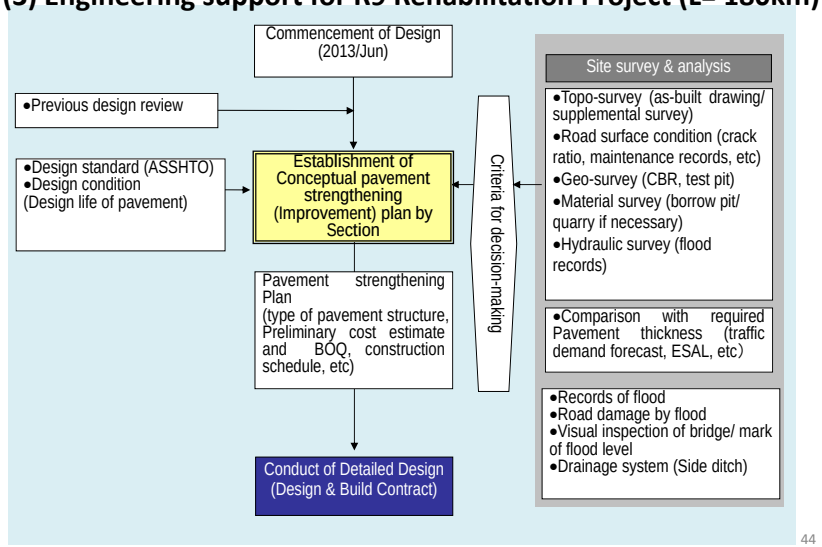
3.3 OJT and Pilot Project

(2) OJT (Road Maintenance Work)

Achievement	Issues
Following achievements were observed among the engineers in charge. • Principle of maintenance work was well understood. • Necessity of management cycle was well shared. • Capability of physical maintenance work was improved.	Following issues were observed by monitoring the activities. • Local capacity of repair work was limited (e.g., crack seal, spot replacement) mainly due to lack of equipment, materials and skilled labor. • No. of engineers involved in the project was limited due to lack of resources in DPWT (e.g., staff, vehicle). • All work items in management cycle, from planning to reporting, was not implemented spontaneously.

3.3 OJT and Pilot Project

(3) Engineering support for R9 Rehabilitation Project (L= 180km)



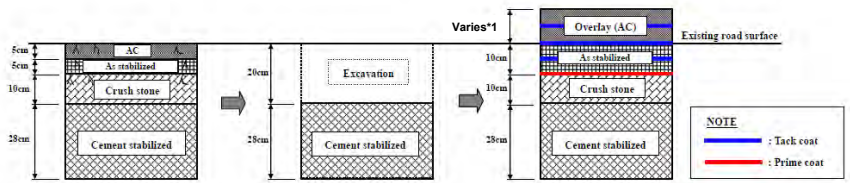
3.3 OJT and Pilot Project

(3) Engineering support for R9 Rehabilitation Project (L= 180km)

(1) Spot replacement (A) + Overlay

Applied damage type: Crocodile crack (CC), Pavement destruction (PD) and Pothole (PH)

Work Process



*1: Overlay thickness to be determined by design life period

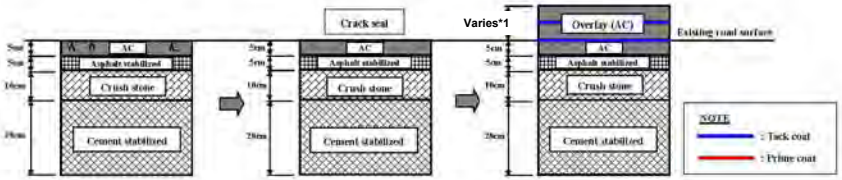
3.3 OJT and Pilot Project

(3) Engineering support for R9 Rehabilitation Project (L= 180km)

(2) Crack seal + Overlay (detail method of crack seal is stated shown in (4).)

Applied damage type: Longitudinal crack (LC)

Work Process



*1: Overlay thickness to be determined by design life period

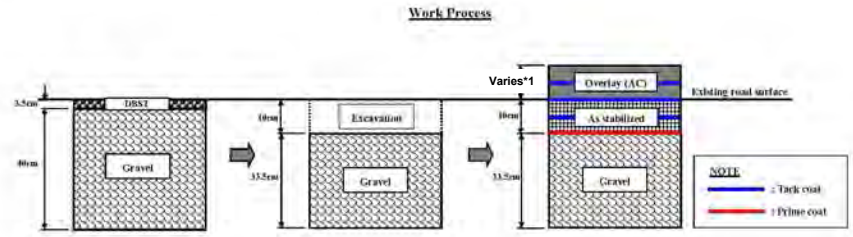
3.3 OJT and Pilot Project

(3) Engineering support for R9 Rehabilitation Project (L= 180km)

(3) Spot replacement (B) + Overlay

Applied damage type: Patching area

Work Process



*1: Overlay thickness to be determined by design life period

3.3 OJT and Pilot Project

(3) Engineering support for R9 Rehabilitation Project (L= 180km)

Tentative Implementation Schedule

Implementation Schedule	2013					2014										2015					
Month	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
(1) Concept Design																							
(2) Pricing BOQ																							
(3) Contract negotiation																							
(4) Detailed Design																							
(5) Construction																							

3.4 External Training in 2013

1. External Training in Japan

Objectives:	To obtain knowledge on road and bridge maintenance planning and exercise in Japan
Schedule:	31 Aug to 11 Sep 2013
Venue:	Local government and MLIT prefectural office in Yamaguchi, Japan
No. of Trainees:	5 persons (DOR, PTI, PTTC, DPWT)

2. External Training in Thailand

Objectives:	To obtain practical skills of road and bridge maintenance in Thailand
Expected Schedule:	7 Oct to 18 Oct 2013
Venue:	DOH, Thailand
No. of Trainees:	5 persons (DOR, PTI, PTTC, DPWT)

Note: MLIT: Ministry of Land, Infrastructure, Transport and Tourism in Japan

4. Organizational restructuring and amendment of PDM

4.1 Organizational restructuring

- 4 Regional Offices to be established. Regional Office No. 3 includes Vientiane and Savannakhet Provinces.
- Regional Offices limited responsibility for all maintenance activities for National Roads and DPWT for Local Roads.
- RMF only utilized for maintenance of National Roads (?).
- Regional Offices staffed with PM and DPMs. PM from DOR and DPMs from DOR and DPWTs.

4.2 Amendment of PDM

Items to be discussed

- Should TA target and approach be re-designed and amended?
  - Counterpart agencies/departments remain same?
    - DPWT suggested to remain as counterpart during the transition period.
  - Pilot provinces remain same?
    - OJT and pilot project suggested to be carried out in pilot provinces. Other activities such as maintenance and budget planning can be extended to Regional Office No.3
  - System improvement
    - RMS/PRoMMS suggested to remain at PTI as system manager.
  - OJT
    - DPWT/OPWT to be involved in OJT during the transition period.
    - Maintenance equipment to be utilized for OJT/Pilot Project.

5. Draft OJT plan in 2013/14

5. Draft OJT plan in 2013/14

- **Counterparts**: Regional Office No.3 (Vientiane and Savannakhet included). *During transitional period, DPWT to be involved.
- **Subject**: Inspection, evaluation, supervision of (i) road maintenance, (ii) bridge maintenance, (iii) slope protection, (iv) PBC
- **Area**: OJT for (i) to (iii) at pilot provinces.
- **Items to be discussed**;
  - Contents of OJT to be determined when the budget plan is approved and OJT project(s) is confirmed.
  - Scope of work of OJT project to be flexible, determined through the BOQ prepared through OJT.

6. Proposed scope of pilot project in 2013/14

6.1 Pilot project phase 1 and 2

- **Pilot project (YR 2011/12)**
  - Rehabilitation (AC overlay) L=3.15km


Before rehabilitation


After rehabilitation


Workshop for PP-1

- **Pilot project (YR 2012/13)**
  - Routine maintenance (AC) L=15.725km


Before rehabilitation


After rehabilitation


Workshop for PP-2

6.1 Pilot project phase 1 and 2

1. **Pilot project (YR 2011/12)**

   Full scale rehabilitation method by using AC learnt

   i. Investigation and evaluation of current pavement damages
   ii. Planning and design of rehabilitation works by using AC
   iii. Preparation of bidding documents/ cost estimate
   iv. Supervision of contract with assistances from CaRoL engineers

2. **Pilot project (YR 2012/13)**

   Routine maintenance method by using AC learnt

   – Investigation and selection of priority road section
   – Design of spot improvement works
   – Review of current RMF contract and contract amendment
   – Implementation (control of works) by DPWT

6.2 Proposed pilot project in 2013/14

Proposed pilot projects in 2013/14 with/without R9 rehabilitation

Without R9 rehabilitation	With R9 rehabilitation
-Continue **routine maintenance works** (Spot replacement, crack sealing, etc.) [The routine maintenance works is foundation works for the rehabilitation (AC overlay)]	-Support to **supervision works** of R9 rehabilitation [optional pilot projects] -Conduct of **bridge rehabilitation** (replacement of expansion joint, etc.) -Conduct of **slope stabilization** (installation of gabion, grassing and geo-textile, etc.) -Support to **trial PBC**

6.2 Proposed pilot project in 2013/14

Schedule of pilot project (in case of spot replacement at NR-9)

Selection of pilot project scope/area: **September 2013**

Planning and design of repair method: **October 2013**

Quotation from material supplier: **November 2013**

Contract negotiation with material supplier : **December 2013**

Commencement of works after authorization of contracts: **December 2013**

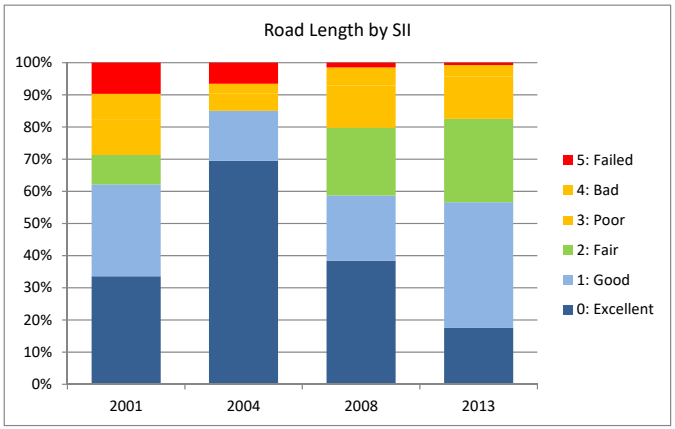
Items to be discussed for commencement of pilot project

- Confirmation of counterpart (DPWT or Regional office?)
- Selection of contractor for the pilot project
- Budgeting for employment of contractor by Lao side
- Procedure for procurement of contract

7. Summary result of RMS analysis and budget plan in 2013/14

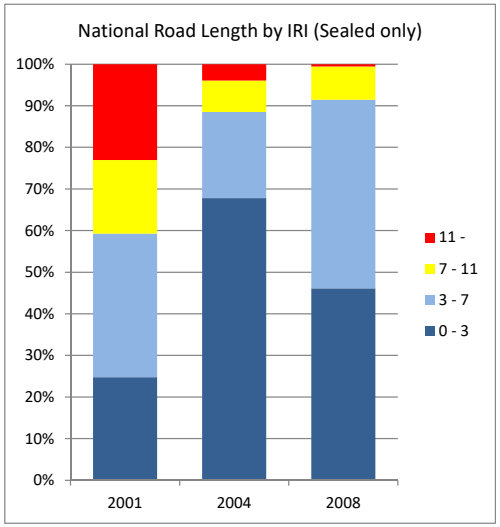
7.1 Summary result of RMS analysis

- Over 80% of the National Roads evaluated in fair condition in recent years. Critically damaged road section decreases.
- However, share of 'good' and 'excellent' roads decreases.



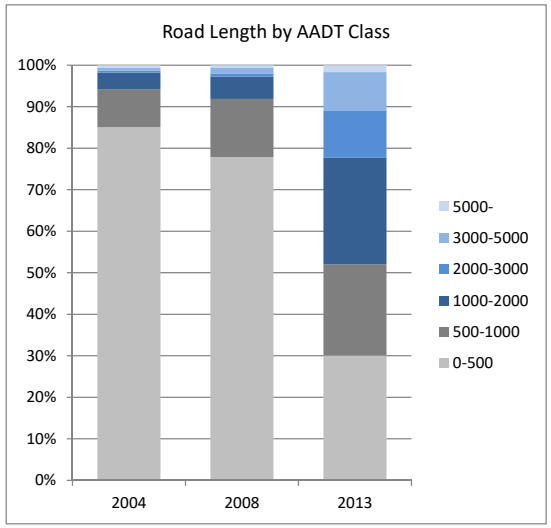
7.1 Summary result of RMS analysis

- International Roughness Index Survey shows critically rough road section (IRI over 11) decreases. However, road section with lower IRI decreases in recent years.

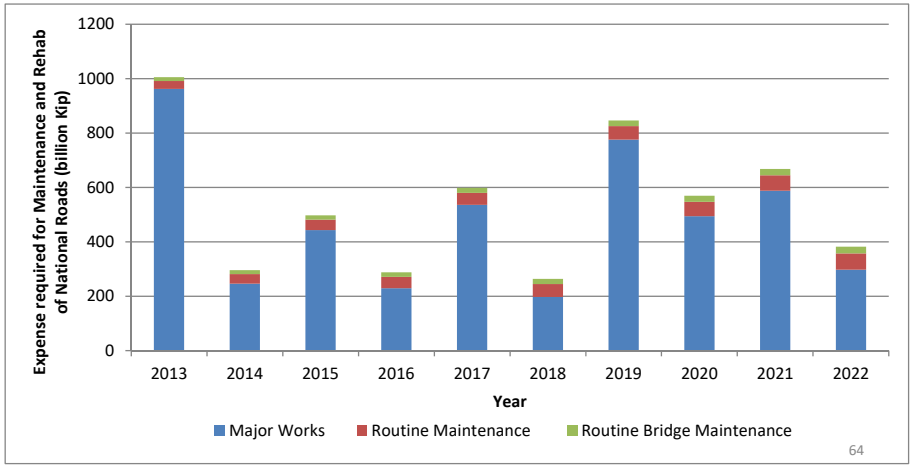


7.1 Summary result of RMS analysis

- Number of vehicles along National Roads increases significantly. In 2013, over 2,000 vehicles per day observed at 1/4 of National Roads.
- Between 2004 and 2013, traffic volume increases by 10% p.a.
- It implies more road sections are deteriorated than expected.

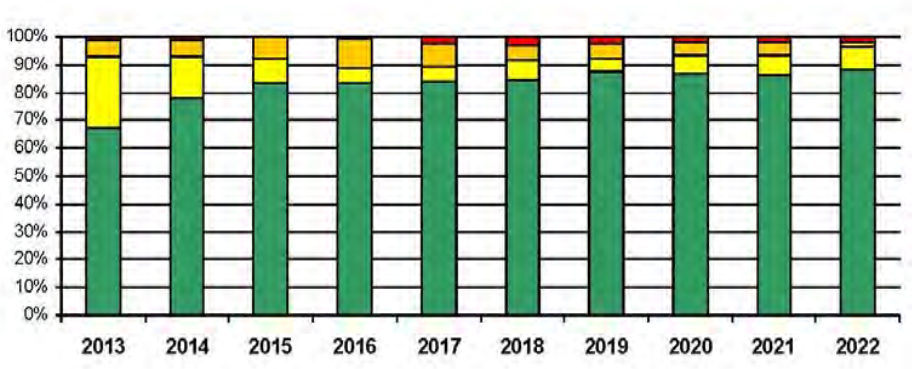


- Assuming unconstraint budget, **541 billion Kip p.a**. on the average, required for maintenance of National Roads.
- **1,540 billion Kip p.a.** (estimates) required for maintenance of entire road network in Laos



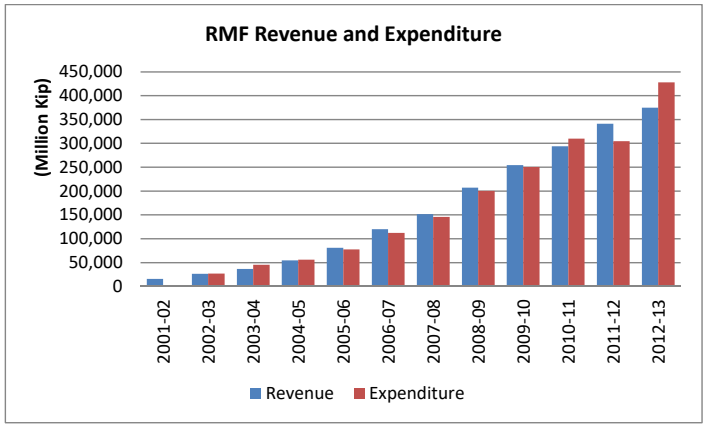
7.1 Summary result of RMS analysis

- If sufficient budget available and invested as planned, the road condition of the National Roads can be maintained in good condition (green in the figure)



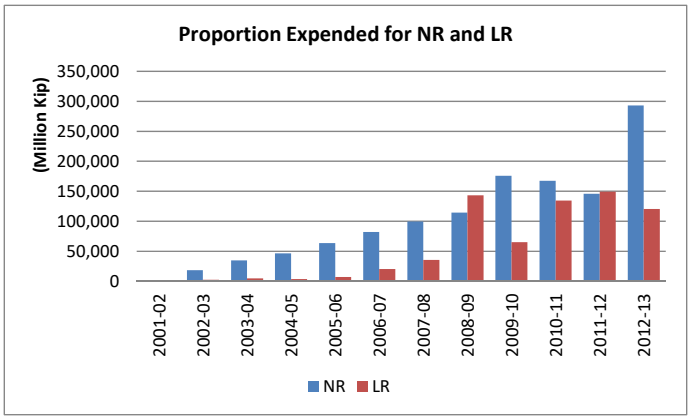
7.2 RMF revenue and expenditure

- Due to hike of fuel tax and consumption, RMF revenue increases by 20% p.a in recent years and reaches **374 billion Kip** in 2012/13.



7.2 RMF revenue and expenditure

- Since 2008/09, more RMF channeled for Local Roads, receiving more than National Roads in 2008/09 and 2011/12.
- In 2012/13, more RMF channeled for maintenance of National Roads.



7.3 2013/14 maintenance budget

- According to the DOR, amount of **the debt for maintenance and on-going overlay exceeds 250 billion Kip**.
- 2013/14 RMF to be used for debt repayment and minimal amount of the RMF channeled for the actual maintenance.

→ Issues on road maintenance financing/policy to be discussed in AOB.

Any Other Business

8.1 Road maintenance finance/policy

- A huge gap identified btw RMF revenue and maintenance budget required.
- On-going organizational restructuring is well thought and relevant... but based on which policy?

→ Any long-term policy? Or if exists, policy/strategy already expired.

Items to be discussed

- New road maintenance policy and long or mid-term road maintenance/investment plan (c.f., WB funded SPM project)
- How to increase maintenance budget? Any alternative source of funds?

8.2 Control on overloaded truck

- In 2011, 26 weight stations terminated, following PM's order.
- Since then, many bridges including NR-20, 1H, 14 collapsed due to overloaded trucks.
- Some weight stations reinstalled and 2 weight stations operate at NR-9.
- Loading survey at NR-9 found 35% trucks overloaded and 14% trucks without checking. Only 13% of overloaded trucks off-load goods.

Items to be discussed

- Reinstallation of weight bridges and strict enforcement inevitable

→ How/who to reinstate full operation/enforcement?

CaRoL
Capacity building project for
Road maintenance in Lao PDR

"Early inspection, early maintenance, truly loved nation"





CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

4th Joint Coordinating Committee

3rd April, 2014
DOR Meeting Room

Project Coordinators for the CaRoL and JICA Expert Team

CaRoL

Contents of Presentation

- **Presentation of Progress Report**
  1. **Project outline**
  2. **Issues arising and actions taken**
  3. **Summary progress of each project activity**

CaRoL

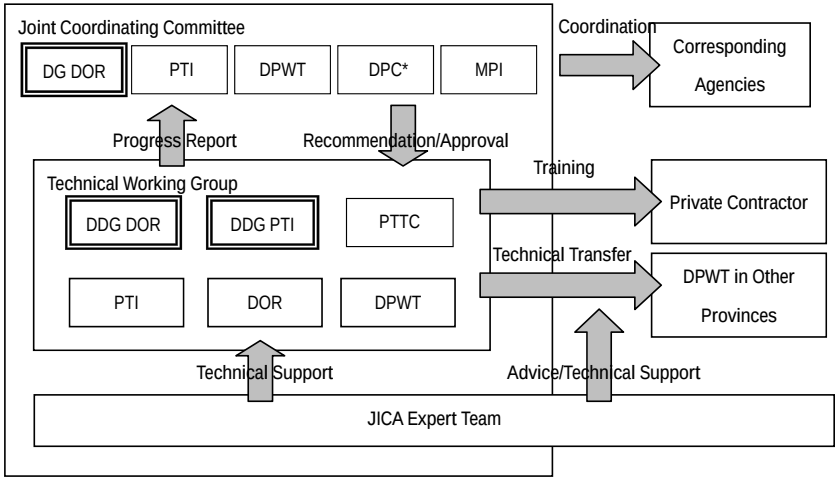
1. Project outline

CaRoL

1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1)
  - Technical manuals for road/bridge maintenance are prepared. (Output 2)
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3)

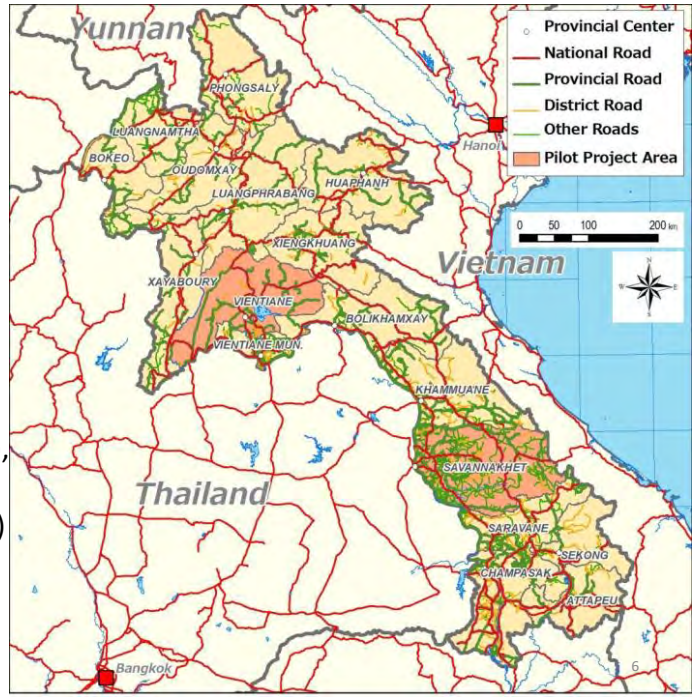
1.2 Project implementation structure



*DPC was split into DOP and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office, Expert for MPWT, CaRoL Expert and EOJ) are not shown in the figure.

- **Project Area**;
  - Savannakhet and Vientiane selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Jun 2014), Phase 2 (Aug 2014 – Sep 2016)



1.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Planned Actual

1.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

Planned Actual

2. Issues arising and actions taken

Issues arising and actions taken

Subject	Issues arising	Actions taken
OJT/ pilot project (3rd JCC)	In case Lao Government rehabilitates the remaining section of National Road No.9 by itself, the contents of 2013/14 pilot projects should be reconsidered and revised. (JICA Laos Office)	• JICA, CaRoL and DOR agreed that the CaRoL provides technical assistance for SV for maintenance of the NR-9, as OJT/pilot project in 2013/14.
Others (3rd JCC)	In order to well maintain road and bridge conditions, controlling of overloaded vehicle is a central issue. A further discussion on tackling the overloaded trucks is essential in the Project. (Embassy of Japan)	• EOJ and DOR worked to install the weight bridges under the financial assistance by the JAIF.

Issues arising and actions taken

Subject	Issues arising	Actions taken
Others (3rd JCC)	To enhance sustainability of the Project, part of the Project should focus on how to secure adequate funds for road and bridge maintenance. Transparency of bidding process should be ensured to reduce the expenditure and maintain sustainability of road maintenance. (JICA Laos Office)	• CaRoL consulted with SPM project, part of which studies and suggests self-sustained financing mechanism for road maintenance. • CaRoL currently works to revise PBC, part of which aims to establish an optimum procurement mechanism for road maintenance.
RMS (8th TWG)	JICA Laos Office requested the PTI to provide the reports on the traffic count survey and bridge condition survey, part of RMS data collection surveys conducted by the PTI in 2013. (JICA Laos Office)	• PTI and CaRoL submitted the reports and related data to JICA Laos Office in March 2014.

Issues arising and actions taken

Subject	Issues arising	Actions taken
RMS (8th TWG)	The DOR suggested the PTI to amend the planned 2013/14 survey implementation schedule to complete updating the input data of the RMS by May 2014 when the preparation of the budget plan of the maintenance work starts. (DDG of DOR)	• The PTI agreed to reschedule the survey implementation schedule to complete the condition survey and roughness survey and submit the preliminary survey result at earliest timing. • The PTI is to start a series of surveys on 21st April 2014.
RMS (8th TWG)	JICA Laos Office requested the DOR to explain how the result of the RMS survey conducted by September 2013 was reflected into the budget plan. (JICA Laos Office)	• The budget plan was prepared, by conducting site observation by DOR, referring to the result of the RMS to identify the priority roads. • The BOQ, prepared by each DPWT, was used to estimate the actual maintenance cost of the selected priority roads.

Issues arising and actions taken

Subject	Issues arising	Actions taken
Pilot project (8th TWG)	The CaRoL Experts requested the DOR to make a follow up action to accelerate the implementation of the pilot project, which was agreed on 15th Jan 2014. (CaRoL)	
Pilot project (8th TWG)	The DOR requested the CaRoL Experts to provide the OJT program through the pilot project in Vientiane Province.	

3. Summary progress report

3.1 Progress of system improvement

Principle in capacity development of system improvement;

- **Objectives**: Maintenance planning ability for road/bridge maintenance is enhanced.
- **Target**: PTI, DPWT/OPWT, DOR
- **Expected individual capacity level**: Trainer (PTI), Capable with manuals (DPWT/OPWT)
- **Approach**:
- PTI to develop in-house capacity through equipped with data collection and analysis tools.
- DPWT/OPWT to develop understanding/skills of data collection and analysis.
- DOR to improve maintenance/budgeting plan, based on numerical analysis.
- Full coordination with WB

3.1 Progress of system improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. Improvement of RMS/PRoMMS
5. Training for PRoMMS
6. Procurement of/training for VIMS
7. Data collection and update of the RMS/PRoMMS
8. Data analysis of RMS/PRoMMS
9. Preparation of Road Maintenance Plan and Budget Plan

3.1 Progress of system improvement

- RMS/PRoMMS and VIMS improved and new versions developed.
- These systems to be continuously improved, particularly RMS/VIMS data conversion system and reporting system.
- Training for PRoMMS data collection/analysis conducted by the PTI in Oct 2013.
- VIMS to be introduced to monitor the quality of the work of the PBC. PTI invited to provide a training for the PBC in Feb and March 2014.

3.1 Progress of system improvement

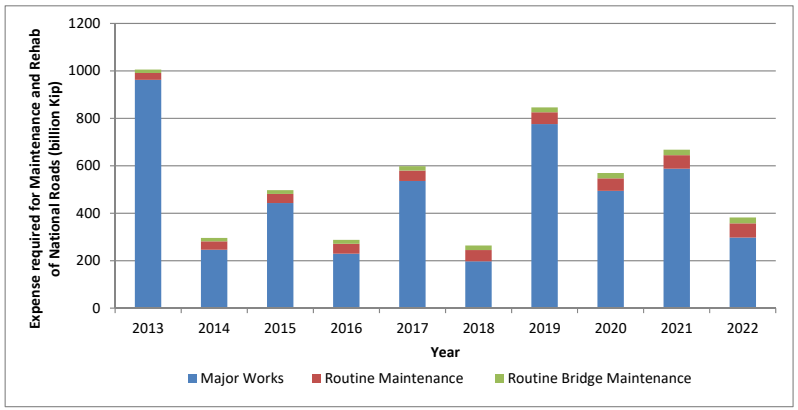
- Budget plan for RMS data collection survey prepared and submitted by Feb, 2014. Data collection survey to be conducted from April 2014.

Data collection survey in 2013 and 2014

	unit	2013 (Completed)	2014 (Planned)
Referencing and Inventories	km	274	109
Paved Road Condition	km	5,274	3,126
Unpaved Road Condition	km	173	0
Bridge Condition	nos	1,067	582
Road Roughness	km	5,274	5,338
Traffic Count	nos	231	119
Socio-economic	nos	7	0

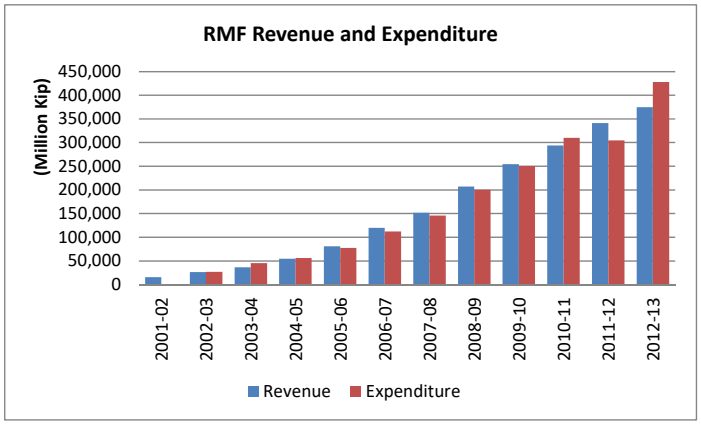
3.1 Progress of system improvement

- Result of RMS data analysis presented in the 3rd JCC and submitted to DOR by end of 2013 (Note: 541 billion Kip p.a., required for maintenance of National Roads and 1,540 billion Kip p.a. for maintenance of entire road network).



3.1 Progress of system improvement

- DOR, taking into account for the RMF revenue (e.g., 374 billion Kip in 2012/13), prepared 2013/14 budget, using the result of RMS analysis by PTI and BOQ prepared by DOR/each DPWT.



3.2 Progress of manual development

Principle in capacity development of manual development;

- **Objectives**: Technical manuals for road/bridge maintenance are prepared.
- **Target**: DOR, DPWT, PTTC
- **Expected individual capacity level**: Trainer (PTTC/DOR), Capable with manuals (DPWT)
- **Approach**:
- DOR/DPWT/PTTC involved in preparation/revision of the technical manuals.
- Technical manuals fully utilized, absorbed in existing planning and procurement procedure.
- Role out to other provinces
- Coordination with KfW/WB

3.2 Progress of manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of technical manuals
7. Revision of PBC
8. Workshop/training for revised PBC

3.2 Progress of manual development

- 5 Sub-working Groups organized to review technical manuals and technical manual version 1.0 prepared.

REVISED SCHEDULE OF REVISION WORK OF TECHNICAL MANUALS

Work Item	Done by		2013 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2014 Jan	Feb	Mar	Apr	May	Jun	Jul
Translation work of draft manual (English => Laotian)	Lao members (contracting out is available)	Plan	←	—	→													
		Revised	•	—	—	—	—	→										
Submission of draft Laotian Ver.	Lao members => CaRoL	Plan			*													
		Revised					*											
Review & analysis (Lao Ver.)	Lao members	Plan				←	—	→			←	—	→					
		Revised					•	—	→		•	—	→					
Summarizing discussion points	Lao members	Plan						←	→				←	→				
		Revised						•	→				•	→				
Meeting	All members	Plan	*						*		*			*	*			
		Revised							*		*			*	*			
Revision work	Laotian: Lao members English: CaRoL	Plan							←	—	→			←	→			
		Revised							•	—	•			•	→			
Final check	Laotian: Lao members English: CaRoL	Plan													←	→		
		Revised													•	→		
Editing, printing & binding	CaRoL	Plan														←	→	
		Revised														•	→	
Submission of final Ver.	CaRoL => MPWT	Plan																*
		Revised																*
Apply draft manual in field level	DPWT-SVK		←	—	—	—	—	—	—	—	—	—	—	—	—	—	—	→

3.2 Progress of manual development

- PBC revised, by narrowing down the scope of work and introducing the provisional BOQ for periodic maintenance and rehab. Evaluation criteria also amended.
- Workshop on PBC organized in DOR in Feb 2014 and technical training in Savannakhet in March 2014. (See Appendix)

Item	Maintenance	Rehabilitation
Routine work(cleaning, etc)	Labor based	-
Pavement	**PBC**	Admeasurements BOQ /Provisional sum
Road facility	Admeasurements BOQ /Provisional sum	-
Slope	Admeasurements BOQ /Provisional sum	-
Structure	Admeasurements BOQ /Provisional sum	Admeasurements BOQ
Emergent work	Admeasurements BOQ /Provisional sum	-

3.3 OJT and Pilot Project

Principle in capacity development of OJT and pilot project;

- **Objectives**: Capability of physical road/bridge maintenance work in pilot provinces is enhanced.
- **Target**: DOR, DPWT
- **Expected individual capacity level**: Capable with manuals (DPWT)
- **Approach**:
- Contribution from Lao side to develop ownership.
- Private sector participated both as trainer and trainee in the OJT/pilot project.
- Organizational reform (e.g., maintenance unit for AC pavement routine maintenance, Regional Office)

3.3 OJT and Pilot Project

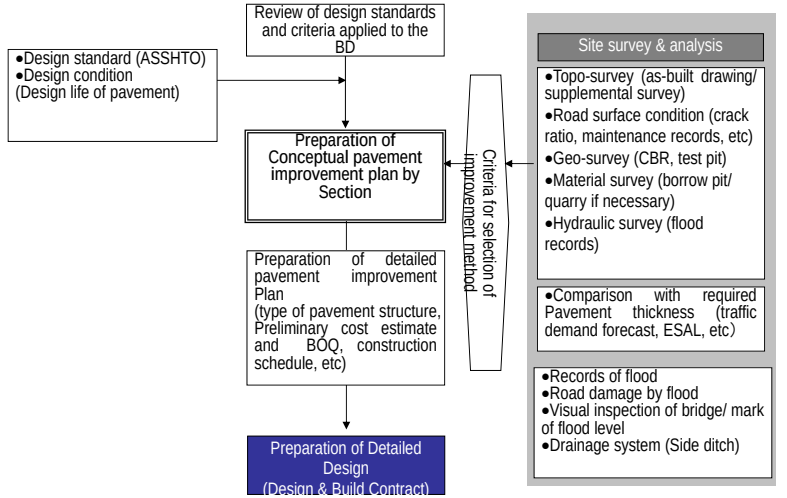
1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12)
5. Pilot project (YR 2012/13)
6. OJT (e.g., Pilot projects in Savannakhet, bridge maintenance in Savannakhet)

3.3 OJT and Pilot Project

- Concept design of rehab of the NR-9 prepared under technical support by CaRoL.
- DOR confirmed the design concept, including the design life of 5 years.
- DOR signed the Design & Build contract in Jan, 2014.
- DOR to set aside 5 million USD for rehab of the NR-9 from the RMF.
- DOR requested CaRoL to provide technical supports for the SV of the rehab of the NR-9.
- Accordingly, DOR, JICA and CaRoL discussed and agreed with the scope of work and inputs for the technical supports for the SV of the rehab of the NR-9.

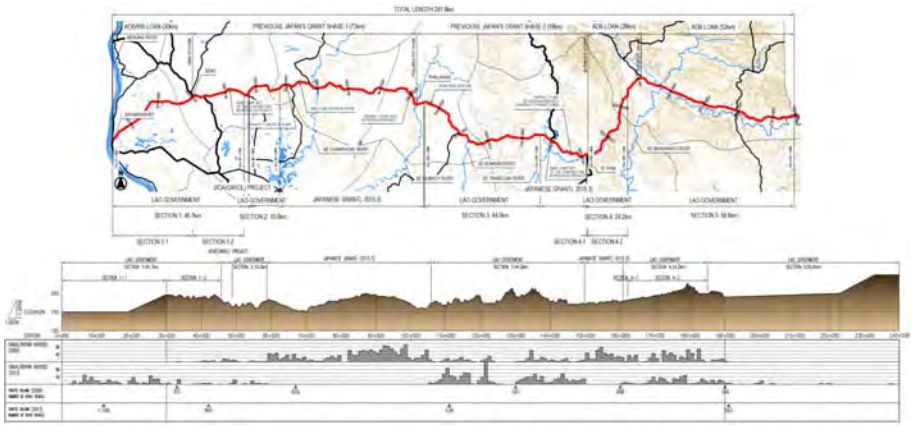
3.3 OJT and Pilot Project

Flowchart of Concept Design of NR9 Rehabilitation Project



3.3 OJT and Pilot Project

Project Location Map of NR9 Rehabilitation Project (L= 180km)



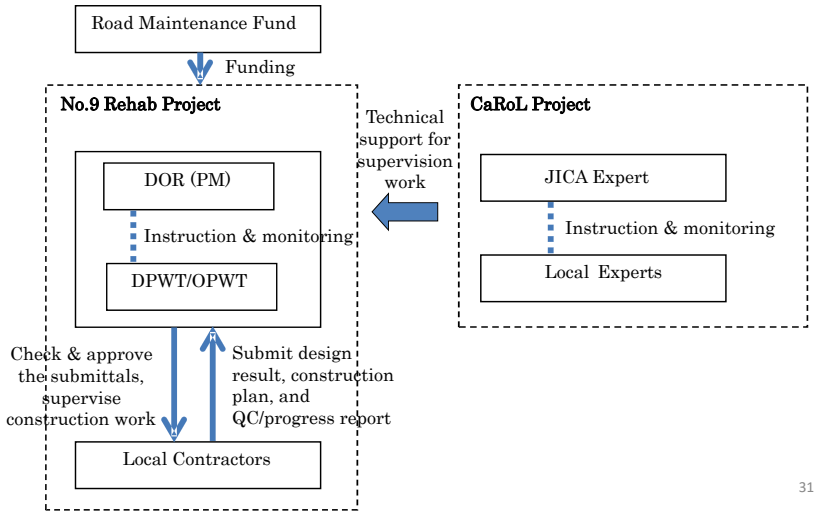
3.3 OJT and Pilot Project

Outline of NR9 Rehabilitation Project as 2013/14 Pilot Project

Project Road	Among the remaining 74-km JICA funded road section along NR-9 (excluding ongoing JICA grant aid road section), 15-km road section (assuming the RMF of 6 million USD) to be selected for 2013/14 pilot project under the CaRoL.
Outline of TA	Based on the conceptual design developed under the support of CaRoL, the CaRoL provides technical supports for the implementation of the NR-9 Rehabilitation Project, particularly S/V managed by Lao side.
Components of TA	Target Road for TA: Sections contracted by DOR for rehabilitation Work items to be supported by CaRoL include ➢Review of the submittals from the contractor (Design output, Drawings, Construction method statement, QC program, Construction schedule) ➢Assist in S/V (Quality Control, Construction Progress) ➢On the job training (On-site training)
Proposed Inputs	International Expert 4~5 MM, Local Expert(s) 10~20 MM

3.3 OJT and Pilot Project

Proposed Implementation Structure of 2013/14 Pilot Project



3.3 OJT and Pilot Project

Proposed Tasks and Schedule of 2013/14 Pilot Project

Tasks	Schedule* 5	6	7	8	9	10	11	12	1
◆Pre-implementation stage									
-Prepare detail design & construction plan	■	■	■	■					
-Design review & approval		■	■	■					
◆Implementation stage									
-Mobilization of the project site					■				
-Procurement of the construction material					▪	▪	▪	▪	▪
-Rehabilitation work					■	■	■	■	■
-Quality control					■	■	■	■	■
-Supervision work (QC & progress)					■	■	■	■	■
-Prepare weekly/monthly progress report					▪	▪	▪	▪	▪
-Conduct weekly/monthly meeting					▪	▪	▪	▪	▪

* Assuming disbursement of the fund in April

■ : Task of MPWT
■ : Task of the Contractor

CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

5th Joint Coordinating Committee

19th Sep, 2014
DOR Meeting Room

Project Coordinators for the CaRoL and JICA Expert Team

CaRoL

Contents of Presentation

- **Presentation of Progress Report (2)**
  1. **Project outline**
  2. **Issues arising and actions taken**
  3. **Summary progress of each project activity**
  4. **Overall achievement of the project**
  5. **Lessons leant from the project and recommendations**
- **Major Progress of the Project and Issues Arising**
  6. **System improvement and database updates**
  7. **Development of technical manuals**
  8. **Pilot project and OJT**

CaRoL

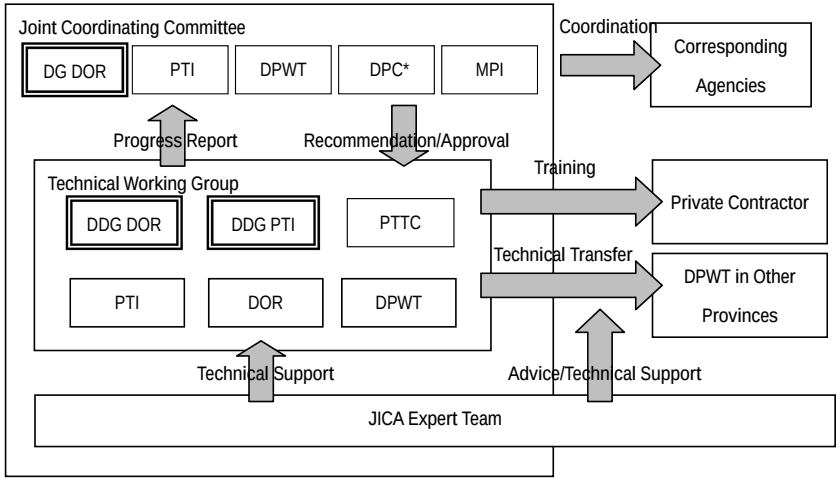
1. Project outline

CaRoL

1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1)
  - Technical manuals for road/bridge maintenance are prepared. (Output 2)
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3)

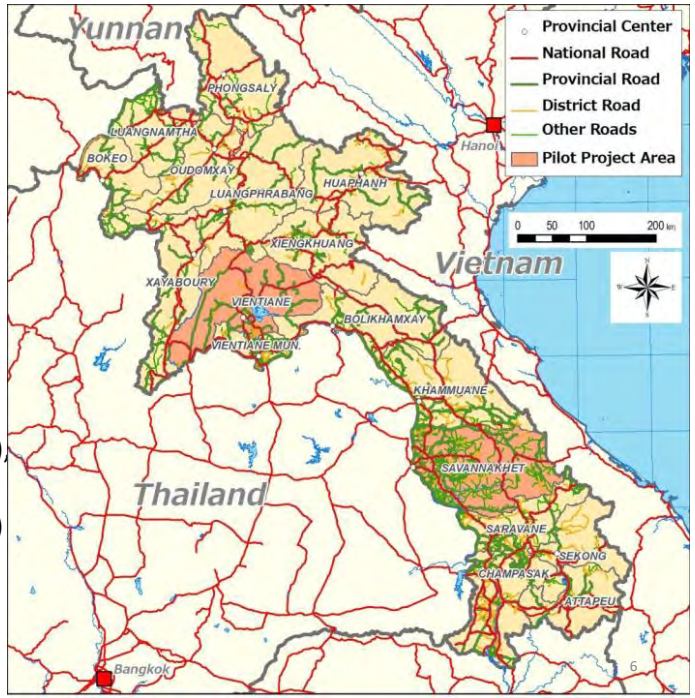
1.2 Project implementation structure



*DPC was split into DPC and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office, Expert for MPWT, CaRoL Expert and EOJ) are not shown in the figure.

- **Project Area**;
  - Savannakhet and Vientiane selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Sep 2014), Phase 2 (Nov 2014 – Sep 2016)



1.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Planned Actual

1.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

Planned Actual

2. Issues arising and actions taken

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (4th JCC)	Lao side should take actions to address financial and overloading issues to establish sustainable maintenance mechanism. (Chief Representative of JICA Laos Office)	• Representatives of DOT and RMF were invited for 9th TGW and DDG of DOT attended the meeting to share the progress of project and issues to be addressed.
General (4th JCC)	Lao side should consider to take immediate actions to increase funding source (Mid-term Review Mission)	• CaRoL Expert confirmed SPM project is expected to deliver the draft final report by end of Sep, providing proposals on a sustainable financial mechanism for road maintenance. • CaRoL Expert confirmed ADB project is also to analyze revenue and funding needs and provide proposals for enhancing financial mechanism.

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (4th JCC)	DOT and related local government should be invited for the JCC to discuss and take actions to control overloading trucks. (Mid-term Review Mission)	• DDG of DOT was invited for the 9th TWG and informed the progress of restoration of weight stations in entire Laos.
General (4th JCC)	DPWT Savannakhet operates two weight stations along the National Road No.9, however, faces technical problems, and the existing mobile weight scale is not working properly. (DG of DPWT Savannakhet)	• DPWT Savannakhet informed the progress of restoration of weight bridges along the NR-9 in 9th TWG. • DOR and JICA informed the progress of application of GA project, and which includes restoration of weight bridges along the NR-9.
General (4th JCC)	The TWG should be held to discuss the PDM ver 2.0, conforming some of the findings and proposals explored in the Mid-term Review Report. (JICA Laos Office)	• PDM ver 2.0 was discussed and basically agreed with minor proposed alternations during 9th TWG.

Issues arising and actions taken

Subject	Issues arising	Actions taken
Pilot project (4th JCC)	There should be continuous close discussions between the Lao side and CaRoL Experts to implement the pilot project in Vientiane Province. (JICA Laos Office)	• DPWT Vientiane to request CaRoL to utilize maintenance vehicles for on-going rehabilitation works along NR-13N. • CaRoL to seek for possibility to support slope protection works as pilot project in Vientiane Province.
Pilot project (4th JCC)	The CaRoL Expert requested the DOR to report the progress of approval and disbursement of the fund for the pilot project. (CaRoL Expert)	• On 23rd April, CaRoL requested DOR to commence Urgent Maintenance Work. • On 20th May, DOR issued commencement of the Project. • On 3rd June, tripartite meeting (DOR/DPWT, Local Contractors and CaRoL) held in Savannakhet. • Currently, the urgent repair works ongoing along the NR-9.

3. Summary progress report

3.1 Progress of system improvement

Principle in capacity development of system improvement;

- **Objectives**: Maintenance planning ability for road/bridge maintenance is enhanced.
- **Target**: PTI, DPWT/OPWT, DOR
- **Expected individual capacity level**: Trainer (PTI), Capable with manuals (DPWT/OPWT)
- **Approach**:
- PTI to develop in-house capacity through equipped with data collection and analysis tools.
- DPWT/OPWT to develop understanding/skills of data collection and analysis.
- DOR to improve maintenance/budgeting plan, based on numerical analysis.
- Full coordination with WB

3.1 Progress of system improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. Improvement of RMS/PRoMMS
5. Training for PRoMMS
6. Procurement of/training for VIMS
7. Data collection and update of the RMS/PRoMMS
8. Data analysis of RMS/PRoMMS
9. Preparation of Road Maintenance Plan and Budget Plan

3.2 Progress of manual development

Principle in capacity development of manual development;

- **Objectives**: Technical manuals for road/bridge maintenance are prepared.
- **Target**: DOR, DPWT, PTTC
- **Expected individual capacity level**: Trainer (PTTC/DOR), Capable with manuals (DPWT)
- **Approach**:
- DOR/DPWT/PTTC involved in preparation/revision of the technical manuals.
- Technical manuals fully utilized, absorbed in existing planning and procurement procedure.
- Role out to other provinces
- Coordination with KfW/WB

3.2 Progress of manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of technical manuals
7. Revision of PBC
8. Workshop/training for revised PBC
9. Print Technical Manuals (Ver. 1.0)

3.3 OJT and Pilot Project

Principle in capacity development of OJT and pilot project;

- **Objectives**: Capability of physical road/bridge maintenance work in pilot provinces is enhanced.
- **Target**: DOR, DPWT
- **Expected individual capacity level**: Capable with manuals (DPWT)
- **Approach**:
- Contribution from Lao side to develop ownership.
- Private sector participated both as trainer and trainee in the OJT/pilot project.
- Organizational reform (e.g., maintenance unit for AC pavement routine maintenance, Regional Office)

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12): **3.1 km road/NR-9**
5. Pilot project (YR 2012/13): **15.8 km spot improvement/NR-9**
6. Pilot project (YR 2013/14): **Major repair works/NR-9**
7. OJT (e.g., Pilot projects in Savannakhet, bridge maintenance in Savannakhet)

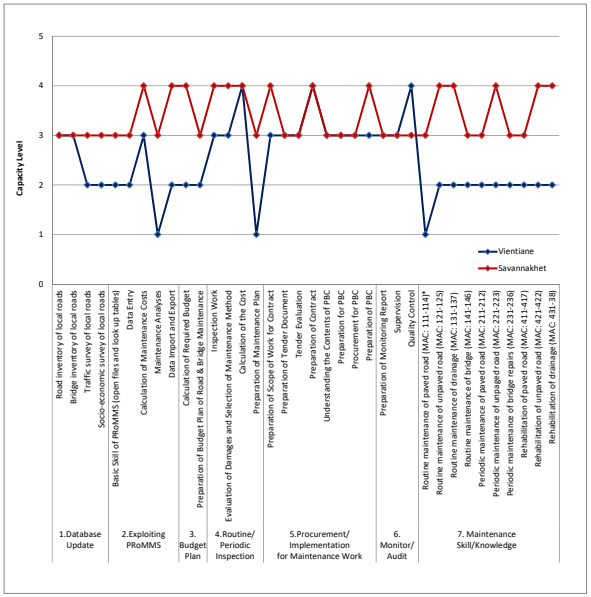
4. Overall achievement of the project

4.1 Summary of Mid-term Review Report

- **Overview of Mid-term Review Report;**
  - Mid-term review mission dispatched btw 23 March and 5 April.
  - Aims to monitor progress of and outcome derived from Project.
  - Overall achievement of the Project evaluated high or relatively high.
  - Recommended that sustainability of the Project needs to be strengthened through on-going institutional re-organization and sustainable funding mechanism.
- **Recommendations by Mission;**
  - ➢ Road maintenance fund to be adequately secured.
  - ➢ Adopt institutional re-organization in DOR.
  - ➢ Control for overloading trucks.

4.2 Summary of Capacity Assessment Report

- Capacity gap assessment conducted in Nov 2011 and Sep 2014.
- Huge gap identified between Savannakhet (capable with manuals) and Vientiane (required for assistant).
- OJT and pilot project also need in Vientiane.



5. Lessons leant from the project and recommendations

5. Lessons leant from the project and recommendations

- **Coordination with Other Donors**
  - WB financing PTI for RMS inventory survey.
  - KfW financing PTTC's capacity dev. project.
  - ADB to adopt JICA's approach during project implementation.
- **Utilization of Local Resource**
  - Create lines of communication and enabling environment
  - Improve ownership
- **Utilization of External Resource**
- **Monitoring and Evaluation of Skill/Knowledge**
- **Rolling-out of the Project**
  - PTTC fully involved during the Project

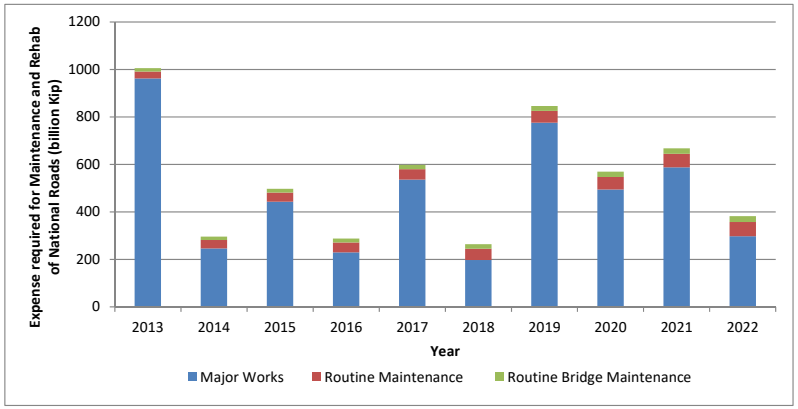
6. System improvement and database updates

6.1 Progress of system improvement

- RMS/PRoMMS and VIMS improved and new versions developed.
- These systems to be continuously improved, particularly reporting system.
- Training for PRoMMS data collection/analysis conducted by the PTI in Oct 2013 and budget plan for training submitted to DOR in Sep 2014.
- VIMS to be introduced to monitor the quality of the work of the PBC. PTI involved to provide a training for the PBC.

6.1 Progress of system improvement

- Result of RMS data analysis presented in the 3rd JCC and submitted to DOR by end of 2013 (Note: 541 billion Kip p.a., required for maintenance of National Roads and 1,540 billion Kip p.a. for maintenance of entire road network).



6.1 Progress of system improvement

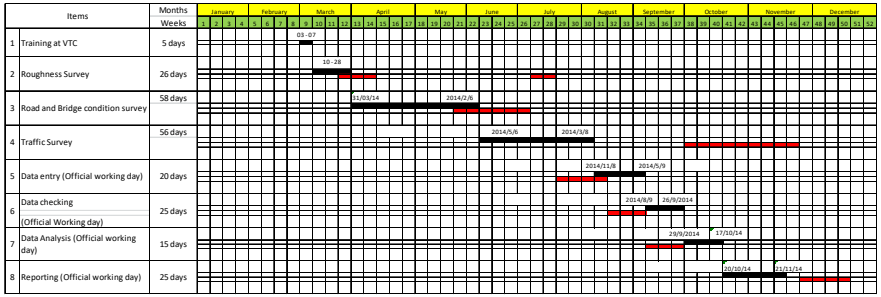
- Budget plan for RMS data collection survey prepared and submitted by Feb, 2014. Since full-scale survey completed in 2013, half-scale survey conducted in 2014.

Data collection survey plan in 2013 and 2014

	unit	2013 (Completed)	2014 (Planned)
Referencing and Inventories	km	274	109
Paved Road Condition	km	5,274	3,126
Unpaved Road Condition	km	173	0
Bridge Condition	nos	1,067	582
Road Roughness	km	5,274	5,338
Traffic Count	nos	231	119
Socio-economic	nos	7	0

6.1 Progress of system improvement

- RMS data collection survey started from mid April 2014. Due to administrative matter, surveys suspended in May.
- All data collection survey completed in early Sep.



- PTI to conduct data entry and validation analysis and to submit report to DOR by end of Oct.

6.2 Issues arising for system improvement

RMS:

- Update of unit cost/ VOC/ time value
- Update of road administration data (by DOR) and improvement of RMS/PRoMMS, accordingly.
- Improvement of exporting data to latest GIS format (i.e. Arc GIS)
- Improvement of importing data, e.g., clearing old data.

PRoMMS:

- Improvement of data check function

Others:

- Training for HDM-4
- Inclusion of PTI for all trainings under the Project
- Exit strategy: who will be a focal point for maintenance of system.

7. Development of technical manuals

7.1 Development of technical manuals

- Road, bridge, slope maintenance manuals prepared.
- 4 Sub-working Groups organized to review technical manuals.

Road		Bridge		Slope	
Name	Organization	Name	Organization	Name	Organization
1. Leader Mr. Siriphone	PTTC	1. Leader Mr. Sisomphone	PTTC	1. Leader Mr. Vongsak	PTI
2. Deputy Mr. Soulivanh	RAD	2. Deputy Mr. Phonephana	TED	2. Deputy Mr. Khampasay	LRD
3. Mr. Souvanh	DPWT ZVK	3. Mr. Khammy	DPWT ZVK	3. Mr. Vongdeuan	LRD
4. Mr. Khamlune	PTI	4. Mr. Somsanouk	DPWT Vientiane	4. Mr. Korakan	DPWT Vientiane
5. Mr. Sermmany	TED				
6. Mr. Phitsaphonh	RAD				

7.1 Development of technical manuals

- Technical Manual Version-1.0 prepared and translated into Lao. Manual distributed during Sam Sang workshop on 10 Sep.

REVISED SCHEDULE OF REVISION WORK OF TECHNICAL MANUALS

Work Item	Done by		2013										2014						
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Translation work of draft manual (English => Laotian)	Lao members (contracting out is available)	Plan	←	←	←													
		Revised	•	•	•	•	•											
Submission of draft Laotian Ver.	Lao members => CaRoL	Plan				*												
		Revised					*											
Review & analysis (Lao Ver.)	Lao members	Plan				↔	↔				↔	↔						
		Revised					•	•			•	•						
Summarizing discussion points	Lao members	Plan						↔					↔					
		Revised						•					•					
Meeting	All members	Plan	*					*			*			*	*			
		Revised							*		*			*	*			
Revision work	Laotian: Lao members English: CaRoL	Plan						↔	↔					↔				
		Revised						•	•					•				
Final check	Laotian: Lao members English: CaRoL	Plan													↔			
		Revised													•			
Editing, printing & binding	CaRoL	Plan														↔		
		Revised														•		
Submission of final Ver.	CaRoL => MPWT	Plan															*	
		Revised															*	
Apply draft manual in field level	DPWT-SVK		←	←	←	←	←	←	←	←	←	←	←	←	←	←	→	

7.2 Revision of PBC

- PBC revised, by narrowing down the scope of work and introducing the provisional BOQ for periodic maintenance and rehab. Evaluation criteria also amended.

Item	Maintenance	Rehabilitation
Routine work(cleaning, etc)	Labor based	-
Pavement	**PBC**	Admeasurements BOQ /Provisional sum
Road facility	Admeasurements BOQ /Provisional sum	-
Slope	Admeasurements BOQ /Provisional sum	-
Structure	Admeasurements BOQ /Provisional sum	Admeasurements BOQ
Emergent work	Admeasurements BOQ /Provisional sum	-

7.2 Revision of PBC

- 4-time intensive training on PBC organized in Feb (MPWT), April (Savannakhet), May (Luang Prabang) and July (Pakse) 2014.
- Evaluation report prepared in each training prepared.




7.3 Issues arising for manual development

Technical Manuals:

- Compatible with MAC code
- Inspection result as input for RMS/PRoMMS.
- Translate part of manual (inspection /evaluation form, BOQ) into DOR's templates (i.e., bidding document, specification, contract and payment approval documents).
- Monitoring and feedback of Manual Version-01 for finalization.

PBC:

- DOR ready to adopt revised PBC as pilot project in each RO in next FY. Bidding documents and BOQ required.
- Continuous technical workshops required. Monitoring and evaluation of revised PBC for further revision.

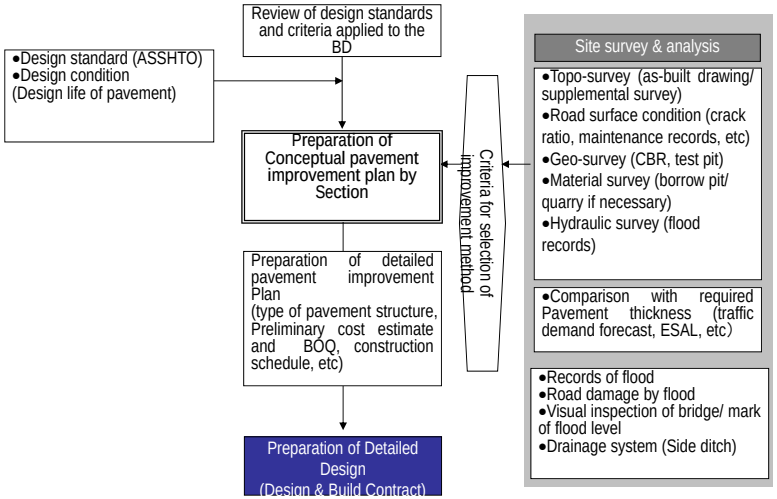
8. Pilot project and OJT

8.1 Pilot project (YR-2013/14)

- Concept design of rehab of the NR-9 prepared under technical support by CaRoL.
- DOR confirmed the design concept, including the design life of 5 years.
- DOR signed the Design & Build contract in Jan, 2014.
- DOR to set aside around 5 million USD p.a. for rehab of the NR-9 from the RMF.
- DOR requested CaRoL to provide technical supports for the SV of the rehab of the NR-9.
- Accordingly, DOR, JICA and CaRoL discussed and agreed with the scope of work and inputs for the technical supports for the SV of the rehab of the NR-9.

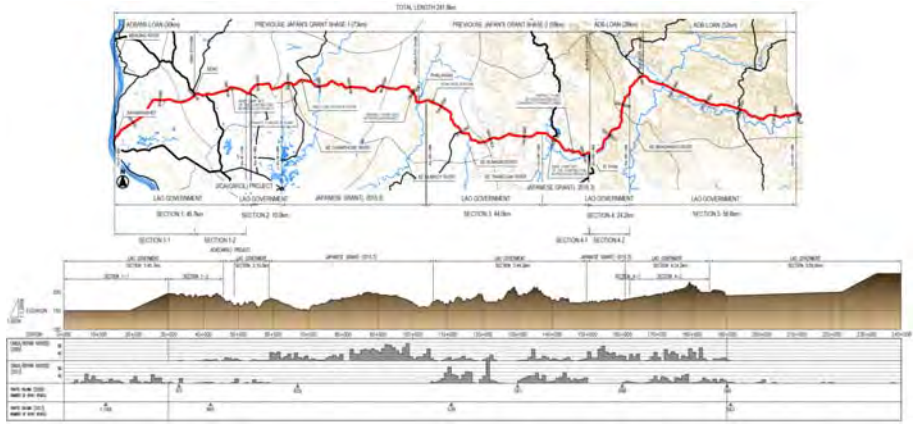
8.1 Pilot project (YR-2013/14)

Flowchart of Concept Design of NR9 Rehabilitation Project



8.1 Pilot project (YR-2013/14)

Project Location Map of NR9 Rehabilitation Project (L= 180km)



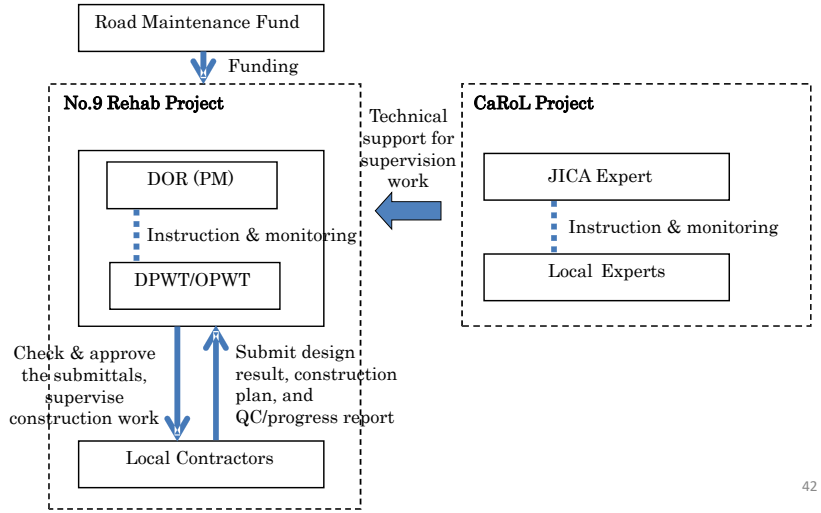
8.1 Pilot project (YR-2013/14)

Outline of NR9 Rehabilitation Project as 2013/14 Pilot Project

Project Road	Among the remaining 74-km JICA funded road section along NR-9 (excluding ongoing JICA grant aid road section), 15-km road section (assuming the RMF of 5 million USD) to be selected for 2013/14 pilot project under the CaRoL.
Outline of TA	Based on the conceptual design developed under the support of CaRoL, the CaRoL provides technical supports for the implementation of the NR-9 Rehabilitation Project, particularly S/V managed by Lao side.
Components of TA	Target Road for TA: Sections contracted by DOR for rehabilitation Work items to be supported by CaRoL include ➢Review of the submittals from the contractor (Design output, Drawings, Construction method statement, QC program, Construction schedule) ➢Assist in S/V (Quality Control, Construction Progress) ➢On the job training (On-site training)
Proposed Inputs	International Expert 4~5 MM, Local Expert(s) 10~20 MM

8.1 Pilot project (YR-2013/14)

Proposed Implementation Structure of 2013/14 Pilot Project



8.1 Pilot project (YR-2013/14)

- DOR/DPWT Savannakhet implements **the Project for Maintenance of National Road No.9** and the CaRoL provides technical supports as Pilot Project 2013/14. Two contractors involved in the Project: Road No.8 Construction Enterprise (R8CE) and Khounxay Phatthana Construction Co., Ltd. (KXN)
- On 23rd April, CaRoL requested DOR to commence Urgent Maintenance Work.
- On 20th May, DOR issues commencement of the Project.
- On 3rd June, tripartite meeting (DOR/DPWT, Local Contractors and CaRoL) held in Savannakhet.
- **Urgent Maintenance Work** undergoing to secure traffic safety during rainy season. Spot replacement and patching on severely damaged locations on NR9.

Location Map of the Project for Maintenance of NR-9

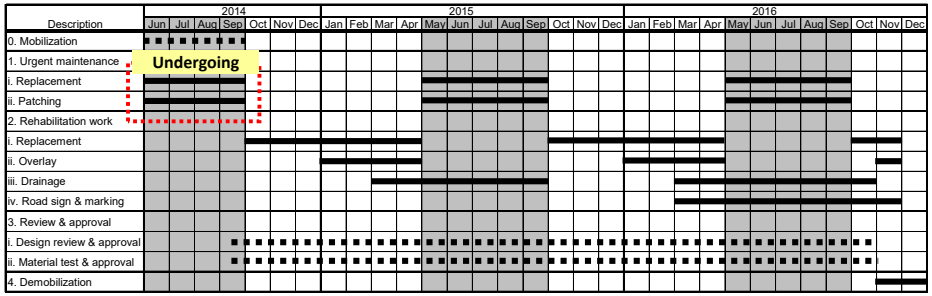
Implementation section by Contractor

Section	Contractor	BP Km	EP Km	Length (Km)	OL (cm)
1-1	R8CE	0.0	30.0	30.0	9.0
1-2	R8CE	30.0	45.7	15.7	11.5
	CaRoL	45.7	48.8	3.1	
2	R8CE	48.8	58.8	10.0	9.5
	JPN Grant-1	58.8	105.8	47.0	
3	KXN	105.8	149.8	44.0	9.0
	JPN Grant-2	149.8	160.8	11.0	
4-1	R8CE	160.8	162.1	1.3	6.5
4-2	R8CE	162.1	185.0	22.9	5.0
5	KXN	185.0	241.6	56.6	5.0

Total length

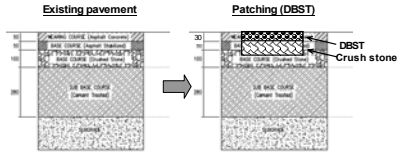
Contractor	Length (Km)
R8CE	79.9
KXN	100.6
Total length	180.5

Implementation Schedule of Project for Maintenance of NR-9 (2014 – 2016)

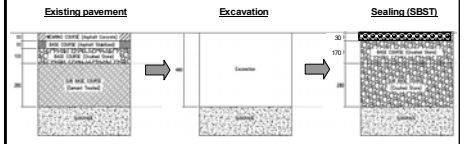
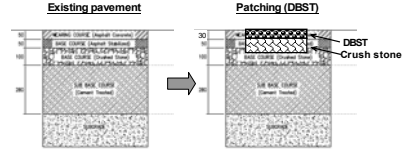


Work Procedure (Urgent Maintenance Work)

R8CE

Spot replacement	Patching
	

KXN

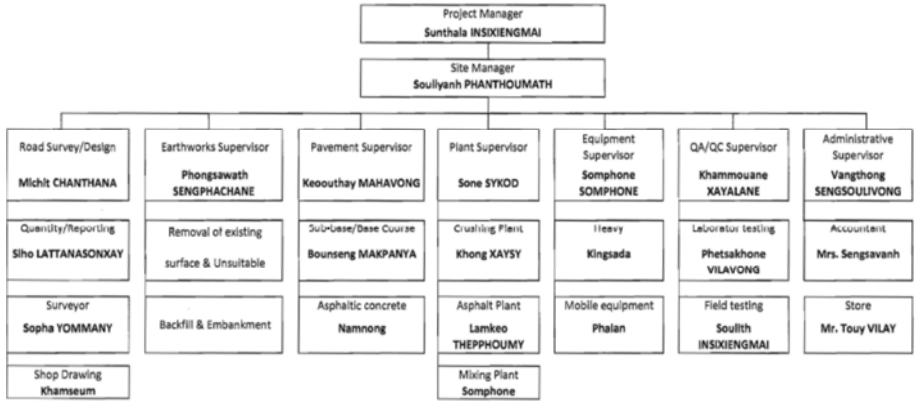
Spot replacement	Patching
	

Work Quantity of Urgent Maintenance Work

Contractor	Work Type	Area (m2)	Volume (m3)	Nos
R8CE	Replacement	11,749	5,639	35
	Patching			58
KXN	Replacement	16,303	7,825	39
	Patching			148

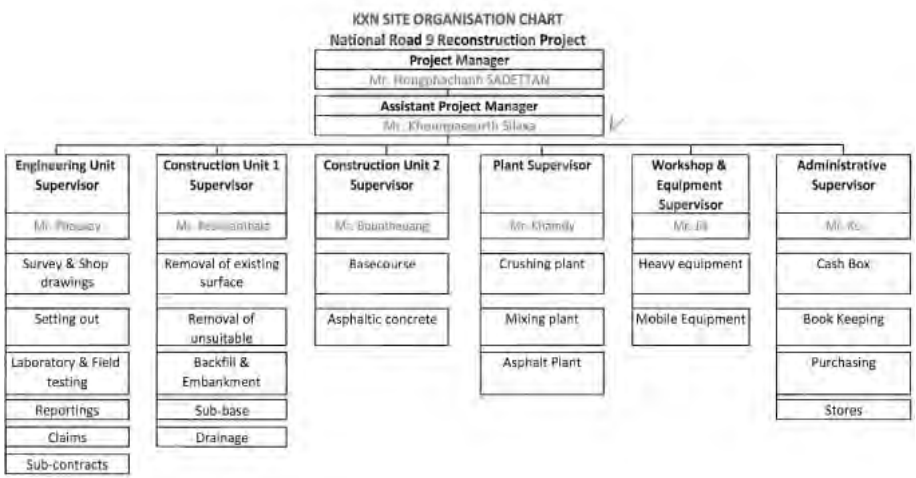
Organization Chart of the Contractor

R8CE



Organization Chart of the Contractor

KXN



Snapshot (Spot replacement: Km142+040 – Km142+075) Contractor: KXN

	
Road condition before work	Cut existing pavement
	
Removal of existing pavement	Removal of unsuitable material

Snapshot (Spot replacement: Km142+040 – Km142+075) Contractor: KXN

	
Check excavation depth	Check compaction degree of sub-grade
	
Stockpile of filling material (crush stone)	Filled by crush stone

8.2 Issues arising for OJT and pilot project

CaRoL

Capacity building project for
Road maintenance in Lao PDR

"Early inspection, early maintenance, truly loved nation"





CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

6th Joint Coordinating Committee

23rd Jan, 2015
DOR Meeting Room

CaRoL Project Coordinator and JICA CaRoL Expert Team

CaRoL

Contents of Presentation

- **Presentation of Work Plan (2)**
  1. **Project outline**
  2. **Issues arising and actions taken**
  3. **Revisit of Phase 1 Project**
  4. **Project outline – Draft Project Design Matrix**
  5. **Project implementation plan**
- **Major Progress of the Project and Issues Arising**
  6. **System improvement and database updates**
  7. **Development of technical manuals**
  8. **Pilot project and OJT**

CaRoL

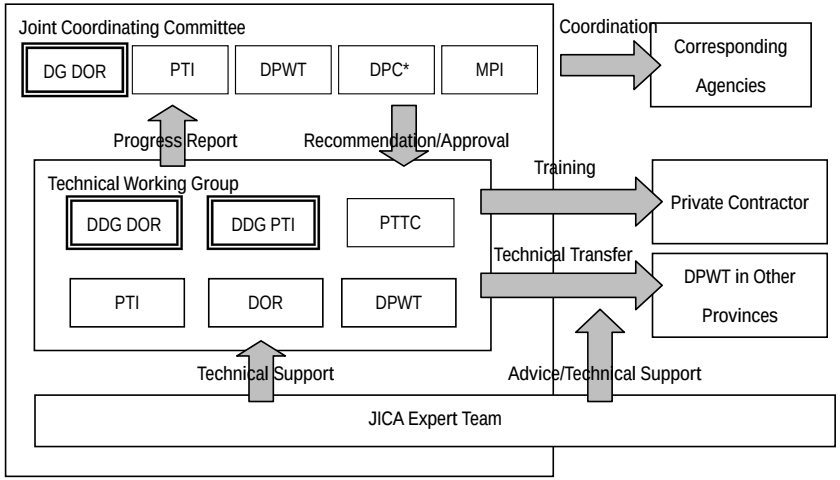
1. Project outline

CaRoL

1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in pilot provinces will be properly maintained.
- **Project Outputs;**
  - Maintenance planning ability for road/bridge maintenance is enhanced. (Output 1)
  - Technical manuals for road/bridge maintenance are prepared. (Output 2)
  - Capability of physical road/bridge maintenance work in pilot provinces is enhanced. (Output 3)

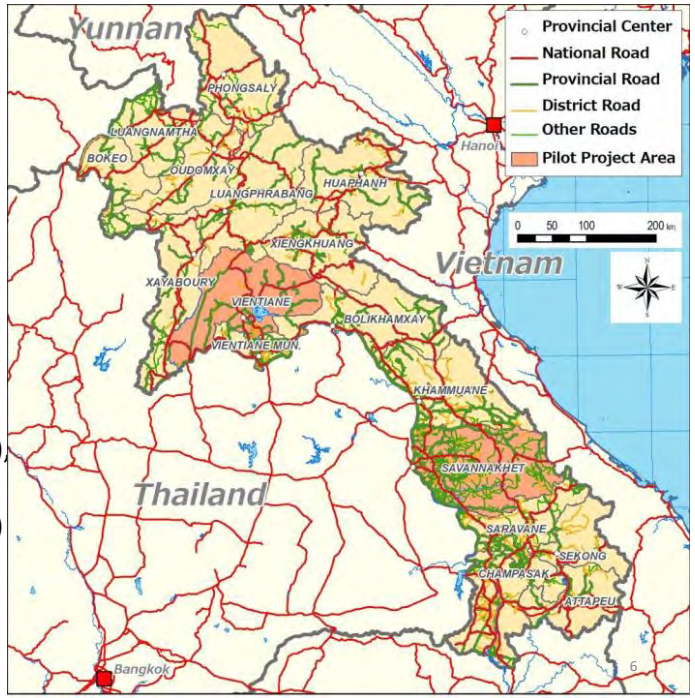
1.2 Project implementation structure



*DPC was split into DPC and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office, Expert to MPWT, CaRoL Expert and EOJ) not shown in the figure.

- **Project Area**;
  - Savannakhet and Vientiane selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Sep 2014), Phase 2 (Nov 2014 – Sep 2016)



1.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Planned Actual

1.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. Capability of physical road/bridge maintenance work in the pilot provinces is enhanced.						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to DPWT engineers in the pilot provinces on routine maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on routine maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

Planned Actual

2. Issues arising and actions taken

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (9th TWG)	Chairperson pointed out difficulties to ensure financial sustainability increasing fuel levy since Prime Minister's Office is eager to maintain the current tax rate (i.e., 420 Kip per litter).	• CaRoL expert exchanged views on revenue enhancement scheme with DPC/DOR. • Now there is an initiative to revise RMF and increase fuel levy. • Progress be reported by DPC/DOR.
General (9th TWG)	DPWT Savannakhet suggested that improvement of weigh station along the NR-9 is urgently needed and funds for installation of new weight bridge are required.	• Discussion at Sam Sang workshop in Sep, 2014 and MPWT annual meeting in Jan 2015 be reported by DOR/DOT. • Progress of Japan GA project be reported by JICA

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (9th TWG)	JICA Laos Office urged the importance of enforcement of axle control, therefore, that an action plan should be prepared to ensure proper enforcement in prior to approval for Japanese Grant Aid Project.	• DOT reviews overloading issues and operation of weigh stations in the entire country and prepares a report to the Minister, suggesting actions taken by the MPWT. • Progress be reported by DOT
General (9th TWG)	Chairperson suggested that technical support for road maintenance in the next phase (Phase-2) should be designed following the "Three Builds" (Sam Sang) Policy, suggesting the capacity development for; 1) provinces to be strategic units, 2) districts to be planning and budgetary units; and 3) villages to be implementation units.	• Discussed later during revision of PDM.

Issues arising and actions taken

Subject	Issues arising	Actions taken
PDM (9th TWG)	JICA Expert suggested to specify the number of officials, who are expected to develop their capacity under the Project, in the column of objectively verifiable indicators of the PDM version 2.	• PDM revised accordingly. Discussed and confirmed later.
PDM (9th TWG)	JICA Laos Office inquired about the methodology on how to evaluate capacity level criteria (Level 1 to 5), proposing introduction of certification for road maintenance under the Project.	• PDM revised accordingly. Discussed and confirmed later.

Issues arising and actions taken

Subject	Issues arising	Actions taken
General (5th JCC)	Chairperson reported that the DOR is currently working for institutional reorganization, establishing four Regional Offices to maintain the national roads as jurisdiction of newly established Regional Offices.	• Discussed at MPWT's Annual Meeting in Jan 2015 and progress reported by DOR.
General (5th JCC)	Chairperson reported that discussion on the overloading was made during Sam Sang workshop in Sep, 2014. During the discussion, it was confirmed that all DPWTs support to reopen operation of the 24 weigh stations along the national roads and the minutes of the meeting during the discussion would be sent to the Minister for his action to address overloading issue	• Progress reported by DOR/DOT.

Issues arising and actions taken

Subject	Issues arising	Actions taken
Pilot Project (5th JCC)	JICA Laos Office requested that the location and schedule of the Pilot Project should be well considered, taking into account the on-going Japan Grant Aid Project on Improvement of the NR-9	• Progress of pilot project presented during the meeting.
Pilot Project (5th JCC)	DPWT Vientiane requested that the Pilot Project should be implemented in Vientiane during the Phase-2 since there are huge capacity gap between Savannakhet and Vientiane Provinces, identified by the capacity assessment survey conducted by the CaRoL Experts.	• CaRoL Expert briefly discussed with DPWT Vientiane to request DPWT to allocate funds. • Progress of budget preparation be reported by DOR/DWPT Vientiane.

Issues arising and actions taken

Subject	Issues arising	Actions taken
Pilot Project (5th JCC)	DOR pointed out that issues of overloading trucks is the agenda of the government meeting and that governors of all provinces will be invited for annual MPWT's meeting in October in order to discuss to reopen weight stations.	• Ditto.
Pilot Project (5th JCC)	DOR suggested that the DOT should work to revise the law/regulations to control overloading trucks, since the current law/regulations are not sufficient which only allow the DPWTs to fine the overloaded trucks at very low rate and do not allow them to restrict the operation of overloaded trucks.	• Ditto.

3. Revisit of Phase 1 Project

3.1 Progress of system improvement

Principle in capacity development of system improvement;

- **Objectives**: Maintenance planning ability for road/bridge maintenance is enhanced.
- **Target**: PTI, DPWT/OPWT, DOR
- **Expected individual capacity level**: Trainer (PTI), Capable with manuals (DPWT/OPWT)
- **Approach**:
- PTI to develop in-house capacity through equipped with data collection and analysis tools.
- DPWT/OPWT to develop understanding/skills of data collection and analysis.
- DOR to improve maintenance/budgeting plan, based on numerical analysis.
- Full coordination with WB

3.1 Progress of system improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. Improvement of RMS/PRoMMS
5. Training for PRoMMS
6. Procurement of/training for VIMS
7. Data collection and update of the RMS/PRoMMS
8. Data analysis of RMS/PRoMMS
9. Preparation of Road Maintenance Plan and Budget Plan

3.2 Progress of manual development

Principle in capacity development of manual development;

- **Objectives**: Technical manuals for road/bridge maintenance are prepared.
- **Target**: DOR, DPWT, PTTC
- **Expected individual capacity level**: Trainer (PTTC/DOR), Capable with manuals (DPWT)
- **Approach**:
- DOR/DPWT/PTTC involved in preparation/revision of the technical manuals.
- Technical manuals fully utilized, absorbed in existing planning and procurement procedure.
- Role out to other provinces
- Coordination with KfW/WB

3.2 Progress of manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of technical manuals
7. Revision of PBC
8. Workshop/training for revised PBC
9. Print Technical Manuals (Ver. 1.0)

3.3 OJT and Pilot Project

Principle in capacity development of OJT and pilot project;

- **Objectives**: Capability of physical road/bridge maintenance work in pilot provinces is enhanced.
- **Target**: DOR, DPWT
- **Expected individual capacity level**: Capable with manuals (DPWT)
- **Approach**:
- Contribution from Lao side to develop ownership.
- Private sector participated both as trainer and trainee in the OJT/pilot project.
- Organizational reform (e.g., maintenance unit for AC pavement routine maintenance, Regional Office)

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12): **3.1 km road/NR-9**
5. Pilot project (YR 2012/13): **15.8 km spot improvement/NR-9**
6. Pilot project (YR 2013/14): **Major repair works/NR-9**
7. OJT (e.g., Pilot projects in Savannakhet, bridge maintenance in Savannakhet)

3.4 Achievement of Phase 1 Project

- **Overview of Mid-term Review Report;**
  - Mid-term review mission btw 23 March and 5 April, 2014.
  - Aims to monitor progress of and outcome derived from Project.
  - Overall achievement of the Project evaluated high or relatively high.
  - Recommended that sustainability of the Project needs to be strengthened through on-going institutional re-organization and sustainable funding mechanism.
- **Recommendations by Mission;**
  - ➢ Road maintenance fund to be adequately secured.
  - ➢ Adopt institutional re-organization in DOR.
  - ➢ Control for overloading trucks.

3.5 Lessons leant from Phase 1 Project

- **Coordination with Other Donors**
  - WB financing PTI for RMS inventory survey.
  - KfW financing PTTC's capacity dev. project.
  - ADB to adopt JICA's approach during project implementation.
- **Utilization of Local Resource**
  - Create lines of communication and enabling environment
  - Improve ownership
- **Utilization of External Resource**
- **Monitoring and Evaluation of Skill/Knowledge**
- **Rolling-out of the Project**
  - PTTC fully involved during the Project

4. Project outline – Draft Project Design Matrix

4.1 Project goal, purpose and outputs

[Project Design Matrix ver2.1]

- **Project Purpose;**
  - Roads and bridges in the pilot provinces are properly maintained.
- **Project Outputs;**
  - ➢ Maintenance planning ability for road and bridge maintenance is enhanced.
  - ➢ Technical manuals for road/bridge maintenance are prepared.
  - ➢ Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.

4.1 Project goal, purpose and outputs

[Project Design Matrix ver2.1]

- **Objectively verifiable indicators;**
  - Following recommendation of Mid-term Review Mission, indicators changed to evaluate progress and achievement of the Project.
  - Indicators further amended to measure quantitative output, through discussion in 4th JCC and 9th TWG.

→ See PDM ver 2.1 in Work Plan (2)

4.1 Project goal, purpose and outputs

- **Objectively verifiable indicators;**
  - Technical level (Level 1 (Low) to 5 (High)) suggested to be included as indicators by Mid-term Review Mission.
  - During the Phase 1, collective technical level of the staff monitored by questionnaire survey.
  - Pre- and post-evaluation during technical training.

Present Collective Technical Level of Key Departments (as of Aug, 2014)

	DOR	DPWTs	PTI	PTTC
1. Data verification and analysis	4.0	2.8	3.6	2.0
2. Maintenance planning	3.7	2.8	4.0	2.7
3. Procurement	4.0	3.3	NA	4.0
4. Performance monitoring and evaluation	4.0	3.2	NA	3.0
5. Maintenance skill and knowledge	5.0	2.7	NA	4.0

4.1 Project goal, purpose and outputs

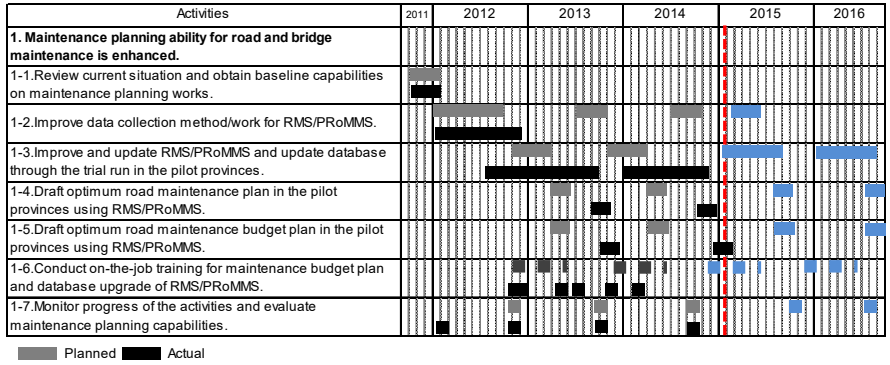
- **Objectively verifiable indicators;**

Sample Collective Technical Level of DPWTs (as of Aug, 2014)

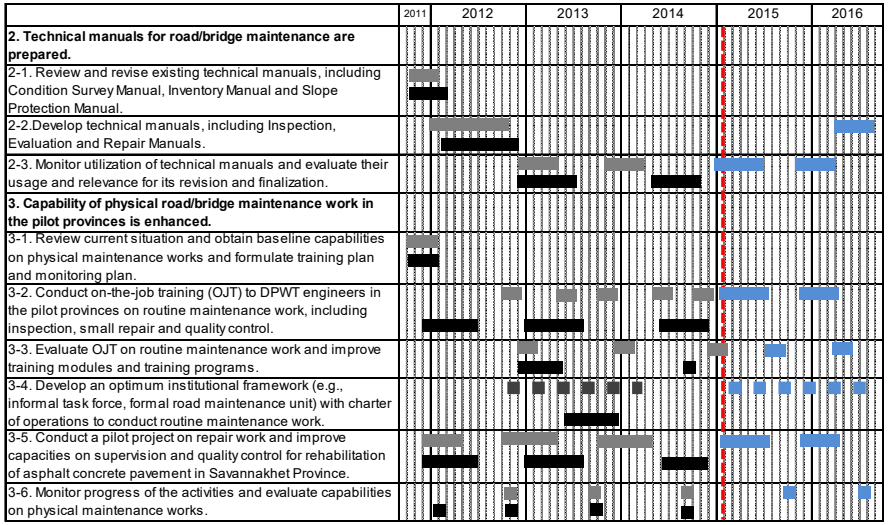
Item	Capacity Level		Target	
	Vientiane	Savannakhet	Vientiane	Savannakhet
1. Database Update				
Road inventory of local roads	3	3	5	4
Bridge inventory of local roads	3	3	5	4
Traffic survey of local roads	2	3	4	3
Socio-economic survey of local roads	2	3	4	3
2. Exploiting PRoMMS				
Basic Skill of PRoMMS (open files and look up tables)	2	3	3	4
Data Entry	2	3	5	3
Calculation of Maintenance Costs	3	4	4	4
Maintenance Analyses	1	3	5	3
Data Import and Export	2	4	4	4
3. Budget Plan of Road and Bridge Maintenance				
Calculation of Required Budget	2	4	5	4

5. Project implementation plan

5.1 Plan of operation



5.1 Plan of operation



5.2 JICA CaRoL Expert

Position Assigned	Name of Expert	Affiliation
Team Leader/Road Management Expert	Kiminari Takahashi	IDCJ
Deputy Team Leader/Construction Management Expert	Masataka Fujikuma	OC
Road Maintenance Expert (1)	Hiroaki Kobayashi	OC
Road Maintenance Expert (2)	Hiroshi Ueda	OC
Bridge Maintenance Expert	Dr. Phamavanh Kongkeo	OC
Contract Management Expert (1)	Makoto Nozawa	OC
Contract Management Expert (2)	Vitto Kuronen	OC
System Management Expert (1)	Olivier de Peyrelongue	IDCJ
System Management Expert (2)	Dr. Takafumi Nishikawa	IDCJ
Human Resource Development Expert/Project Coordinator	Mihoko Ogasawara	IDCJ

5.3 Deliverables

Report	Schedule of Submission	Major Contents
Work Plan (2)	January 2014	• Approach and methodology of the Project • Project implementation plan • PDM
Project Completion Report	September 2016	• Project outline • Project activities • Issues and lessons from the Project • Progress and achievement toward project goals
Monthly report	Every month	• Major activities and progress
Technical Manuals (Final)	September 2016	• Road, bridge, slope maintenance • PBC documents
Others		· Meeting minutes · Training report/materials · Evaluation report, etc.

6. System improvement and database updates

6.1 Progress of system improvement

(1) RMS

- RMS and VIMS improved and under finalization.
- Data collection for RMS completed in 2013 (full scale) and 2014 (partial).
- RMS analysis completed in Oct 2013 and Dec 2014 and result submitted to DOR, accordingly.
- Result of RMS data analysis presented in the 3rd JCC.

6.1 Progress of system improvement

(2) PRoMMS

- PRoMMS improved and under finalization.
- Training for PRoMMS data collection/analysis conducted by the PTI in Oct 2013.
- Data quality of PRoMMS was assured by screening logical errors in 2013.
- WB supported to assign 2 local experts for data quality assurance of PRoMMS in 2014.

6.2 Issues arising for system improvement

RMS:

- Update of unit cost/ VOC/ time value
- Update of road administration data (by DOR/TED)
- Improvement of exporting/importing data (e.g., GIS format)
- Improvement of reporting system (e.g., time-series chart)
- Improvement of data check function
- Improvement of data collection method (e.g., tablet-based data collection)

PRoMMS:

- Improvement of data check function

Others:

- Development of GIS based road network data (by DOR/PTI)
- Training for HDM-4
- Exit strategy: Involve academic institutions as system manager

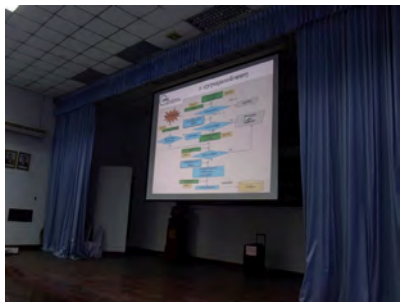
7. Development of technical manuals

7.1 Development of technical manuals

- Road, bridge, slope maintenance manuals prepared by April 2014.
- 4 Sub-working Groups organized and reviewed technical manuals by July 2014.
- Technical Manual Version-1.0 prepared and translated into Lao in August 2014.
- Manual handed over to DOR during 5th JCC on 19 Sep 2014.
- Manual disseminated during Sam Sang workshop on 10 Sep 2014.

Dissemination of Technical Manual on Sam Sang Workshop 10 Sep. 2014)






7.2 Revision of PBC

- PBC revised, by narrowing down the scope of work and introducing the provisional BOQ for periodic maintenance and rehab. Evaluation criteria also amended.
- 5-time intensive training on PBC organized in Feb (MPWT), April (Savannakhet), May (Luang Prabang), July (Pakse), Sep 2014 (Oudomxai).
- 4 pilot roads to apply PBC selected and bidding for PBC maintenance work completed by Dec, 2014.



7.3 Issues arising for manual development

Technical Manuals:

- Compatible with MAC code
- Inspection result as input for RMS/PRoMMS.
- Translate part of manual (inspection /evaluation form, BOQ) into DOR's templates (i.e., bidding document, specification, contract and payment approval documents).
- Monitoring and feedback of Manual Version-01 for finalization.

PBC:

- Continuous technical workshops required. Monitoring and evaluation of revised PBC for further revision.

8. Pilot project and OJT

8.1 Pilot project

- Concept design of rehab of the NR-9 prepared under technical support by CaRoL.
- DOR signed the Design & Build contract in Jan, 2014.
- DOR to set aside around 5 million USD p.a. for maintenance /rehab of the NR-9 from the RMF.
- DOR requested CaRoL to provide technical supports for the SV of maintenance/rehab of the NR-9.
- DOR, JICA and CaRoL agreed with the scope of work and inputs for technical supports.
- DOR/DPWT selected 50 km of most deteriorated road sections as pilot project for year 2014.

8.1 Pilot project

- DOR/DPWT Savannakhet implements **the Project for Maintenance of National Road No.9** and the CaRoL provides technical supports as Pilot Project.
- Two contractors involved in the Project: Road No.8 Construction Enterprise (R8CE) and Khounxay Phatthana Construction Co., Ltd. (KXN)
- On 20th May 2014, DOR issued commencement of the Project.
- Urgent maintenance work including spot replacement and patching on severely damaged locations on NR9 completed by Dec, 2014.
- Overlay work on pilot project roads now undergoing.

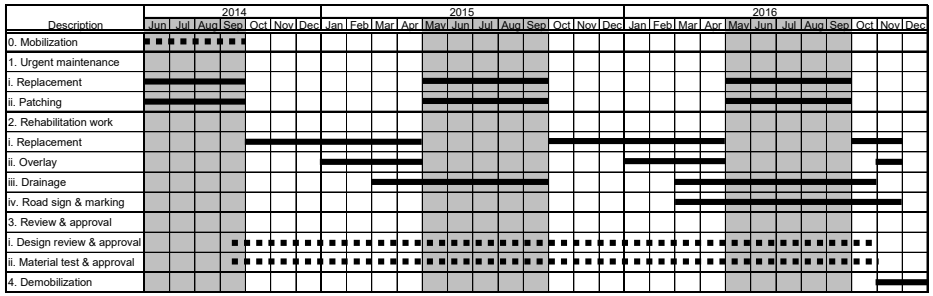
Location Map of the Project for Maintenance of NR-9

Implementation section by Contractor

Section	Contractor	BP Km	EP Km	Length (Km)	OL (cm)
1-1	R8CE	0.0	30.0	30.0	9.0
1-2	R8CE	30.0	45.7	15.7	11.5
	CaRoL	45.7	48.8	3.1	
2	R8CE	48.8	58.8	10.0	9.5
	JPN Grant-1	58.8	105.8	47.0	
3	KXN	105.8	149.8	44.0	9.0
	JPN Grant-2	149.8	160.8	11.0	
4-1	R8CE	160.8	162.1	1.3	6.5
4-2	R8CE	162.1	185.0	22.9	5.0
5	KXN	185.0	241.6	56.6	5.0

1st Year (Jun/14-May/15)
2nd Year (Jun/15-May/16)
3rd Year (Jun/16-May/17)

Implementation Schedule of Project for Maintenance of NR-9 (2014 – 2016)



Major Activities up to December, 2014

General Works

- Survey and Design
- Road Maintenance Works

Road Rehabilitation Works

- Removal of existing Asphalt Concrete
- Subgrade Preparation
- Sub-base Course
- Base Course
- Prime Coat
- Asphalt Binder Course
- Concrete Side Ditch

Monthly Progress as of December, 2014 (R8CE)

No.	Description	Unit	Quantity			
			Plan		Actual	
			1year	For Month		% Progress
300	**Pavement**					
301	Sub base,Thickness=25 Cm(by Crushed stone)	m3	2825	451.13		0%
302	Base course , Thickness =10 Cm	m3	7655	2,000.00	2,884.00	144%
303	Base course , Thickness = 20 Cm	m3	5642.33	300.75		0%
304	Prime Coat (CSS1)	m2	21071	20,000	28644.16	143%
305	Asphalt concrete of Binder Course , Thickness=5 Cm	m2	110489.7	28,520	28829.00	101%

Major Work Item
Completion of Asphalt Concrete Binder Course
(Km160+800 to Km161+285; and Km165+200 to Km165+800)

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	**18.75**
Actual executed up to date	**16.72**
Difference	**-2.03**

Monthly Progress as of December, 2014 (KXN)

No.	Description	Unit	Quantity			Actual %
			For year	For month	Actual	
300	Pavement		1.00%			
301	Sub base,Thickness=25 Cm(by Crushed stone)	m3	11,745.5	2,936.3	4,131	141%
302	Base course,Thickness=10 Cm	m3	2,590.00	647.50		0%
303	Base course,Thickness=20 Cm	m3	12,007	2,401.32	8,229	343%
304	Prime Coat	m2	90,867	15,139	43,260	286%
305	Asphalt concrete of Binder Course , Thickness=5 Cm (Patching Piont)	m2	83,096	13,274.34	29,072	219%

Major Work Item
Completion of Asphalt Concrete Binder Course
(Km108+000 to Km112+000)

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	**27.26**
Actual executed up to date	**24.28**
Difference	**-2.98**

Progress Photo (Contractor: R8CE)

Removal of Existing Pavement

Base Course

Prime Coat

Binder Course (Km 163+000~163+400)

Progress Photo (Contractor: KXN)

	
Sub-base Course	Base Course
	
Prime Coat	Binder Course (Km 112+250)

8.2 Issues arising for OJT and pilot project

Pilot project and OJT:

- Maintenance work along other sections of the NR-9.
- Proper institutional set-up and technical transfer, including proposed maintenance unit, in line with on-going re-organization of DOR.
- Procurement of equipment for routine/periodic maintenance (e.g., mobile asphalt mixing plant, tamper, inspection equipment, etc.)
- Absence of pilot project in Vientiane Province (e.g., slope maintenance, bridge maintenance, PBC)

CaRoL
Capacity building project for
Road maintenance in Lao PDR

"Early inspection, early maintenance, truly loved nation"





CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

7th Joint Coordinating Committee

17th Sep, 2015
DOR Meeting Room

Project Coordinator for CaRoL and JICA CaRoL Expert Team

CaRoL

Contents of Presentation

- **Presentation of Progress Report**
  1. **Project outline**
  2. **Issues arising and actions taken**
  3. **Summary progress report**
     - System improvement and database updates
     - Development of technical manuals
     - Pilot project and OJT
- **Revision of Project Design Matrix**

CaRoL

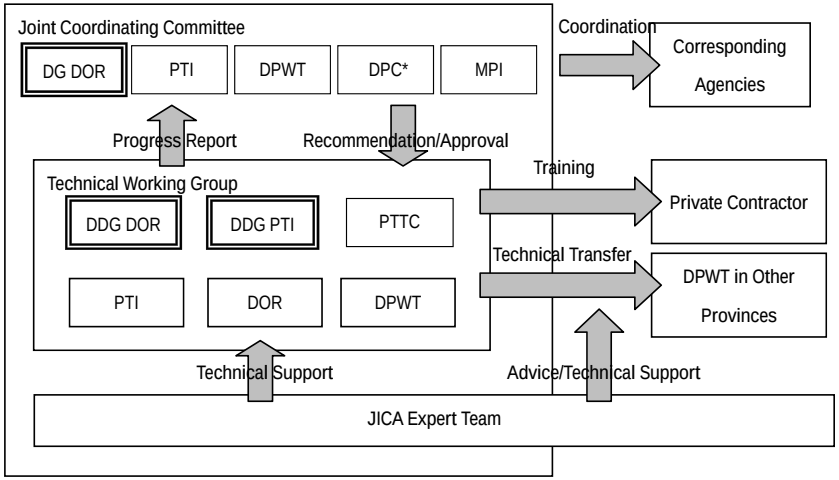
1. Project outline

CaRoL

1.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in the pilot provinces are properly maintained.
- **Project Outputs;**
  1. Maintenance planning ability for road and bridge maintenance is enhanced.
  2. Technical manuals for road/bridge maintenance are prepared.
  3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced.

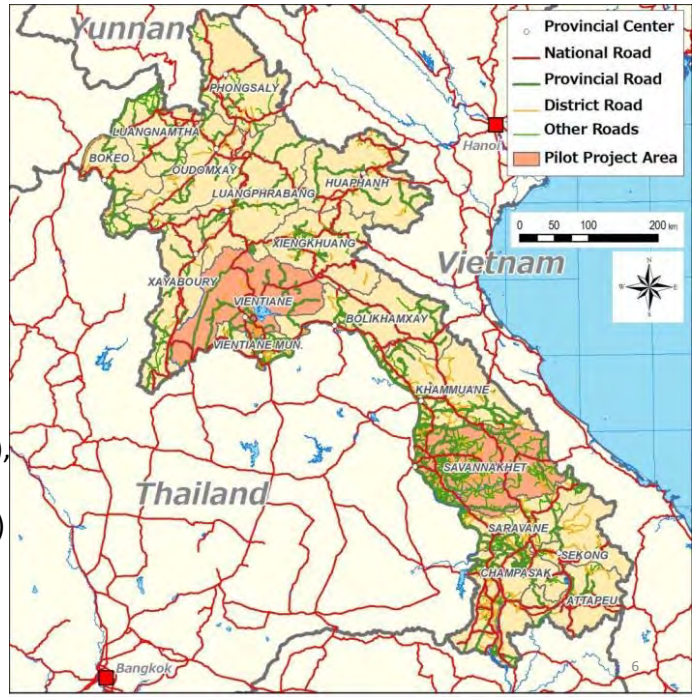
1.2 Project implementation structure



*DPC was split into DPC and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office, Expert for MPWT and EOJ) are not shown in the figure.

- **Project Area**;
  - Savannakhet and Vientiane selected as pilot provinces.
- **Project Period**;
  5 Years
  *Phase 1 (Sep 2011 – Oct 2014), Phase 2 (Dec 2014 – Sep 2016)



1.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016
1. Maintenance planning ability for road and bridge maintenance is enhanced.						
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.						
1-2.Improve data collection method/work for RMS/PRoMMS.						
1-3.Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.						
1-4.Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.						
1-5.Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.						
1-6.Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.						
1-7.Monitor progress of the activities and evaluate maintenance planning capabilities.						

Planned Actual

1.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016
2. Technical manuals for road/bridge maintenance are prepared.						
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.						
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.						
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.						
3. 3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced						
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.						
3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control.						
3-3. Evaluate OJT on maintenance work and improve training modules and training programs.						
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct routine maintenance work.						
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in						
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.						

Planned Actual

2. Issues arising and actions taken

Issues arising and actions taken (1/6)

Subject	Issues arising	Actions taken
General (6th JCC)	A task force was formed by the Minister to review the revenue and expenditure of the RMF and proposed to increase the fuel levy from 420 Kip/litter to 520 Kip/litter in the MPWT Annual Meeting. (DDG of DOR)	• The fuel levy was increased from 420 kip/litter to 520 kip/litter effectively from 30th January 2015.
General (6th JCC)	The Minister advised the DOR to define the responsibilities and duties among the DOR/Regional Road Maintenance Project Office/DPWTs. (DDG of DOR)	• Following the Minister's order, DOR/Regional Office is currently evaluating performance of the ROs, including national road condition survey across the country.

Issues arising and actions taken (2/6)

Subject	Issues arising	Actions taken
General (6th JCC)	Reinstallation of 29 weigh bridges across the country was discussed during the MPWT Annual Meeting. up-to-date weigh station would be built in 3 pilot provinces including that along the NR-9 (Representative of DOT)	• DOT drafted a paper to establish Transport Patrol Department in MPWT and circulated it to the Minister. • Once the Minister approves it, MPWT and MOHA to confirm demarcation on vehicle inspection duties, including overloading control. • MPWT submitted a request letter to PM Office to finance pilot weigh stations in July, 2015. Until now, no response made by PM. • JICA acknowledges importance of overloading control and considers to provide a technical/financial support to reinstall weigh station(s) along NR-9 as pilot project. → To be discussed later in agenda item 'Revision of Project Design Matrix'

Issues arising and actions taken (3/6)

Subject	Issues arising	Actions taken
Pilot project (6th JCC)	DPWT Vientiane requested the JICA to consider to set aside the fund for implementation of the pilot project in Vientiane. (Director of DPWT Vientiane)	• Expert and C/P met MPI's officers to understand WB's Disaster Management Project and visited WB's pilot project site (slope protection using LBT) in Phongsali in July, 2015. • Expert and C/P discussed and agreed with introduction of recycling pavement method along NR-13N as pilot project. • Expert and C/P selected a candidate pilot project site at Phonhong (nearly 300 m) and conducted geo-technical survey at site in Aug, 2015. • JICA to set aside funds for implementation of pilot project in Vientiane Province. • DOR currently considers to set aside additional funds to extend the pilot project to a few kilometers, using RMF.

Issues arising and actions taken (4/6)

Subject	Issues arising	Actions taken
Manual (6th JCC)	Technical manual, prepared during the Phase 1 Project, should be utilized through the OJT and pilot project during the course of the Phase 2 Project. (Director of DPWT Vientiane)	• PTTC/Expert/KfW consultants organized coordination meeting to understand the progress of JICA/KfW projects in July 2015. • PTTC to develop a training curriculum under KfW project and to absorb a technical manuals as part of technical training for road maintenance under KfW projects.
Training (6th JCC)	CaRoL Expert Team is requested to share the training plan with the PTTC to enable the PTTC to incorporate some of the training into the PTTC's training and budget plan. (Director of PTTC)	• Ditto

Issues arising and actions taken (5/6)

Subject	Issues arising	Actions taken
Pilot project (6th JCC)	DOR needs to extend technical assistance from JICA, especially for design approval and supervision of the on-going maintenance work along NR-9, since maintenance work is to continue until 2017. (DDG of DOR)	• A tripartite meeting, involving DOR/RO, local consultants and Expert Team, was held in July, 2015 to discuss progress of on-going project, scope of works for CaRoL and local consultants and schedule. • JICA basically agreed to provide additional inputs through CaRoL project, including (i) procurement of additional equipment (i.e., mobile batching plant), (ii) provision of additional inputs of experts for supervision of pilot projects and overloading control, together with extension of the project period. • JICA to set aside funds for the additional works listed above. Extension of project period requires amendment of R/D and PDM. → To be discussed later in agenda item 'Revision of Project Design Matrix'

Issues arising and actions taken (6/6)

Subject	Issues arising	Actions taken
Others	DOR requested Expert to provide GIS training course for TED staffs in order to update GIS based inventory database.	• Expert is ready to provide GIS training course. The details (contents, trainer/trainees, duration, etc) to be discussed with DOR and other concerned departments.
	PTI requested Expert to provide HDM-4 training course for PTI staffs to understand basic function of RMS.	• Expert met DOH (Thailand) to discuss third country training in Thai in July 2015 and requested to insert HDM-4 course in the training.

3. Summary progress report

3.1 Progress of system improvement

Principle in capacity development of system improvement;

- **Objectives**: Maintenance planning ability for road/bridge maintenance is enhanced.
- **Target**: PTI, DPWT/OPWT, DOR
- **Expected individual capacity level**: Trainer (PTI), Capable with manuals (DPWT/OPWT)
- **Approach**:
  - PTI to develop in-house capacity through equipped with data collection and analysis tools.
  - DPWT/OPWT to develop understanding/skills of data collection and analysis.
  - DOR to improve maintenance/budgeting plan, based on numerical analysis.
  - Full coordination with WB

3.1 Progress of system improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. Improvement of RMS/PRoMMS
5. Training for PRoMMS
6. Procurement of/training for VIMS
7. **Data collection and update of the RMS/PRoMMS**
8. **Data analysis of RMS/PRoMMS**
9. Preparation of Road Maintenance Plan and Budget Plan
10. Coordination meeting with NUOL

3.1 Progress of system improvement

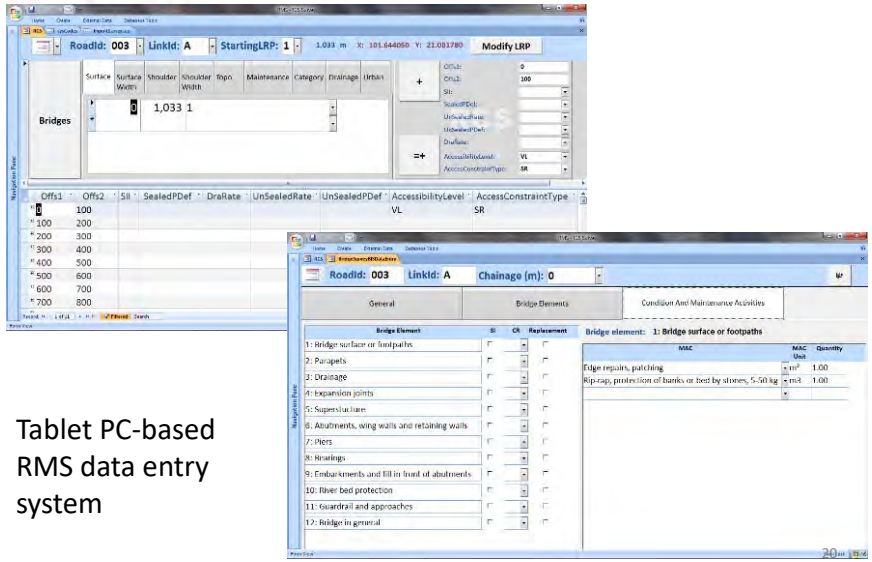
1) RMS/PRoMMS system update

- Fix of minor bugs/errors in PRoMMS/RMS undergoing. RMS to be improved, including link to IRAM and reporting function.
- New tablet-based RMS data entry system developed in Feb 2015. The system tested during data collection survey in April/May 2015.
- Based on the result, the system improved, adding traffic data entry sheet.

2) RMS data collection/analysis

- RMS data collection survey conducted between end March 2015 and end May 2015.
- Data entry/validation in June/July/August 2015 and data analysis undergoing. Road Asset Report and result of analysis to be submitted to DOR/DPC/WB by end Sep 2015.

3.1 Progress of system improvement



Tablet PC-based RMS data entry system

3.1 Progress of system improvement

3) PRoMMS data collection/analysis

- PTI received PRoMMS data from all provinces by end Aug 2015.
- PTI tested quality of PRoMMS data and found 4 out of 17 provinces contain errors.
- PTI to receive clean PRoMMS data and extract to RMS formed database for analysis.

4) Road Asset Master Data Committee (Provisional)

- Expert suggested PTI to organize a special committee or task force, involving PTI, DOR (TED) and Cabinet Office and ROs/DPWTs, to review current duties and responsibilities in road maintenance cycle and to re-assign them considering capacities to develop a 'master' road asset database.

Current Road Management System, Manager/User, Tasks/Issues

System	System Manager/User	Task/Issues
Road statistics	**DPWT**/DOR, DPC, PTI	- DPWT updates road information every year (nearly 10% increase by road length every year!). - Only tabulated information provided. No GIS based info available.
GIS based road inventory	**TED(DOR)**/DOR, PTI, other departments	- TED (DOR) maintains GIS based road inventory. - No updates since 2008 → **Gap observed between road statistics and inventory**
RMS	**PTI**/ DOR, DPC	- PTI maintains system and updates database annually and provide asset report to DOR and DPC. - Road ID and GIS info relies on DOR. → **Gap among (i) road statistics, (ii) road inventory and (iii) RMS. No management of reference data: provinces/districts codes, road/link numbering**
PRoMMS	**DPWT**/DPWT, DOR	- DPWT maintains system and updates database. - In practice, PTI maintains system and DPWT functions only as data provider → **Weak link btw PRoMMS and actual planning. Gap between road statistics and PRoMMS**
IRAM	**Cabinet Office**/ DOR, DPC, PTI, other departments	- Cabinet Office develops Maintenance Work Contracts Management System. - The system also provides a web-based Network Asset Database, with data aggregated from RMS. - System provides only platform (no analysis) and data updated by PTI (planning), DOR (procurement and implementation) and evaluation.

3.2 Progress of manual development

Principle in capacity development of manual development;

- **Objectives**: Technical manuals for road/bridge maintenance are prepared.
- **Target**: DOR, DPWT, PTTC
- **Expected individual capacity level**: Trainer (PTTC/DOR), Capable with manuals (DPWT)
- **Approach**:
  - DOR/DPWT/PTTC involved in preparation/revision of the technical manuals.
  - Technical manuals fully utilized, absorbed in existing planning and procurement procedure.
  - Role out to other provinces
  - Coordination with KfW/WB

3.2 Progress of manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of technical manuals
7. Revision of PBC
8. Workshop/training for revised PBC
9. Print Technical Manuals (Ver. 1.0)
10. **Pilot PBC in 4 pilot roads**
11. **Preparation of Master Bidding Document for maintenance work**

3.2 Progress of manual development

1) Pilot PBC in 4 pilot roads

- PBC revised through CaRoL project. 4 PBC workshops organized in 2014, involving all DPWTs and private contractors across the country.
- One year pilot PBC conducted using RMF. Procurement of pilot PBC done in Nov/Dec 2014.
- Pilot PBC undergoing in 4 national roads (220 km in total) in Phongsali (2E), Luang Prabang (13N), Borikhamxai (13S), Savannakhet (13S).
- PBC internal meeting organized, involving DOR, all ROs and PTI, in June 2015 to discuss issues identified during procurement and way forward for monitoring pilot PBC. (→ Only pilot PBC in Phongsali to be monitored)
- PBC kick off meeting held in Phongsali in July 2015.

3.2 Progress of manual development

1) Pilot PBC in 4 pilot roads – Way forward

- Performance monitoring by DPWT/RO/DOR (Until Dec, 2015)
- Review on procurement and work of PBC (by March, 2015)
- Revision of PBC documents, including contactor's evaluation criteria and Technical Specification (by May, 2015)

3.2 Progress of manual development

2) Preparation of Master Bidding Document for maintenance work

- Experts currently engaged to (i) authorize technical manuals turning into the MPWT's official document and/or (ii) translate contents of technical manual into Ministry's authorized official procurement procedure, in order to maximize utilization of the manuals.

  → Preparation of Master Bidding Document (MBD) for maintenance works.
- Review works of technical manuals prepared during Phase-1 completed in July 2015.
  - Comparative TOC of MAC and CaRoL Road Maintenance Manual
  - Review of existing bidding/contract documents - Contract Document for Pilot Project for Rehab of NR-9 (JICA, 2011), Bidding Documents for Performance Based Contract (WB, 2010), Bidding Documents for Periodic Maintenance Works (WB, 2005/06)

3.2 Progress of manual development

2) Preparation of Master Bidding Document for maintenance work – Way forward

- Review of MBD for general conditions prepared by WB/ADB (Oct, 2015)
- Preparation of draft MBD for maintenance works (Oct/Nov, 2015)
- Workshop for draft MBD for maintenance works – Road and Bridge (Nov, 2015)
- Finalization of MBD for maintenance works (Jan, 2016)

3.3 OJT and Pilot Project

Principle in capacity development of OJT and pilot project;

- **Objectives**: Capability of physical road/bridge maintenance work in pilot provinces is enhanced.
- **Target**: DOR, DPWT
- **Expected individual capacity level**: Capable with manuals (DPWT)
- **Approach**:
  - Contribution from Lao side to develop ownership.
  - Private sector participated both as trainer and trainee in the OJT/pilot project.
  - Organizational reform (e.g., maintenance unit for routine maintenance, Regional Office)

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12): **3.1 km road/NR-9**
5. Pilot project (YR 2012/13): **15.8 km spot improvement/NR-9**
6. Pilot project (YR 2013/14): **Urgent repair works/NR-9**
7. **Pilot project (YR 2014/15/16): Major rehab/NR-9**
8. OJT (e.g., bridge maintenance in Savannakhet)
9. **Preparation of pilot project: Recycling method/NR-13N**

3.3 OJT and Pilot Project

1) Pilot project (YR 2014/15/16): Major rehab/NR-9

Location Map of the Project for Maintenance of NR-9

Implementation section by Contractor

Section	Contractor	BP Km	EP Km	Length (Km)	OL (cm)
1-1	R8CE	0.0	30.0	30.0	9.0
1-2	R8CE	30.0	45.7	15.7	11.5
	CaRoL	45.7	48.8	3.1	
2	R8CE	48.8	58.8	10.0	9.5
	JPN Grant-1	58.8	105.8	47.0	
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5	KXN	185.0	241.6	56.6	5.0

1st Year (Jun/14-May/15)
2nd Year (Jun/15-May/16)
3rd Year (Jun/16-May/17)

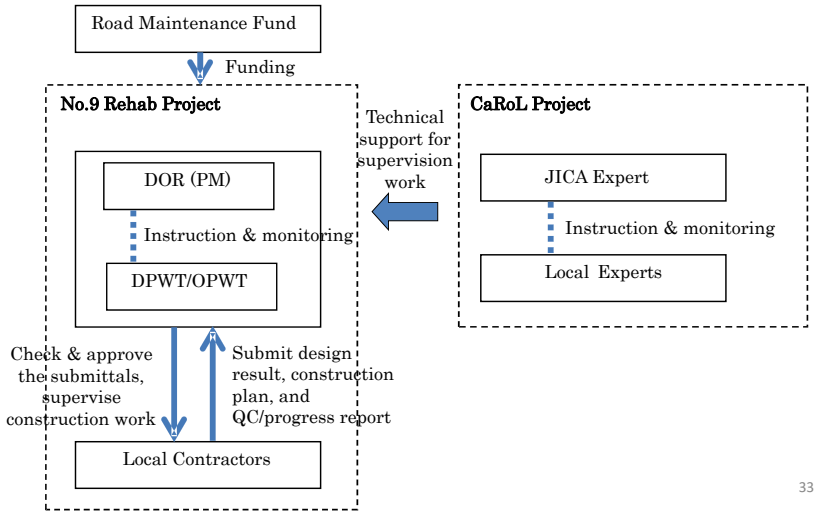
3.3 OJT and Pilot Project

Implementation Schedule of Project for Maintenance of NR-9 (2014 – 2016)

Description	2014 Jun	Jul	Aug	Sep	Oct	Nov	Dec	2015 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0. Mobilization																															
1. Urgent maintenance																															
i. Replacement																															
ii. Patching																															
2. Rehabilitation work																															
i. Replacement																															
ii. Overlay																															
iii. Drainage																															
iv. Road sign & marking																															
3. Review & approval																															
i. Design review & approval																															
ii. Material test & approval																															
4. Demobilization																															

3.3 OJT and Pilot Project

Implementation Structure of 2014/15/16 Pilot Project



Monthly Progress as of August, 2015 (R8CE)

Summary Quantity up to 31/08/2015

Item	Description		Unit	Contract Quantity	Actual (31.8.15) Quantity	Percentage	Remark
1	Removal Existing Asphal:	5cm	m2	263,885.00	129,959.41	49.25%	
2	Removal Existing Asphal:	10cm	m2	21,930.00	50,930.60	232.24%	
3	Sub Base		m3	8,475.00	1,627.25	19.20%	
4	Base Course	10cm	m3	22,965.00	21,789.50	94.88%	
5	Base Course	20cm	m3	16,927.00	1,301.80	7.69%	
6	Prime Coat		m2	363,213.00	217,574.00	59.90%	
7	Binder Course	5cm	m2	331,469.00	179,799.31	54.24%	
8	Tack Coat 1		m2	813,087.00	39,945.44	4.91%	
9	Tack Coat 2		m2	593,600.00	0.00	0.00%	
10	Wearing Course	4cm	m2	864,000.00	0.00	0.00%	
11	Wearing Course	4.5cm	m2	161,600.00	0.00	0.00%	
12	Wearing Course	5cm	m2	381,087.00	41,731.40	10.95%	
13	Concrete Side Ditches		ml	32,000.00	6,775.00	21.17%	
14	Pipe Convert Ø60 Cm		ml	48.00	76.00	158.33%	

Major Work Item
Completion of Asphalt Concrete Binder Course
(Km160+800 to Km161+285; and Km165+200 to Km182+000)

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	**27.79**
Actual executed up to date	**20.65**
Difference	**-7.14**

Monthly Progress as of August, 2015 (KXN)

Summary quantity up to 31/08/2015

Item	Work Description	Unit	Contract	Actual Progress	Percentage %	Remark
1	Removal Existing Asphalt	M2	129,385.95	139,170	107.56 %	
2	Sub base	M3	35,236.49	52,407	148.73 %	
3	Base Course	M3	36,021.19	32,712	90.81 %	
4	Prime Coat MC-70	M2	272,599.95	140,614	51.58 %	
5	Asphalt Binder Course, 5 cm	M2	249,286.95	127,328	51.08 %	
6	Tack Coat-1, CRS-2	M2	349,200.00	191,728	54.90 %	
7	Asphalt Wearing Course, 4 cm	M2	349,200.00	191,191	54.75 %	
8	Tack Coat-2, CRS-2	M2	349,200.00	137,469	39.37 %	
9	Asphalt Wearing Course, 3.5 cm	M2	349,200.00	135,527	38.81 %	
10	Concrete Side ditch	M	154,000.00	33,014	21.44 %	
11	Pipe Culvert Ø 60 Cm	M	1,385.00	352	25.42 %	

Major Work Item
Completion of Asphalt Concrete Binder Course and Wearing Course
(Km105+800 to Km126+800)

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	**30.91**
Actual executed up to date	**37.80**
Difference	**+6.69**

Progress Photos (Contractor: R8CE)

Base Course (Km 184+000)

Base Course

Prime Coat (Km 180+500)

Binder Course (Km 179+000)

Asphalt Binder course Km 182+000



Shoulder works (Km 164+500)

Side ditch Excavation (Km 177+200)

Progress Photos (Contractor: KXN)


Removal Existing Asphalt (135+300)

Sub-Base Course


Prime Coat of Access Road (Km 124+775

Asphalt Pavement of Access Road (Km 107+225)

Asphalt Wearing course Km 106+700 and Guide Post Installation

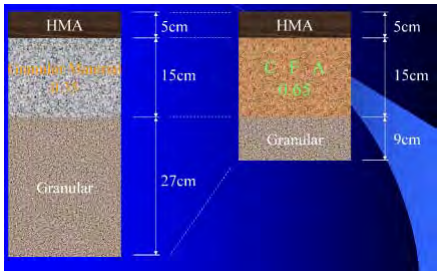

Weekly and Monthly of Meeting

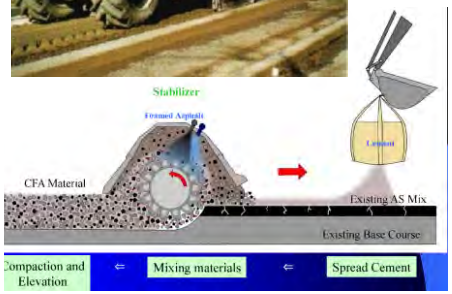

3.3 OJT and Pilot Project

2) Preparation of pilot project: Recycling method/NR-13N

- Site selected near Phonhong. 300 m to be for pilot project.
- Sampling of DBST and base course material done in Aug 2015.
- The result confirmed pavement design and suitability for recycling method.
- DOR may set aside additional funds to extend the pilot project.


3.3 OJT and Pilot Project





CaRoL
Capacity building project for
Road maintenance in Lao PDR

"Early inspection, early maintenance, truly loved nation"





CaRoL
Capacity building project for Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

8th Joint Coordinating Committee

6th April 2017
DOR Meeting Room

Project Coordinator for CaRoL and JICA CaRoL Expert Team





CaRoL

Contents of Presentation

- **Presentation of Progress Report**
  1. **Matters arising and actions taken**
  2. **Project outline**
  3. **Summary progress report**
     - System improvement and database updates
     - Development of technical manuals
     - Pilot project and OJT
     - Overloading Control
  4. **Overall progress**
  5. **Lessons leant and pending issues**

CaRoL

1. Matters arising and actions taken

CaRoL

Matters arising and actions taken (1/4)

Subject	Matters arising	Actions taken
Manual (13th TWG)	Requested CaRoL Expert to organize Technical Workshop involving DPWTs, DOR and PTTI to review and revise the technical manuals.	• CaRoL set-up sub-working group, involving DPWTs in pilot provinces, DOR, PTTI and organized meeting in March 2017. • CaRoL and sub-working group organized 3 day technical workshop in Sava in April 2017, involving all DPWTs where AC exists. • CaRoL and sub-working group to finalize manuals by Aug 2017.
OJT (13th TWG)	Requested CaRoL Expert to invite selected DPWTs to workshop of AC routine maintenance using AC mobile plant.	• CaRoL organized 3 day technical workshop in Sava in April 2017, involving all DPWTs where AC exists. • Summary program and findings to be briefed by CaRoL in the meeting.

Matters arising and actions taken (2/4)

Subject	Matters arising	Actions taken
Overload control (12th TWG)	Requested DOT to inform the progress of 3 pilot projects for installation of modernized weigh control system.	• Pilot Project in Sava is undergoing, through JICA's assistance. Pilot projects in Luangnamtha and Borikhamxay be implemented by ADB and WB.
Overload control (12th TWG)	Requested DOT to inform the progress of setting up new department/ authority for transport patrol.	• DOT has completed final draft sub-decree and submitted it to the Minister for final approval. • Minister already approved 3 pilot province to establish transport patrol units and gave the mandate for overloading control to the units.

Matters arising and actions taken (3/4)

Subject	Matters arising	Actions taken
Pilot project (11th TWG)	Requested CaRoL Expert to provide a technical transfer program to introduce a recycling pavement method, newly introduced in Laos.	• CaRoL and C/P organized technical workshops on 29th March (DPWT Vientiane) and 28th April (PTTI), involving 110 DOR, DPWTs and local contractors in total. • CaRoL prepared technical specifications for the pilot project, which can be utilized as a template.
Pilot project (11th TWG)	Requested CaRoL Expert to provide a technical assistance to ensure a proper contract management and quality control in pilot project along National Road No.9	• Both Road Management Expert (1) and (2) assigned in assisting design review and supervision in 2016/17. • Technical seminars organized on 25th Feb and 22nd April 2016, involving 54 DPWTs, OPWTs, local consultants/contractors in total.

Matters arising and actions taken (4/4)

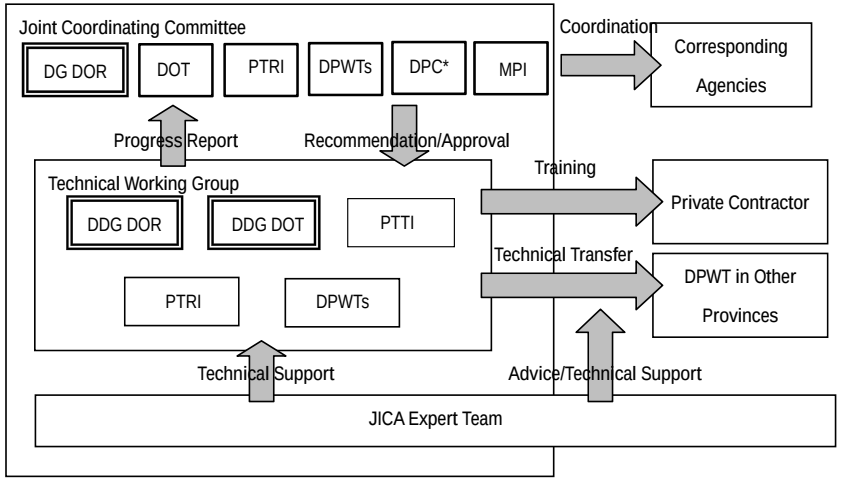
Subject	Matters arising	Actions taken
General (11th TWG)	Information provided on on-going and pipeline ADB and WB's road maintenance projects.	• A series of coordination meetings held, involving ADB, WB and KfW projects, to share experiences and deliverables of the projects.
General (11th TWG)	Informed of on-going organizational/ functional changes in MPWT: DOR appointed 22 Project Managers under re-established RAD and LRD, PTRI transfers operation of RMS/PRoMMS to DOR.	• To be discussed in the meeting.
General (12th TWG)	Requested JICA to extend the project period since institutionalization of overloading control, in particular, requires sufficient technical assistance.	• To be discussed in the meeting.

2. Project outline

2.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in the pilot provinces are properly maintained.
- **Project Outputs;**
  1. **Maintenance planning ability** for road and bridge maintenance is enhanced.
  2. **Technical manuals** for road/bridge maintenance are prepared.
  3. Capability of DOR/DPWT officers who are responsible for **physical road/bridge maintenance work** in the pilot provinces is enhanced.
  4. Capacity of DOT/DPWT officers for **overloading control** in the pilot province(s) is enhanced.

2.2 Project implementation structure

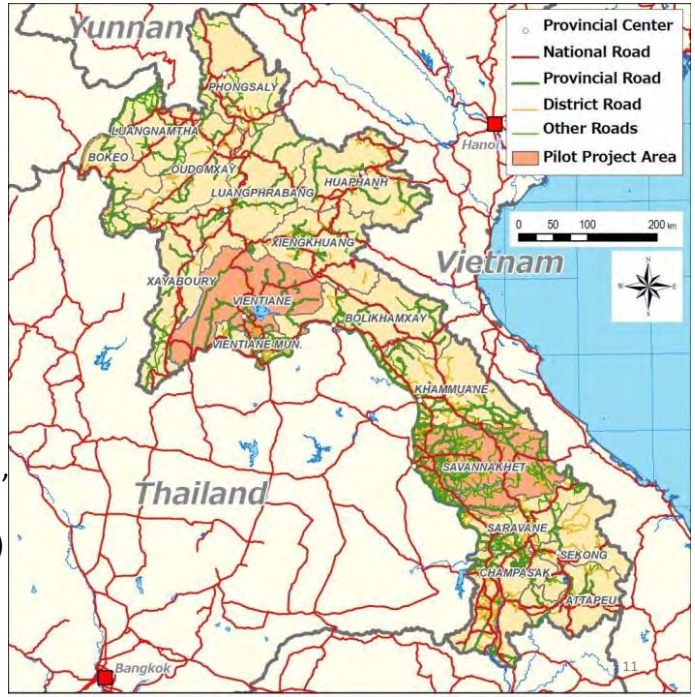


*DPC was split into DPC and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office and Expert for MPWT) are not shown in the figure.

• **Project Area**;
- Savannakhet and Vientiane selected as pilot provinces.

• **Project Period**;
6 Years
*Phase 1 (Sep 2011 – Oct 2014), Phase 2 (Dec 2014 – Sep 2017)

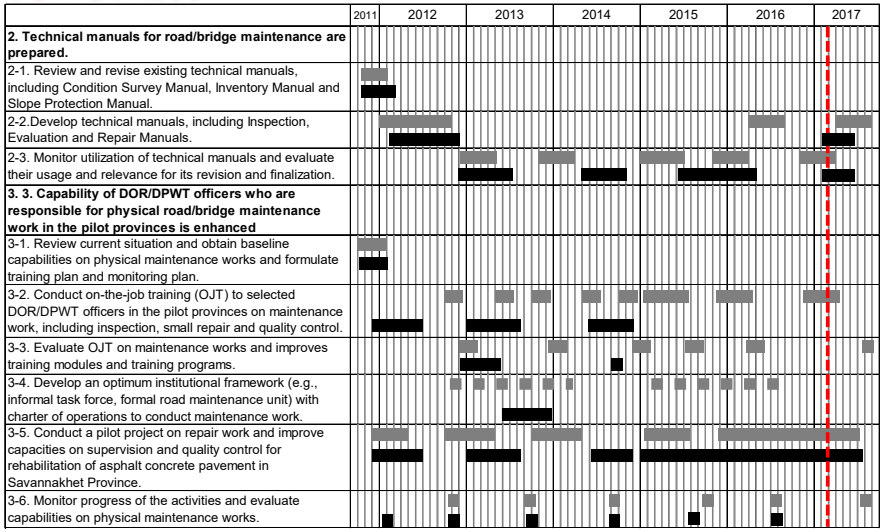


2.3 Project implementation schedule

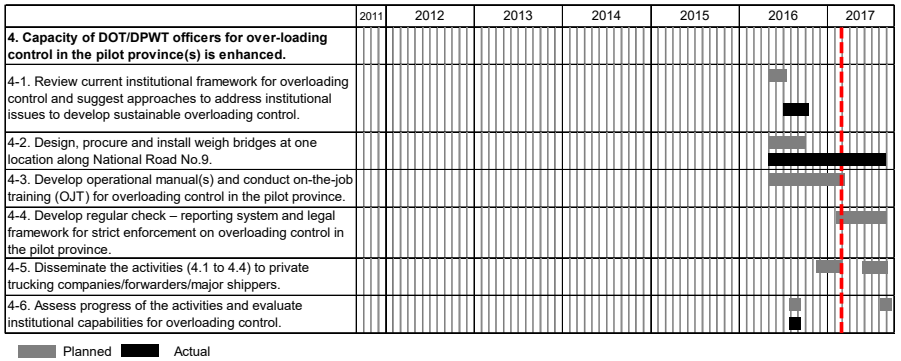
Activities	2011	2012	2013	2014	2015	2016	2017
1. Maintenance planning ability for road and bridge maintenance is enhanced.							
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.							
1-2. Improve data collection method/work for RMS/PRoMMS.							
1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.							
1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.							
1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.							
1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.							
1-7. Monitor progress of the activities and evaluate maintenance planning capabilities.							

Planned Actual

2.3 Project implementation schedule



2.3 Project implementation schedule



3. Summary progress report

3.1 System improvement

1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. **Improvement of RMS/PRoMMS**
5. Training for PRoMMS
6. Procurement of/training for VIMS/DRIMS
7. **Data collection and update of RMS/PRoMMS**
8. **Data analysis of RMS/PRoMMS**
9. **Preparation of Road Maintenance Plan and Budget Plan**
10. **Coordination meeting with NUOL**

3.1 System improvement

1) RMS/PRoMMS system update

- System update undergoing, mainly data export/import/ verification function.

2) RMS data collection/analysis

- Completed RMS for NR by April 2016.
- Completed RMS analysis for NR by June 2016 and submitted an analysis report to DOR by June 2016.

Survey Type	2013	2014	2015	2016
Referencing and Inventories (Km)	274	109	0	0
Paved Road Condition (Km)	5,273	3,126	3,772	3,225
Unpaved Road Condition (km)	173	0	0	0
Bridge Condition (Nos)	1,067	582	1,327	1,134
Road Roughness (Km)	5,273	5,338	5,859	5,859
Traffic Count (Nos)	231	119	87	0
Socio-economic (Nos)	7	0	0	0

3.1 System improvement

3) PRoMMS data collection/analysis

- Received and analyzed PRoMMS data from selected provinces.

4) Road Asset Master Data

- Revision of road numbering system on-going by TD/DOR
- CaRoL provide technical support to develop GIS based road asset master data.

5) DRIMS System Improvement and coordination meeting

- Coordination meeting held in Feb 2017 at NUOL, involving academics of engineering and ICT.



3.2 Manual development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of PBC
7. Workshop/training for revised PBC
8. Print Technical Manuals (Ver. 1.0)
9. **Pilot PBC in 4 pilot roads**
10. **Revision of technical manuals**
11. Preparation of Master Bidding Document for maintenance work

3.2 Manual development

(1) Pilot PBC in 4 pilot roads

Progress:

- PBC revised through CaRoL. 4 PBC workshops organized in 2014.
- 1 year pilot PBC conducted in 4 provinces between Jan 2015 and Jan 2016.

Findings and next step:

- Proper selection of maintainable section and BOQ for initial rehab works, covering all defects
- Reference unit cost for PBC (BOQ based cost)
- Proper contract period (for example, initial rehab period (including defect liability period) and 3 years for PBC)

→ **Full scale implementation by on-going ADB RSGMP**

3.2 Manual development

(2) Revision of Technical Manuals

- Sub-working Group composed of selected DOR, DPWTs and PTTI for review/revision/translation of manuals.
- Series of technical workshops during preparatory stage. During revision stage, workshops involving 10 DPWTs (where AC exists), private contractors, sub-working group.

→ Findings in April workshop reported by CaRoL Expert

	Activity	In charge	Time
1	Technical Workshop (Feedback from DPWT/contractors)	Participants	1st week, April
3	Revise the manuals (English)	CaRoL/SWG	By end of May
4	Revise the manuals (Lao)	SWG	By end of June
5	Technical Workshop (Feedback from /confirmation by DPWT/contractors)	Participants	By July
6	Printing and binding	CaRoL	By end of July
7	Submit final version	CaRoL	By end of August

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12): **3.1 km road/NR-9**
5. Pilot project (YR 2012/13): **15.8 km spot improvement/NR-9**
6. Pilot project (YR 2013/14): **Urgent repair works/NR-9**
7. **Pilot project (YR 2014/15/16): Major rehab/NR-9**
8. OJT (e.g., bridge maintenance in Savannakhet)
9. **Pilot project: Recycling method/NR-13N**
10. **OJT for routine maintenance for AC pavement**

3.3 OJT and Pilot Project

(1) Routine maintenance for AC pavement

- Training of mobile AC equipment conducted in February 2017 an April 2017, involving 9 DPWTs (where AC exists) an private contractors in Savannakhet.

Heating by Road heater

Loosing by Rake

Compaction by Plate Compactor

3.3 OJT and Pilot Project

(2) Pilot project in Savannakhet: Major rehab/NR-9

Location Map of the Project for Maintenance of NR-9

Implementation section by Contractor

Section	Contractor	BP Km	EP Km	Length (Km)	OL (cm)
1-1	R8CE	0.0	30.0	30.0	9.0
1-2	R8CE	30.0	45.7	15.7	11.5
	CaRoL	45.7	48.8	3.1	
2	R8CE	48.8	58.8	10.0	9.5
	JPN Grant-1	58.8	105.8	47.0	
3	KXN	105.8	149.8	44.0	9.0
	JPN Grant-2	149.8	160.8	11.0	
4-1	R8CE	160.8	162.1	1.3	6.5
4-2	R8CE	162.1	185.0	22.9	5.0
5	KXN	185.0	241.6	56.6	5.0

1st Year (Jun/14-May/15)
2nd Year (Jun/15-May/16)
3rd Year (Jun/16-May/17)

Monthly Progress as of February, 2017 (R8CE)

Summary Quantity up to 28/02/2017								
Item	Description	Unit	Contract	Prevouse	This month	Actual (28.02.17)	Percentage	Remark
	Bill 200							
1	Removal Existing Asphalt 5cm	m2	263,865.00	138,227.47		138,227.47	52.39%	
2	Removal Existing Asphalt 10cm	m2	21,930.00	102,239.36		102,239.36	466.21%	
	Bill 300							
1	Sub Base	m3	9,475.00	14,023.51	2,480.41	16,504.05	174.19%	
2	Base Course 10cm	m3	22,965.00	25,454.92	2,049.60	27,504.52	119.77%	
3	Base Course 20cm	m3	16,927.00	3,941.12		3,941.12	23.28%	
4	Prime Coat	m2	363,213.00	299,859.54	4,615.26	304,474.80	83.83%	
5	Binder Course 5cm	m2	331,480.00	319,425.96		319,425.96	96.37%	
6	Tack Coat 1	m2	813,087.00	430,547.49		430,547.49	52.95%	35.16%
7	Tack Coat 2	m2	593,800.00	83,584.97	[illegible]	120,280.23	20.26%	
8	Wearing Course 4cm	m2	864,000.00	117,359.92		117,359.92	13.58%	30.79%
9	Wearing Course 4.5cm	m2	161,600.00	45,225.06	34,884.00	80,109.00	49.57%	
10	Wearing Course 5cm	m2	381,087.00	362,299.85		362,299.85	95.07%	
	Bill 400							
1	Concrete Side Ditch DD-A	ml	32,005.00	22,205.00	3,032.00	25,237.00	78.87%	
2	[illegible]	ml	[illegible]	[illegible]		[illegible]	[illegible]	
3	Pipe Culvert Ø60cm	ml	48.00	297.00	24.00	321.00	668.75%	
	Bill 500							
1	Sub-grade	m3	817.20	39.27		39.27	4.81%	
2	Sub Base	m3	514.80	308.45		308.45	59.92%	
3	Base Course	m3	447.60	1,033.53		1,033.53	230.90%	
4	Prime Coat	m2	[illegible]	5,521.16		5,521.16	300.57%	
5	Binder Course	m2	[illegible]	5,166.18		5,166.18	253.25%	
	Bill 600							
1	Installation Guide Post	no		1,292.00		1,292.00		
2	Installation Kilomet Post	no			24.00			

Major executed work items

- Section 1-2 : Replacement, Prime coat, Binder course, Tack coat, Wearing course
- Section 2 : Replacement, Prime coat, Binder course, Tack coat, Wearing course
- Section 4 : Road Accessory

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	73.63
Actual executed up to date	55.76
Difference	-17.87

Monthly Progress as of February, 2017 (KXN)

Item	Work Description	Unit	Contract	Actual Progress	Percentage %	Remark
1	Remove Asphalt surface	M2	204,085.95	251,764	123.36 %	
2	Sub base	M3	35,236.49	96,558	274.03 %	
3	Base Course 20 cm	M3	36,021.19	59,129	164.15 %	
4	Base Course 10 cm	M3	7,770.00	2,598	33.44 %	
5	Prime Coat MC-70	M2	272,599.95	380,710	139.66 %	
6	Asphalt Binder Course, 5 cm	M2	249,286.95	349,987	140.40 %	
7	Tack Coat-1, CRS-2	M2	349,200.00	399,475	114.40 %	
8	Asphalt Wearing Course, 4 cm	M2	349,200.00	392,873	112.51 %	
9	Tack Coat-2, CRS-2	M2	349,200.00	382,569	109.56 %	
10	Asphalt Wearing Course, 3.5 cm	M2	349,200.00	335,186	95.99 %	
11	Tack Coat-1, CRS-2	M2	509,400.00	125,860	24.71 %	
12	Asphalt Wearing Course, 5 cm	M2	509,400.00	126,559	24.84 %	
13	Concrete ditch lining	M	154,000.00	93,568	60.76 %	
14	Crossing pipe	M	1,385.00	832	60.14 %	

Major executed work items (Section 5)

- Spot replacement, Prime coat, Binder course, Tack coat, Wearing course
- Drainage Works, Accessory works (Right of way post installation)

Progress Summary

Descriptions	Percent (%)
Accumulate plan up to date	90.04
Actual executed up to date	85.40
Difference	- 4.64

Progress Photos (Contractor: R8CE)


Sub Base (Section 2)


Base Course (Section 2)


Prime Coat (Section 2)


Wearing course (Section 2)

Progress Photos (Contractor: KXN)

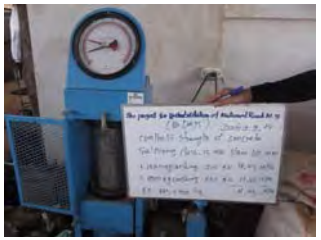

Base Course (Km 190+300)


Spot replacement (Km 185+850)


Binder Course (Km 187+000)


Wearing course (Overlay section)

Progress Photos (Contractor: KXN)

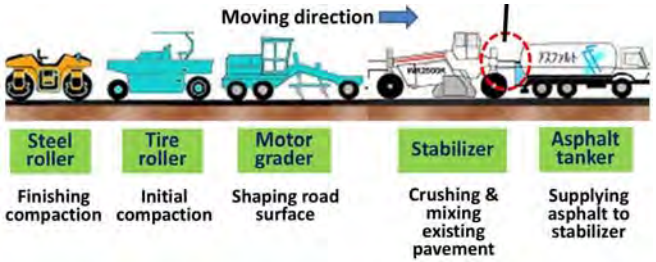
	
Side ditch (Section 5)	Road maintenance (Section 5)
	
Side ditch (QC)	Laboratory works (QC)

3.3 OJT and Pilot Project

(3) Recycling method/NR-13N

- DBST + Cement Foamed Asphalt(CFA) : 400m

- Asphalt Concrete + CFA : 1200m + 400m



3.3 OJT and Pilot Project

- CFA supported by World Kaihatsu Kogyo (WKK), including equipment (e.g., CFA stabilizer)
- CFA works started on 18 March 2016 and completed on 8 April 2016 (Completion of paving/drainage in May 2016)
- Technical workshops organized on 29th March and 28th April 2016, involving DOR, PTTI and selected DPWTs.

Progress Photos

	
Place cement on road surface	Place cement on road surface
	
Crushing & mixing by Stabilizer	Crushing & mixing by Stabilizer

Progress Photos

	
Initial compaction by Tire roller	Forming road surface by Grader
	
Finishing compaction by Steel roller	Spraying water on road surface

Progress Photos

	
AC Pavement (Section 1)	AC Pavement (Section 2)
	
AC Pavement (Section 2)	DBST Pavement (Section 3)

(2) Inspection of pilot project (July 2016 and March 2017)

July 2016




Damage-1（Section 2: 0+780 R/S）　Damage-2 (Section 3: 1+600 L/S)

March 2017


Damage-1（Section 2: 0+780 R/S）

3.4 Progress of overloading control

1. Study on axle load control system in neighbouring countries.
2. Field survey in NR-9
3. **Technical Workshop on Overloading Control**
4. **Study visit in Thailand**
5. Concept plan – Selection of optimum alternative
6. **Tender assistance**
7. **Installation of weigh control system**
8. *(OJT including preparation of operational manual)*
9. *(Dissemination workshop)*

3.4 Overloading control

(1) Technical Workshop on Overloading Control

- Technical workshops organized on 4th May and 24th June 2016, involving DOT, DOR and DPWT Savannakhet.
- Suppliers (system suppliers and integrators) to DOH/Thailand invited to brief the system applied in Thailand.

3.4 Overloading control

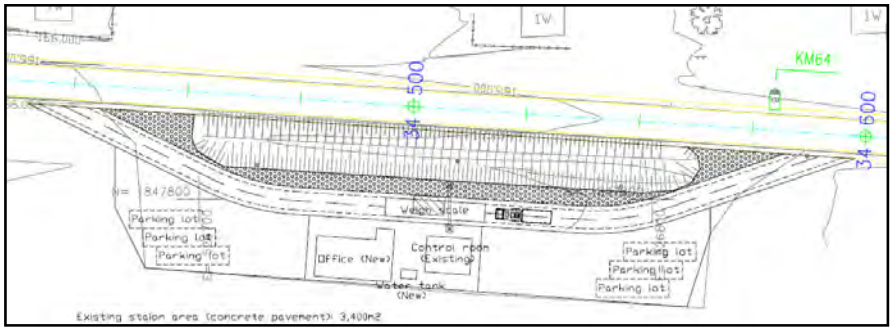
(2) Study visit in Thailand

- CaRoL and DOT arranged 3 day study visits in Thailand in June and July 2016.
- Visited DOH (weigh station and control room), TMS and SGS (supplier), Kristler (system provider), and private logistics companies.
- DOT and Cabinet Office attended.

3.4 Overloading control

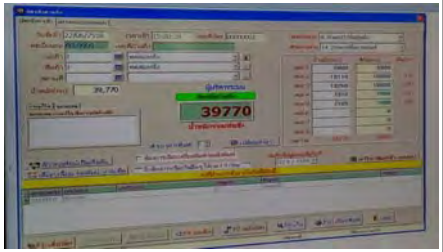
(3) Tender assistance

- Contract was signed between JICA and Noukham Construction Co., Ltd. on 8th Feb 2017.
- Construction work composed of civil work and installation of new weigh scale (static type) is under progress.



Plan of weigh station

Photos of same model (Thailand)

	
Platform	Platform (loaded)
	
Measurement system	Measurement result

Site work progress photos

	
Removing existing roof	Scarifying existing pavement and sub-grade preparation
	
Grading sub-grade	Stockpile of base course material

3.4 Overloading control

(4) On-going institutional strengthening at DOT

- DOT to establish Transport Patrol Authority and sub-decree drafted.
- DOT to legislate strict rules on overloading fine and cargo restriction.

Amount of Overloading (tons)	Overloading Fine (kip)	Note
Overload between 1-2	300,000	Only fine
Overload between 2-3	600,000	Fine and offload cargos
Overload between 3-4	1,200,000	
Overload between 4-5	2,000,000	
Overload between 5-6	3,000,000	
Overload between 6-7	4,500,000	
Overload between 7-8	7,000,000	
Overload between 8-9	13,000,000	
Overload between 9-10	23,000,000	
Overload more than 10	35,000,000	

4. Overall achievement

4. Overall achievement

1. System improvement

- RMS and PRoMMS data for entire road network continuously updated between 2012 and 2016.
- Optimum road maintenance plan developed. → More funds channeled to National Roads and preventive maintenance.

2. Manual development

- Road/bridge/slope maintenance manuals developed.
- PBC contract document reviewed and revised and operational manuals prepared.

3. Pilot projects

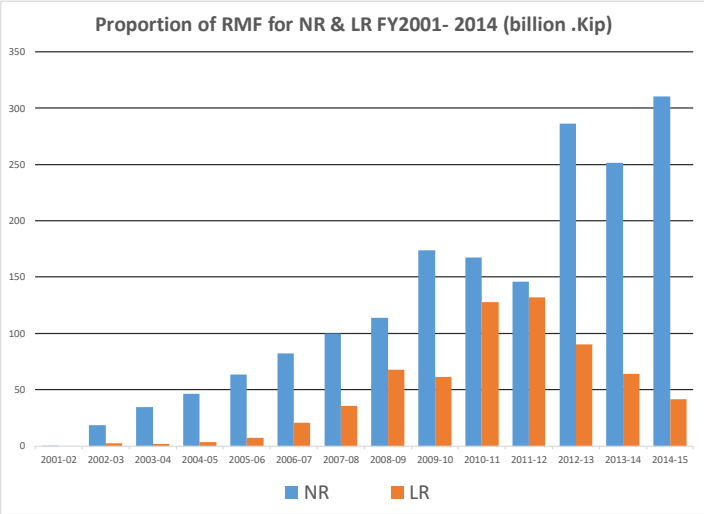
- Pilot projects mainly by local funds: Rehab on NR-9, PBC in 4 provinces, pilot bridge maintenance and CFA

4. Overload control

- Installation of weigh scale in NR-9 (undergoing)

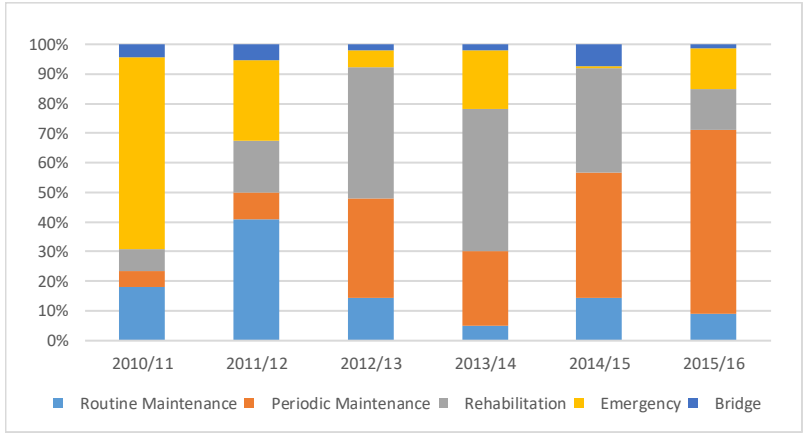
RMF revenue and expenditure

More investment channeled for maintenance of national roads.



RMF revenue and expenditure

More investment channeled to preventive maintenance (routine/periodic maintenance).



4. Overall achievement

5. Capacity Level (Assessed in 2014/2017)

- All skills improved and DOR (all activities) and PTRI (planning) and PTTI (maintenance skill) acquired higher skills as trainer level.

Capacity Level (2014/2017)	DOR	DPWTs	PTRI	PTTI
1. Data verification and analysis	4.0/4.0	2.8/3.8	3.6/4.3	2.0/4.0
2. Maintenance planning	4.0/4.5	2.8/4.0	4.0/4.5	2.7/3.6
3. Procurement	4.0/4.0	3.3/4.0	NA	4.0/5.0
4. Performance monitoring and evaluation	4.0/4.0	3.2/3.8	NA	3.0/4.0
5. Maintenance skill and knowledge	5.0/5.0	2.7/4.0	NA	4.0/5.0

1: Procedures/routines under development (none)
2: Operated with external support
3: Operated with limited external support
4: Operated without external support
5: Able to act as advisor and trainer (full capacity)

5. Lessons leant and pending issues

5. Lessons leant and pending issues

(1) Lessons learnt

- **Coordination with other donors**
  - WB supported PTRI for RMS inventory survey. WB to continue to improve RMS/PRoMMS
  - WB/ADB to assist overloading control in pilot provinces
  - ADB to review/finalize technical manuals
  - KfW supported PTTI's capacity dev. project
- **Utilization of external resource**
  - Nagasaki Univ: VIMS/DRIMS
  - Private companies: CFA, Pilot bridge maintenance, Weigh scale
- **Roll out project activities**
  - PTTI fully involved during the Project
- **Monitoring and Evaluation of skill/knowledge**

	WB (LRSP2) 2017-21	ADB RSGMP 2016-21	JICA CaRoL 2011-17	KfW RIP 2010-2019
1. Policy and legal framework	Strategic planning	Overloading control RMF ICT Master Plan		
2. Institutional framework	DOR (System management)		Overloading control Maintenance unit (DPWT)	Village Maintenance Committee (VMC)
3. Planning and budgeting	IRAM RMS with Climate resilient		RMS/PROMMS Road Master Database	
4. Procurement and implementation	LR rehab/maintenance (PBC) Weigh scale	NR and LR rehab/maintenance (PBC) Weigh scale	NR AC rehab NR AC routine maintenance Pilot PBC CFA Weigh scale	LR improvement/ maintenance (VMC)
5. Technical spec. and manual	Climate resilient PBC for LR	Design Manual PBC for NR/LR Road/Bridge/ Slope maintenance	PBC Road/Bridge/ Slope maintenance	Climate resilient VMC Procedure

	JICA CaRoL 2011-17	Original Scope	Role out
		MPWT/ Pilot Province	Other Provinces
2. Institutional framework	Overloading control	☑ Under establishment	
	Maintenance unit (DPWT)	☑ Under practice	
3. Planning and budgeting	RMS/PROMMS	☑	☑
	Road Master Database	☑	☑
4. Procurement and implementation	NR AC rehab NR AC routine maintenance Pilot bridge maintenance	☑	
	Pilot PBC	☑	☑ JICA, ADB, WB
	CFA	☑	
	Weigh scale	☑	☑ ADB, WB
5. Technical spec. and manual	PBC	☑	☑ ADB, WB
	Road/Bridge/ Slope maintenance	☑	☑ ADB, KfW

5. Lessons leant and pending issues

(2) Pending issues

1. Organizational establishment and changes

- PTRI to transfer RMS/PRoMMS. DOR to be RMS/PROMMS system user.
- DOT to establish Transport Patrol Authority.

2. Time constraints

- Full operation of weigh scale requires considerable time
- Pilot project of NR-9 Rehab works to continue till Dec 2017

3. Roll out project activities

- Concentrate on road rehab/maintenance in planning and implementation, following local needs.

	Road	Bridge	Slope
1. Policy and legal framework	WB (Strategic Planning) ADB (Overloading Control, RMF, ICT Master Plan)		
2. Institutional framework	JICA (Overloading control Maintenance unit) KfW (VMC)	Missing Link!!!!	
3. Planning and budgeting	JICA (RMS/PROMMS) WB (IRAM)		WB (RMS with Climate resilient)
4. Procurement and implementation	WB (LR rehab/ maintenance (PBC)) ADB (NR and LR rehab/maintenance (PBC) JICA (NR AC rehab, NR AC routine maintenance, Pilot PBC, CFA) KfW (LR improvement/ maintenance (VMC))		WB (Climate resilient measures) ADB (Slope protection) KfW (Climate resilient measures)
5. Technical spec. and manual	WB (Climate resilient, PBC for LR) ADB (PBC for NR/LR, Design Manual, Road/Bridge/ Slope maintenance JICA(PBC, Road/Bridge/ Slope maintenance) KfW (Climate resilient, VMC Procedure)		

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Road maintenance in Lao PDR

The Project for Improvement of Road Management Capability in Lao PDR

9th Joint Coordinating Committee

30th April 2018
DOR Meeting Room

Project Coordinator for CaRoL and JICA CaRoL Expert Team





CaRoL

Contents of Presentation

- **Presentation of Project Completion Report**
  1. **Matters arising and actions taken**
  2. **Project outline**
  3. **Summary progress report**
     - System improvement and database updates
     - Development of technical manuals
     - Pilot project and OJT
     - Overloading Control
     - Overall achievement level
  4. **Recommendation to achieve overall goal**

1. Matters arising and actions taken

Matters arising and actions taken (1/3)

Subject	Matters arising	Actions taken
Extension of project	The Terminal Evaluation Team suggests that the duration of Project be extended for six (6) months (up to March 2018) so as to ensure that sufficient period of implementation is assured for the achievement of Output 4 and the Project Purpose	• Due to delay of procurement process and construction (increased scope of work), JICA extended the project period up to May 2018.
RMS/ PRoMMS	In response to the transfer of main responsibility for RMS/ PRoMMS to DOR from PTRI, the JICA Expert Team needs to provide assistance to strengthen DOR capacity in improvement of RMS/PRoMMS, update of database and development of road maintenance plans	• JICA Expert Team organized a series of trainings to DOR for database update and RMS/PRoMMS operation: **GIS trainings/OJT for road master data, VIMS/DRIMS workshop and demo by Dr. Nishikawa, RMS/PRoMMS training, HDM-4 training by Dr. Hiep**

Matters arising and actions taken (2/3)

Subject	Matters arising	Actions taken
Weigh Control	The Project needs to complete the installation of the weigh scale and its relevant apparatus at Donghen by August 2017 as scheduled.	• Due to delay of civil work/system improvement, upgrading Donghen weigh station completed by Dec 2017. • Calibration of scale completed by Min of Science, in March 2018 • Intensive training for operation of weigh station organized on 26 and 27 March • Soft opening starts from April 2018, which tests and improves integrated operation system
Technical Manual	The Project needs to complete the revision of technical manuals in road, bridge and slope by August 2017 as scheduled and need to disseminate the outcomes of revised manuals by distributing them to all the potential DPWTs	• In collaboration with ADB project, JICA Expert developed draft revised MAC and standard specification for maintenance. • JICA Expert with ADB organized a workshop, involving all PMs/DPMs to finalize MAC and standard specification • ADB continue to finalize following agreed MAC

Matters arising and actions taken (3/3)

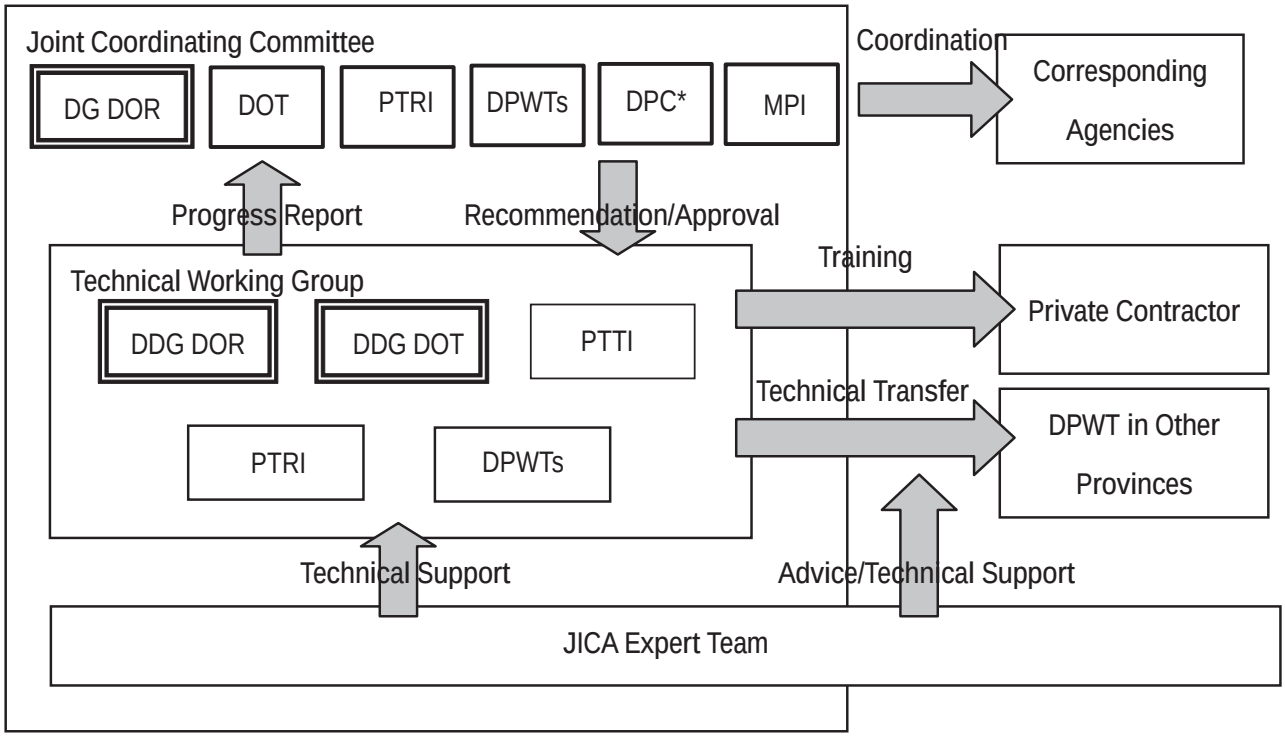
Subject	Matters arising	Actions taken
Technical Manual/ PBC	The Project needs to complete the process of taking over the revised PBC document and operational manual developed by the Project to Road Sector Governance and Maintenance Project.	• ADB consultant and JICA Expert developed PBM/CBM technical specifications and which applied to ADB project • JICA Expert prepared both PBM/CBM operational manual, awaiting for utilization under ADB project
Weigh Control	To execute strict enforcement of penalty on overloading, DOT needs to put the severe enforcement into practice as soon as possible once the implementation structure is established.	• ADB consultant and JICA Expert reviewed proposed sub-decree on enforcement and new entity (Transport Patrol) and provided inputs for them. • JICA Expert organized a dissemination workshop on 23 April to understand view on proposed sub-decree from private operators.

2. Project outline

2.1 Project goal, purpose and outputs

- **Project Purpose;**
  - Roads and bridges in the pilot provinces are properly maintained.
- **Project Outputs;**
  1. **Maintenance planning ability** for road and bridge maintenance is enhanced.
  2. **Technical manuals** for road/bridge maintenance are prepared.
  3. Capability of DOR/DPWT officers who are responsible for **physical road/bridge maintenance work** in the pilot provinces is enhanced.
  4. Capacity of DOT/DPWT officers for **overloading control** in the pilot province(s) is enhanced.

2.2 Project implementation structure

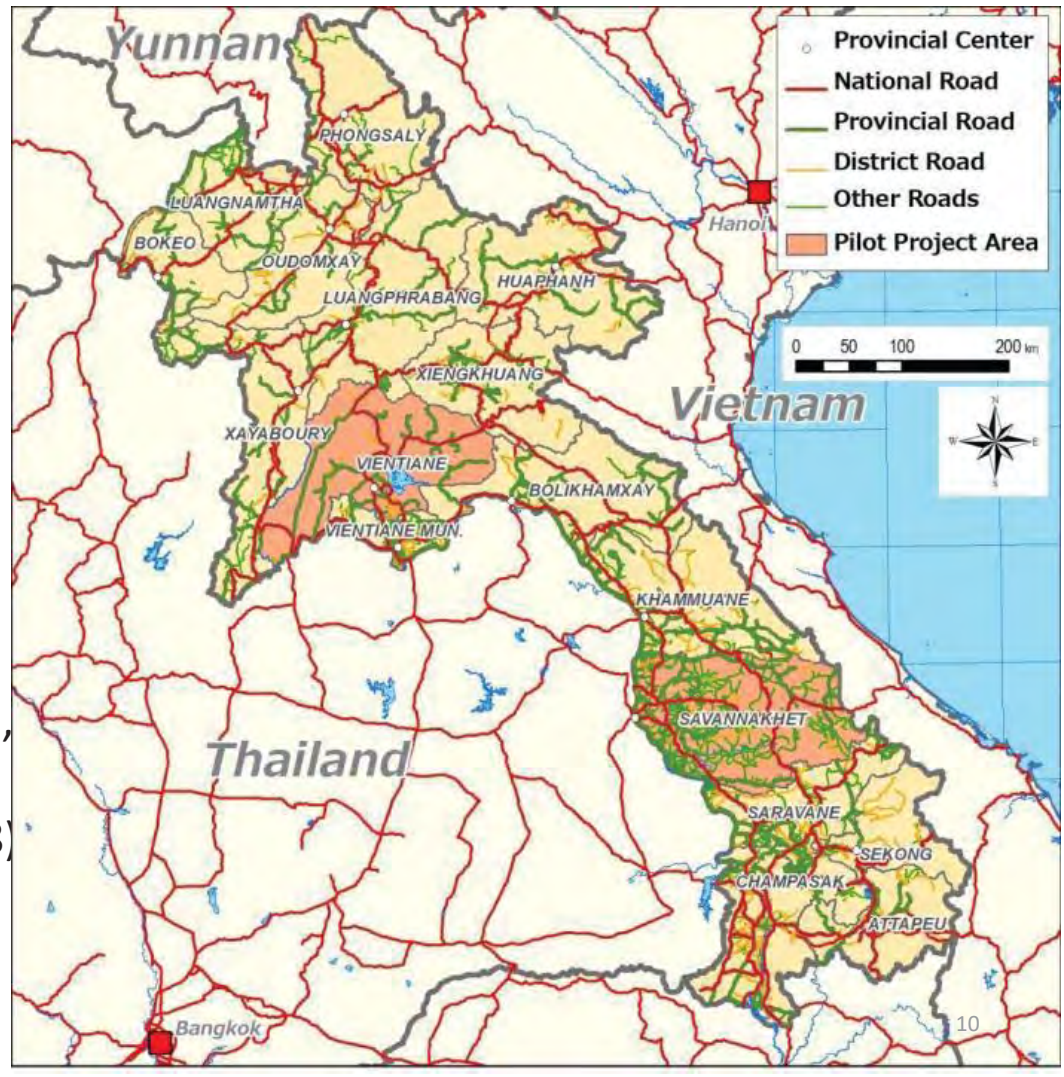


*DPC was split into DPC and DOF in Dec 2013.

** Japanese members of JCC (JICA Laos Office and Expert for MPWT) are not shown in the figure.

- **Project Area**;
- Savannakhet and Vientiane selected as pilot provinces.

- **Project Period**;
7 Years
*Phase 1 (Sep 2011 – Oct 2014), Phase 2 (Dec 2014 – May 2018)



2.3 Project implementation schedule

Activities	2011	2012	2013	2014	2015	2016	2017	2018
1. Maintenance planning ability for road and bridge maintenance is enhanced.								
1-1.Review current situation and obtain baseline capabilities on maintenance planning works.								
1-2. Improve data collection method/work for RMS/PRoMMS.								
1-3. Improve and update RMS/PRoMMS and update database through the trial run in the pilot provinces.								
1-4. Draft optimum road maintenance plan in the pilot provinces using RMS/PRoMMS.								
1-5. Draft optimum road maintenance budget plan in the pilot provinces using RMS/PRoMMS.								
1-6. Conduct on-the-job training for maintenance budget plan and database upgrade of RMS/PRoMMS.								
1-7. Monitor progress of the activities and evaluate maintenance planning capabilities.								

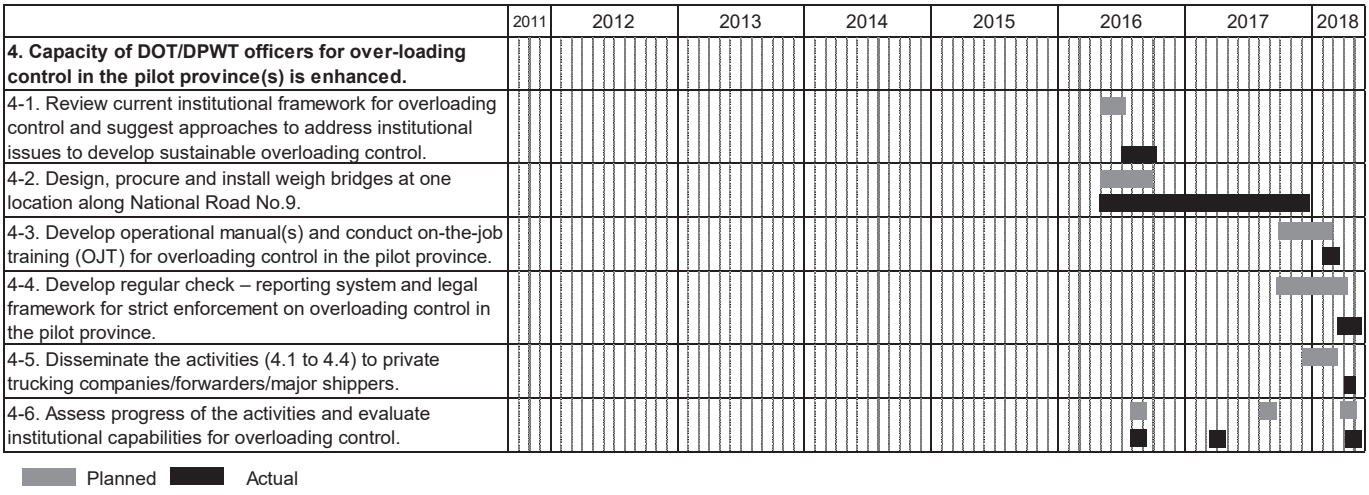
Planned Actual

2.3 Project implementation schedule

	2011	2012	2013	2014	2015	2016	2017	2018
2. Technical manuals for road/bridge maintenance are prepared.								
2-1. Review and revise existing technical manuals, including Condition Survey Manual, Inventory Manual and Slope Protection Manual.								
2-2.Develop technical manuals, including Inspection, Evaluation and Repair Manuals.								
2-3. Monitor utilization of technical manuals and evaluate their usage and relevance for its revision and finalization.								
3. 3. Capability of DOR/DPWT officers who are responsible for physical road/bridge maintenance work in the pilot provinces is enhanced								
3-1. Review current situation and obtain baseline capabilities on physical maintenance works and formulate training plan and monitoring plan.								
3-2. Conduct on-the-job training (OJT) to selected DOR/DPWT officers in the pilot provinces on maintenance work, including inspection, small repair and quality control.								
3-3. Evaluate OJT on maintenance works and improves training modules and training programs.								
3-4. Develop an optimum institutional framework (e.g., informal task force, formal road maintenance unit) with charter of operations to conduct maintenance work.								
3-5. Conduct a pilot project on repair work and improve capacities on supervision and quality control for rehabilitation of asphalt concrete pavement in Savannakhet Province.								
3-6. Monitor progress of the activities and evaluate capabilities on physical maintenance works.								

Planned Actual

2.3 Project implementation schedule



3. Summary progress report

3.1 System Improvement

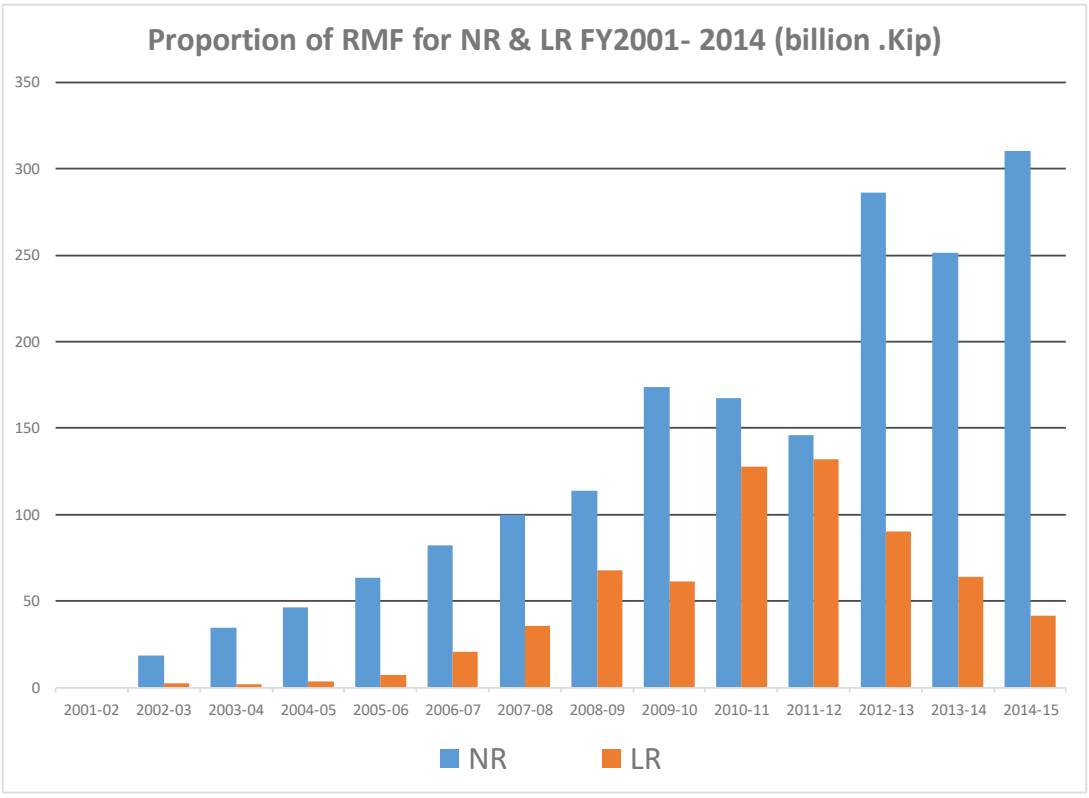
1. Review of current condition (Capacity and training needs assessment)
2. Workshop for RMS/PRoMMS improvement
3. Planning for database updates
4. Improvement of RMS/PRoMMS
5. Training for PRoMMS
6. Procurement of/training for VIMS/DRIMS
7. Data collection and update of RMS/PRoMMS
8. Data analysis of RMS/PRoMMS
9. Preparation of Road Maintenance Plan and Budget Plan
10. Coordination meeting with NUOL

3.1 System Improvement

- RMS and PRoMMS data for entire road network continuously updated between 2013 and 2016.
- Annual Road Asset Report and analysis report prepared, including priority section with optimum maintenance works. → More funds channeled to National Roads and preventive maintenance.

Survey Type	2013	2014	2015	2016
Referencing and Inventories (km)	274	109	0	0
Paved Road Condition (km)	5,273	3,126	3,772	3,225
Unpaved Road Condition (km)	173	0	0	0
Bridge Condition (nos)	1,067	582	1,327	1,134
Road Roughness (km)	5,273	5,338	5,859	5,859
Traffic Count (nos)	231	119	87	0
Socio-economic (nos)	7	0	0	0

3.1 System Improvement



3.1 System Improvement

- A series of trainings to DOR for database update and RMS/PRoMMS operation:
  - GIS trainings/OJT for road master data
  - VIMS/DRIMS workshop and demo by Dr. Nishikawa
  - RMS/PRoMMS training (including updated PRoMMS)
  - HDM-4 training
- Assist to procure 6 sets of VIMS/DRIMS under WB's LRSP
- Assist Nagasaki Univ to realize academic exchange program with NUOL (Vice President of Nagasaki Univ visits NUOL on 8th May)

GIS Training and OJT

3.2 Manual Development

1. Review of existing manuals
2. Interview survey to private contractors
3. Preparation of technical manuals
   - Road Maintenance/Bridge Maintenance / Slope Maintenance
4. Workshop for technical manuals
5. Intensive training
6. Revision of PBC
7. Workshop/training for revised PBC
8. Print Technical Manuals (Ver. 1.0)
9. Pilot PBC in 4 pilot roads
10. Revision of technical manuals
11. Preparation of Standard Specification for maintenance work

3.2 Manual Development

- Road, Bridge, Slope Maintenance Manual developed/printed and submitted during Sam Sang Workshop in 2016
- A series of intensive trainings between 2013 and 14 and OJT conducted on-wards.
- Assist JICA to procure maintenance vehicles and equipment delivered to DPWT Vientaine and Savannakhet in 2013
- PBC reviewed and revised and pilot PBC carried out in 4 provinces in 2016



Workshop/Training for Road, Bridge, Slope Maintenance

3.2 Manual Development

- In collaboration with ADB Project, JICA Expert revised MAC (Maintenance Activity Code) and prepared Standard Specification of Maintenance Work (Note ADB developed Standard Specification of Civil Work)
- Once MAC agreed, ADB to continue to finalize Maintenance Manuals, forwarding for approval process.

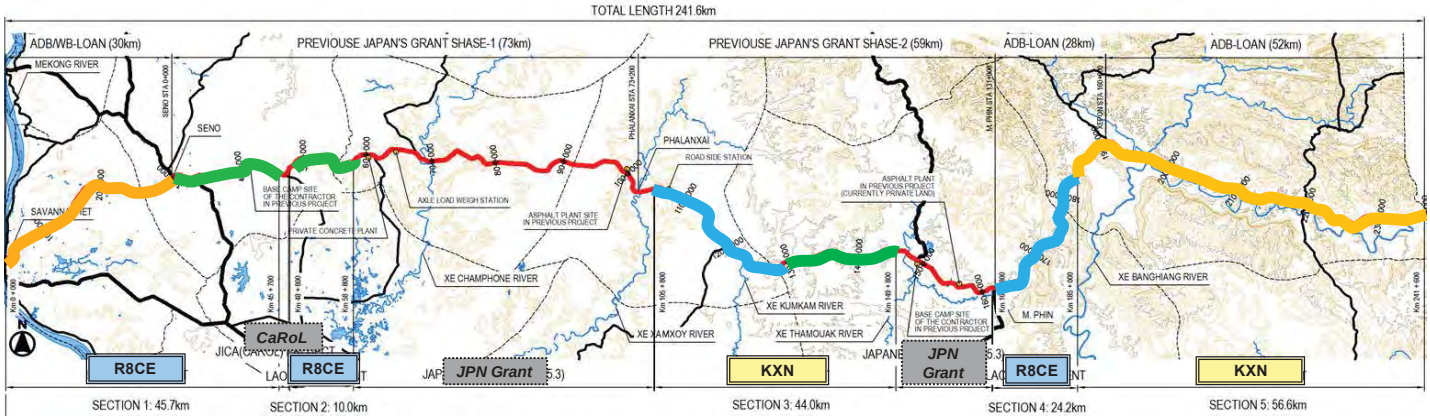
Existing MAC		Revised MAC
Code No.		Code No.
Work name		Work name
Brief work description	→	Brief work description
		Material requirement
		Work method/procedure
		Measurement method
		Payment method

3.3 OJT and Pilot Project

1. Preparation of OJT plan and budget plan
2. Preparation of TOR for establishment of road maintenance unit
3. Procurement of maintenance vehicles/equipment
4. Pilot project (YR 2011/12): **3.1 km road/NR-9**
5. Pilot project (YR 2012/13): **15.8 km spot improvement/NR-9**
6. Pilot project (YR 2013/14): **Urgent repair works/NR-9**
7. Pilot project (YR 2014/15/16/17): **Major rehab/NR-9**
8. OJT (e.g., bridge maintenance in Savannakhet)
9. Pilot project: **Recycling method/NR-13N**
10. OJT for routine maintenance for AC pavement

3.3 OJT and Pilot Project

■ **Pilot Project in Savannakhet: 180 km major rehab/NR-9**



Implementation section by Contractor

Section	Contractor	BP Km	EP Km	Length (Km)	OL (cm)
1-1	R8CE	0.0	30.0	30.0	9.0
1-2	R8CE	30.0	45.7	15.7	11.5
	CaRoL	45.7	48.8	3.1	
2	R8CE	48.8	58.8	10.0	9.5
	JPN Grant-1	58.8	105.8	47.0	
3	KXN	105.8	149.8	44.0	9.0
	JPN Grant-2	149.8	160.8	11.0	
4-1	R8CE	160.8	162.1	1.3	6.5
4-2	R8CE	162.1	185.0	22.9	5.0
5	KXN	185.0	241.6	56.6	5.0

1st Year (Jun/14-May/15)

2nd Year (Jun/15-May/16)

3rd Year (Jun/16-May/17)*

*contract extended

3.3 OJT and Pilot Project

■ **Pilot Project in Vientiane: Recycling method/NR-13N**

- 2.0 km Cement Foamed Asphalt(CFA)

Steel roller	Tire roller	Motor grader	Stabilizer	Asphalt tanker
Finishing compaction	Initial compaction	Shaping road surface	Crushing & mixing existing pavement	Supplying asphalt to stabilizer

3.3 OJT and Pilot Project

- A series of OJT and workshops organized during the pilot projects.

OJT for Pavement Design and Before/After Pilot Project (NR-9)



CFA Workshop and Construction Work of CFA (NR-13N)

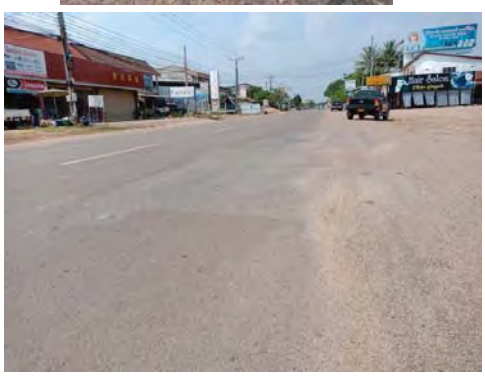


3.3 OJT and Pilot Project

- CFA site inspection (22nd April 2018)

CFA+AC Pavement Section (NR-13N)

Fixed Defect (NR-13N)



3.4 Overloading Control

1. Study on axle load control system in neighbouring countries.
2. Field survey in NR-9
3. Technical Workshop on Overloading Control
4. Study visit in Thailand
5. Concept plan – Selection of optimum alternative
6. Tender assistance
7. Installation of weigh control system
8. OJT including preparation of operational manual
9. Dissemination workshop

3.4 Overloading Control

- Technical workshops/study tour organized in 2016, involving DOT, DOR and DPWT Savannakhet to understand overloading control system in neighboring country.
- Concept plan prepared, which suggests a single platform weigh scale as well as vehicle and number plate scanners. It also suggest a monitoring system in DOT/DPWT Savannakhet.

Site Survey and Study Tour in Thailand

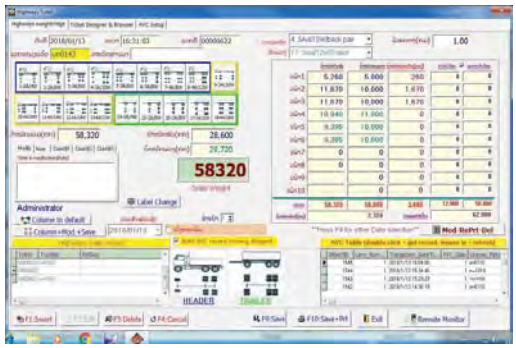
3.4 Overloading Control

- Construction of weigh station and installation of weigh scale completed by Dec 2017. Calibration and training completed in March 2018.

Donghen Weigh Station and DPWT







3.4 Overloading Control

- Together with ADB, JICA Expert reviewed proposed sub-decree to strengthen enforcement of overloading control.
  - Change to GVW to maximum axle load
  - Change fine structure by excess axle load
  - Other possible strict/favoring measures (e.g., suspension of driving/business licenses, jail sentence, introduction of inspection pass/book, free inspection for competent operators)

Amount of Overloading (tons)	Overloading Fine (kip)	Note
Overload between 1-2	300,000	Only fine
Overload between 2-3	600,000	Fine and offload cargos
Overload between 3-4	1,200,000	
Overload between 4-5	2,000,000	
Overload between 5-6	3,000,000	
Overload between 6-7	4,500,000	
Overload between 7-8	7,000,000	
Overload between 8-9	13,000,000	
Overload between 9-10	23,000,000	
Overload more than 10	35,000,000	

3.5 Overall Achievement

- All skills improved and DOR (all activities) and PTRI (planning) and PTTI (maintenance skill) acquired higher skills as trainer level.

Capacity Level (2014/2017)	DOR	DPWTs	PTRI	PTTI
1. Data verification and analysis	4.0/4.0	2.8/3.8	3.6/4.3	2.0/4.0
2. Maintenance planning	4.0/4.5	2.8/4.0	4.0/4.5	2.7/3.6
3. Procurement	4.0/4.0	3.3/4.0	NA	4.0/5.0
4. Performance monitoring and evaluation	4.0/4.0	3.2/3.8	NA	3.0/4.0
5. Maintenance skill and knowledge	5.0/5.0	2.7/4.0	NA	4.0/5.0

1: Procedures/routines under development (none)
2: Operated with external support
3: Operated with limited external support
4: Operated without external support
5: Able to act as advisor and trainer (full capacity)

3.6 List of Deliverables

- System improvement and database update
  - RMS/PRoMMS Operation Manual
  - VIMS/DRIMS Operation Manual
  - GIS Operation Manual
- Manual development
  - Road/Bridge/Slope Maintenance Manual
  - Bid document and specification for PBC
  - Standard Technical Specification for Maintenance Work (Revised MAC)
  - Training Materials/Evaluation Reports
- Overloading control
  - Operational Manual for Weigh Measurement and Data Management System

4. Recommendations for achieving Overall Project Goal

4. Recommendations (Short-term)

- (DOR/DOT) Rolling out project output applying to WB and ADB Project
  - WB's LRSP2 to continue to update RMS, adding climate resilient function and to update RMS/PRoMMS database
  - ADB's RSGMP to finalize Technical Manuals and specifications and put forward for approval process.
  - ADB/WB to assist DOT to upgrade weigh stations in Bolikhamxai and Luangnamta)
- (DOR) Approval of technical manuals/specification and utilization by executing agencies
- （DOT) Full operation of Donghen Weigh Station, assigning necessary human and financial resource
- (JICA) Continuous support in asset management
  - Group and Regional Focused Training
  - JICA Scholars
  - Further technical assistance for bridge maintenance

	WB (LRSP2) 2017-21	ADB RSGMP 2016-21	JICA CaRoL 2011-17	KfW RIP 2010-2019
1. Policy and legal framework	Strategic planning	Overloading control RMF ICT Master Plan		
2. Institutional framework	DOR (System management)		Overloading control Maintenance unit (DPWT)	Village Maintenance Committee (VMC)
3. Planning and budgeting	IRAM RMS with Climate resilient		RMS/PROMMS Road Master Database	
4. Procurement and implementation	LR rehab/maintenance (PBC) Weigh scale	NR and LR rehab/maintenance (PBC) Weigh scale	NR AC rehab NR AC routine maintenance Pilot PBC CFA Weigh scale	LR improvement/ maintenance (VMC)
5. Technical spec. and manual	Climate resilient PBC for LR	Design Manual PBM for NR/LR Road/Bridge/ Slope maintenance	PBC Road/Bridge/ Slope maintenance	Climate resilient VMC Procedure

	Road	Bridge	Slope
1. Policy and legal framework	WB (Strategic Planning) ADB (Overloading Control, RMF)		
2. Institutional framework	JICA (Overloading control Maintenance unit) KfW (VMC)	Missing Link!!!!	
3. Planning and budgeting	JICA (RMS/PROMMS) WB (IRAM)		WB (RMS with Climate resilient)
4. Procurement and implementation	WB (LR rehab/ maintenance (PBC)) ADB (NR and LR rehab/maintenance (PBM) JICA (NR AC rehab, NR AC routine maintenance, Pilot PBC, CFA) KfW (LR improvement/ maintenance (VMC))		WB (Climate resilient measures) ADB (Slope protection) KfW (Climate resilient measures)
5. Technical spec. and manual	WB (Climate resilient, PBC for LR) ADB (PBM for NR/LR, Design Manual, Road/Bridge/ Slope maintenance) JICA(PBC, Road/Bridge/ Slope maintenance) KfW (Climate resilient, VMC Procedure)		

4. Recommendations (Long-term)

- (DOR/DOT) Formation and monitoring of road maintenance policy
- (MPWT) Compliance with RMF Act and securing maintenance resource
- (DOR/DOT) Building organizational capacity for post WB and ADB projects
  - DOR to maintain organizational structure to acquire sufficient capacity
  - DOR to establish Bridge Management and Maintenance Division
  - DOT to establish a special entity (Transport Patrol)
  - DOT to restore weigh stations nation wide

4. Recommendations

- Proposed short-term action plan

Action	Implementing Agency	Supporting Agency	2018	2019	2020	2021	2022
1. Rolling out Project Outcome							
1) RMS System Improvement and Database Update							
i. Inventory/condition survey and database update	DOR	WB/PTRI					
ii. Data analysis and reporting	DOR	WB/PTRI					
iii. Maintenance planning and budgeting in line with data analysis	DOR	WB					
2) Technical Manuals and Specifications							
i. Finalization of manuals and specifications	DOR	ADB					
ii. Application of these manuals/specifications to the project	DOR	ADB					
iii. Revision of manuals and specifications (when required)	DOR	ADB					
3) Overloading Control							
i. Full operation of Donghen Weigh Station	DOT/DPWT						
ii. Renewal of Bolikhamxai and Luangnamta Weigh Stations	DOT/DPWT	ADB/WB					
iii. Upgrading of remaining 25 weigh stations	DOT						
iv. Imposing a new regulation overloading control including revised maximum weight and fine calculation	DOT						
v. Establishment and operation of Transport Patrol Authority	DOT						
2. Official Approval of Technical Manuals and Specifications	DOR, DOL	ADB					
3. Provision of Technical Support in Asset Management							
i. Group and Region Focused Training	MPWT/DOR	JICA					
ii. Utilization of JICA Scholars	MPWT/DOR/DOT						
iii. Provision of technical assistance	DOR	JICA					

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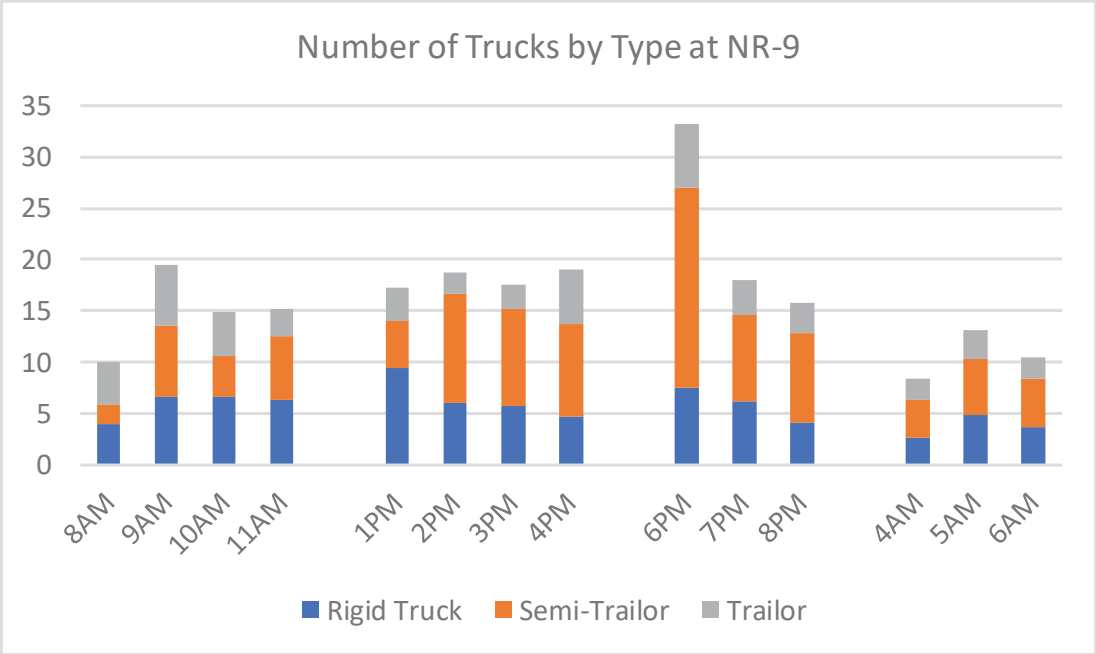
Appendix: Summary Survey Result for Traffic and Operation at Donghen Weigh Station

Traffic Volume

- 370 heavy vehicles/day observed at NR-9. Night/morning traffic is also relatively large → 7/24 operation is a must.



Trucks with/without inspection

- Only 27% of vehicles entered to and inspected at Donghen Weigh Station. No difference if any gates/guides at the weigh station.
- High inspection rate for Trailers (Company owned) but low for Right Truck (Individual)

→ Requires dissemination for a wide range of operators, More strict rules and enforcement

Inspection	% of trucks inspected
With both gate and guide	26%
With gate only	27%
No gate and no guide	29%

Truck Type	% of trucks inspected
Rigid Truck	9%
Semi-Trailer	29%
Trailer	52%

Time required for inspection

- Average operation time of 2 minutes per truck, 4 minutes for overloaded trucks (including confirmation/collection of fines) and 1 ½ minutes for non-overloaded trucks.
- Less than 1 minutes during auto operation

→ Maximum capacity of 30-60 trucks/hour, 450-900 trucks per day. Which requires re-clarification of trucks required for inspection and design of weigh scale/station (e.g., WIM)

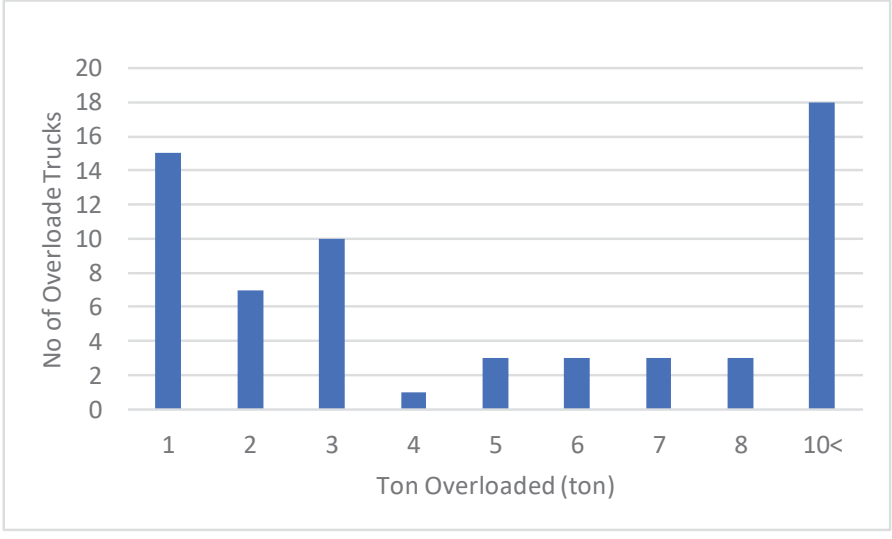
Day	Overloaded	Non-overloaded	Average
Day 1	0:03:46	0:02:43	0:03:14
Day 2	0:04:40	0:00:31	0:00:55
Day 3	0:03:27	0:01:38	0:02:10
Day 4	0:04:00	0:01:42	0:02:02
Day 5	0:04:37	0:01:52	0:02:42
Day 6	0:03:27	0:01:20	0:02:21
Average	0:03:57	0:01:27	0:02:05

Note: Reference due to manual/auto operation as well as survey

Overloaded Trucks

- 26% inspected trucks overloaded (exceeding maximum GVW) Excess overloaded trucks (more than 10 ton exceeding GVW) observed at 29% of overloaded trucks

→ Strict rule/enforcement, including fine, suspension of driving/business licenses, restoration of weigh station, random inspection using mobile scale, etc.



Appendix: ADB/JICA's recommendation for overloading control

Comparison in rules/regulation for overloading control

Maximum Axle Load and Gross Vehicle Weight

Country	Maximum Axle Load	Maximum Gross Weight
Cambodia	10 ton	40 ton
Thailand	11 ton	58 ton
Laos	9.1 ton (11 ton for designated routes)	49.6 ton
Vietnam	10 ton	48 ton
Malaysia	12 ton	53 ton
China	10 ton	55 ton
Japan	10 ton	20 ton (25 ton for designated road)

Source: Infrastructure Development Institute-Japan

Comparison in rules/regulation for overloading control

Penalties

Source: Infrastructure Development Institute-Japan

Country	Penalties
Cambodia	・Fine ・Unloading goods and detaining vehicle ・Suspension of driver's license
Thailand	・10,000 Baht fine or 6 months jail penalty
Laos	・Fine by overloaded weight and **distance**
Vietnam	・Fine for driver and vehicle owner ・Suspension of driver's license
Malaysia	・Fine ・Unloading goods and detaining vehicle
Japan	・Fine for driver and vehicle owner or maximum 6 months jail penalty ・Suspension of driver's license ・Suspension of business license (Trucking companies) ・Warning to consignees

ADB/JICA's Recommendations for overloading control

Area	Actions
Institutional strengthening	- Assigning sufficient man power and operational cost for weigh station operation - Redefining and reassigning duties/responsibilities - Setting up a new entity - Restoration of nationwide weight station
Rationalizing rules and regulation	- Changing to maximum axle load control - Changing fine structure based on degree of pavement damage
Strict enforcement	- Simplified and increased fine - 24/7 full operation and 100% vehicle inspection - Fine for vehicle owner - Jail penalty - Suspension of driver's license - Suspension of business license (Trucking companies) - Warning to consignees - Inspection stamp and pass - Operation with traffic police

ADB/JICA's Recommendations for overloading control

Area	Actions
Favoring competent operators	- Introduction of safety operation manual (by DOT) to guide private trucking companies - Introduction and submission of annual safety plan (by trucking companies to DOT) - Provision of inspection free certificate as well as competent trucking company certificate
Effective dissemination	- Dissemination map with route network - Road markings/sign posts - Overloading campaign