MINISTRY OF COMMUNICATION, TRANSPORT, POST AND CONSTRUCTION

MAINSTREAMING APPROPRIATE LOCAL ROAD STANDARDS AND SPECIFICATIONS AND DEVELOPING A STRATEGY FOR THE MCTPC RESEARCH CAPACITY

PROGRESS REPORT 5 June 2007

SEACAP 03

UNPUBLISHED PROJECT REPORT





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PROGRESS REPORT 5 June 2007

Prepared for: Project Record: SEACAP 03. Mainstreaming Appropriate Local

Road Standards and Developing a Strategy for

the MCTPC Research Capacity

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ABBREVIATIONS & ACRONYMS

ACCESS Microsoft database software

ADT Average Daily Traffic

ASEAN Association of South East Asian Nations

BRC Bamboo Reinforced Concrete

CAFEO Conference of ASEAN Federation of Engineering Organisations

CBR California Bearing Ratio

CNCTP Cambodia National Community of Transport Practitioners

CSA Crushed Stone Aggregate

CSIR Council for Scientific and Industrial Research (South Africa)

DBM Dry Bound Macadam

DBST Double Bituminous Surface Treatment

DCP Dynamic Cone Penetrometer

DfID Department for International Development

DoR Department of Roads

EDCs Economically emerging and Developing Countries

ENS Engineered Natural Surface esa equivalent standard axles

EXCEL Microsoft spreadsheet software

FHWA Federal Highways Association (US)

FM Fines Modulus

FWD Falling Weight Deflectometer

GMSARN Greater Mekong Sub-region Academic and Research Network

gTKP global Transport Knowledge Partnership

HDM4 Highway Development and Management Model

HQ Headquarters

IFG International Focus Group

IFRTD International Forum for Rural Transport Development

ILO International Labour OrganisationIRF International Road FederationIRI International Roughness Index

ITS Indirect Tensile Strength

Km kilometre

LCS Low Cost Surfacing

LRD Local Roads Division (DoR)

LVRR Low Volume Rural Road

m metre(s)

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MCTPC Ministry of Communication, Transport, Post and Construction

mm Millimetre(s)

MERLIN Machine for Evaluating Roughness using Low-cost INstrumentation

MPa Mega pascals

MoU Memorandum of Understanding

NUOL National University of Lao

OM Operations Manual
ORN Overseas Road Note
PCU Passenger Car Unit
Pen Mac Penetration Macadan

Pen Mac Penetration Macadam

PIARC World Road Association

PTD Planning and Technical Division (DoR)

QA Quality Assurance

RED Roads Economic Decision Model

Ref. Reference

RRGAP Rural Road Gravel Assessment Programme (Vietnam)

RRSR Rural Road Surfacing Research (Vietnam)
RRST Rural Road Surfacing Trials (Vietnam)

RTU Rural Transport Unit

RT1 Rural Transport 1st Project, Vietnam
 RT2 Rural Transport 2nd Project, Vietnam
 RT3 Rural Transport 3rd Project, Vietnam
 SBST Single Bituminous Surface Treatment

SDC Swiss Development Cooperation

SEACAP South East Asia Community Access Programme

SIDA Swedish International Developments Cooperation Agency

SOE State Owned Enterprise

TRL Transport Research Laboratory
UCS Unconfined Compression Strength

UK United Kingdom

UNOPS United Nations Office for Project Services

VN Vietnam

VOCs Vehicle Operating Costs

VPD Vehicles per day
WAN Wide Area Network
WBM Water Bound Macadam

WLC Whole Life Costs

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1 Introduction

1.1 General

The SEACAP 3 project is part of the wider South East Asia Community Access Programme (SEACAP), whose strategic theme is 'livelihoods of poor and vulnerable people in South East Asia improved sustainability'. SEACAP 3 will contribute to this overall objective through the development and mainstreaming of local resource-based standards for low volume rural roads. The project seeks to achieve three key outcomes:

- Mainstream appropriate local road standards and specifications into the national road programme,
- Develop an affordable and sustainable strategy for attaining the necessary road (all road categories) research capacity,
- Increase the awareness of good practice experience from this project by disseminating the outcomes at the national, sub-regional and international levels,

This report outlines the work undertaken on the SEACAP 3 project during May 2007; presents a summary of staff resources used and outlines the anticipated programme for the coming month.

1.2 Contractual Arrangements

The Agreements for the project to be undertaken was established under a Memorandum of Understanding (MoU) between the Ministry of Communication, Transport, Post and Construction (MCTPC) on behalf of the Government of Lao PDR and the Department for International Development (DfID), UK. The MoU defines the scope of the project, that it will be undertaken by TRL Limited as the Consultant and implemented under Terms of Reference, and that the Consultant will be appointed by DfID. The MoU also expresses certain Exemptions and Facilities to be provided by MCTPC to the Consultant to facilitate implementation of the project. The MoU was signed on the 16th of October 2006.

Thereafter, TRL provided a comprehensive technical proposal and a financial proposal for carrying out the project to DfID and subsequently entered into a contractual arrangement with DfID. TRL were appointed on 21st of November 2006. The duration of the project is 12 calendar months.

TRL is supported in its undertaking of the project by associate firms and by competent and experienced individual consultants. The principal associate firm is Lao Transport Engineering Consultants (LTEC) who are providing comprehensive local consulting services.

TRL have entered into a contractual agreement with LTEC to provide a total of 68 person months of services over the duration of the project. Forty-Four (44) person months are for engineering and translation services and 24 person months are for administrative, secretarial and coordination services.

The other associate firm is Intech Associates consulting engineers who have worked extensively with TRL on other SEACAP projects in the region. Intech will provide a short-term specialist role on this project similar to that to be provided by the individual consultants.

2 Work Undertaken

2.1 General

The following sections summarise the work undertaken on SEACAP 3 during June 2007. Principal focus was on Task Group I with the development of a framework for the draft LVRR Standards and Specifications. The Progress on individual Modules within the Project Task Groups is summarised in Table 1.

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2.2 Task Group 1

A summary document for discussion on the Module 1 review was drafted. This was based on the key aspects of the main Module I Review Report which was finalised and is currently being edited. This summary document together with the main report will form a major element in the July workshop.

A framework for the draft LVRR task-based standards and specifications was identified and key elements forming the basis of Task Group 1 output were defined. Fundamental to the proposed approach is the characterisation of:

- Standard Lao road environments
- Standard LVRR road options/designs
- Available material properties

The TRL-LTEC team was augmented during June with the continued support of two Vietnamese Road Engineers with extensive SEACAP 1 experience. The main inputs were:

Bach The Dzung: A review of the Vietnamese rural road standards in comparison with the Loa situation

Gia Pham Tuan: Preliminary adaptation of the SEACAP 1 Cost Model for use in the Lao environment.

A site visit was made on 15th June to look at typical rural road conditions and materials in the Vientiane region. A summary of this visit is included as Appendix A to this report.

2.3 Task Group 3

Further review and development of the research strategy was undertaken and a first draft of the associated Module 8 report was completed. This is currently being edited and will be the subject of discussion at the July workshop.

During further discussions with Professor Nhinxay Visane it was agreed to jointly look more closely at the detail of the proposed research model. In order to facilitate this it was decided to go through a trial costing and programming exercise with one of the identified Research Studies. It is expected that this will identify potential administrative, costing and management problems to be addressed.

. Table 1 Summary of Module Progress

No.	Module Description	Completed	Programme	Activity to End June
Task	Group I: Develop Star	dards and Sp	ecifications	
1	Review current situation	90%	100%	Review of documents and extraction of key information continued. Report being drafted
2	Research to fill knowledge gaps	85%	90%	Further identification of national and international key parameters. Matrix being drafted
3	Draft technical standards	20%	20%	Outline principles drafted.
4	Finalise technical standards	0%	0%	No activity this month
Task	Group II: Develop a R	elevant Train	ing Programm	e
5	Training needs assessment	10%	0%	No major activity this months
6	Training programme elaborated	0%	0%	No activity this month
7	Training course tested and trialled	0%	0%	No activity this month
Task	Group III: Develop an	Appropriate	Research Cap	ability:
8	Gaps in research capacity identified	95%	100%	Key gaps identified and concept notes drafted
9	Strategy for strengthening research capacity	90%	100%	Outline strategy developed; requires some further detail
10	Adoption of strategy by MCTPC	10%	10%	SCC accepts strategy in principle
Task	Group IV: Initiate Dis	semination		
11	Package of materials prepared for dissemination	0%	0%	No activity this month

3 Staff Resources

A summary of the SEACAP 3 staff resources utilised up to the end of June 2007 is presented in the following Table 2.

Table 2 Staff Resources June 2007

Name	Position	Project Time : June 2007
Dr Jasper Cook (TRL)	Team Leader Geotechnical Specialist	1-10 th and 14 th -22nd June
Michael O'Connell (TRL)	Transport and Road Engineering Specialist and Deputy Team Leader	No input
Simon Done (TRL)	Training Specialist	No input
Trevor Bradbury (TRL)	Dissemination and IT Specialist	No input
Bach The Dzung (TRL)	Road Engineering Specialist	1-16 th June
Pham Gia Tuan (TRL)	Road Engineering Specialist	1-16 th June
Bounta Meksavanh (LTEC)	Local Team Leader and Road Engineer Specialist	1-30 th June
Saysongkham Manodham (LTEC)	Road Engineering Specialist	1-30 th June
Chittakone Maniphan (LTEC)	Training Support	No input
Mr. Keithiphan Senamahmountry (LTEC)	IT Support	No input
Mr. Bounhom K. (LTEC)	Translator	No input
Ms Chandita Ph (LTEC)	Office Management	1-30 th June
Mr. Thipdavanh V. (LTEC)	Project Coordinator	1-30 th June

4 Programme and Status

The current status of SEACAP 3 in relation to the proposed programme is indicated in Appendix B to this report.

Table 2 indicates that the project is generally on target; with the following points to be noted:

- 1. A SEACAP 3 workshop is planned for July; at the suggestion of Coordination Committee members this will encompass the range of SEACAP 3 activities rather than concentrate on Task Group 1
- 2. Further input into Modules 1 and 2 will be required following the proposed July workshop

- 3. Significant input is anticipated in July on the draft standards and specifications
- 4. Trevor Bradbury will be mobilised in late July to initiate the website development and dissemination procedures

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APPENDIX A

Summary of Site Visit 15/06/07

SEACAP 3;

FIELD VISIT: VIENTIANE AREA: 15/06/2007

KEY POINTS

As-dug Mekong River coarse alluvial gravel; materials rounded and variable in geological nature. Requires crushing and processing before being used as road construction material.



Some village authorities are using using uncrushed gravel as a local gravel "armouring" solution to inhibit wearing course erosion. The example is from a Class VII rural road. Gravel armouring is laid when road is a wet condition so that it may worked into the existing surface.



Currently disused rhyolite quarry. Typical of a number of small rock sources in the area suitable for small scale drill-blast; crushing and processing operations.





Locally adopted option of a single chip seal laid on top of gravel wearing course material. Mainly used in peri-urban areas.



Seal condition showing signs of erosion and aggregate loss after less than 2 years



Recently upgraded unsealed provincial road with local poor spots; in this case a combination of poor drainage and lack of sufficient crown height above water table are major contributors to road deterioration.

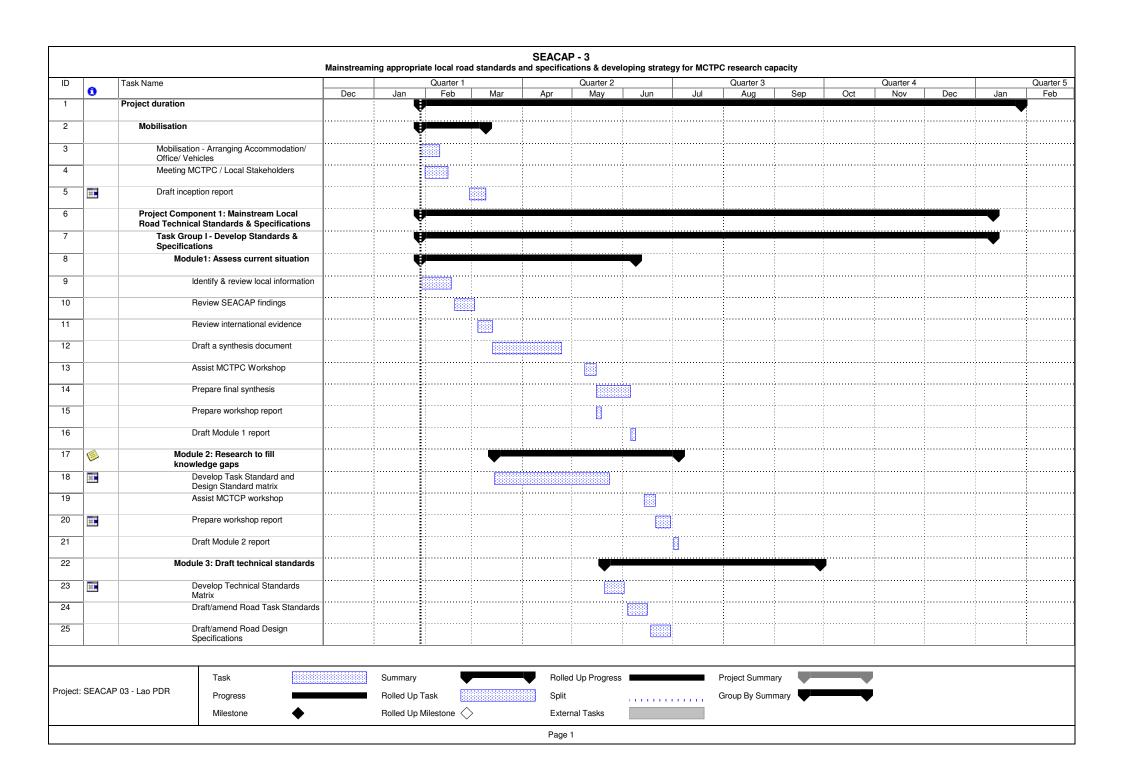


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APPENDIX B

Programme



				Mainstrea	ming approp	riate local ro	ad standards	SEACA and specifica		eloping stra	tegy for MCT	PC research	capacity					
ID	_	Task Name			3 111 11	Quarter 1			Quarter 2			Quarter 3			Quarter 4	ı		Quarter
26	0	P	repare first draft	Dec	Jan :	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
			ssist MCTPC in stakeholder					<u> </u>			<u> </u>	 		4				
	=	re	eview											1				
28		D	raft Module 3 report										:					
29		Modu	le 4: Final technical standa	rds					:						:	:		
30	==		eceive stakeholder feedbac inalise Technical Standards	and														
31			lainstream by assisting in tak nd adoption	eup					:									:
32			raft Module 4 Report															
33		Task Grou Programm	p II -Develop Training e									•				♥		
34			le 5: Training needs sment									•		-				
35	⊞ %	R	eview job descriptions of MC	TPC														
36			ssess skill levels of sample	taff														
37			lentify gaps (between escriptions and skills)															·· · ········
38			raft training needs assessme	ent														
39		D	raft Module 5 report															
40		Modu progr	le 6: Elaborate Training										V					
41	III		repare training programme											<u></u>				
42		lo	lentify support resource mate	rials					.;									
43		D	raft Module 6 report															
44			le 7: Training Course &												<u> </u>	₩		
45	III		rganise a trial training course															
46	(C	onduct training															
47			valuation of the train the train	iers]		
48			raft Module 7 report															
49			nent 2: Develop an afforda				V	1	:	:		<u>:</u> :	:		:			<u>:</u>
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					Mainstreami	ng appropri	ate local ro	ad standards	SEAC/ and specific	AP - 3 cations & deve	oping stra	tegy for MCTF	PC research	capacity					
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51	0	Modi	ule 8: Gaps in research	capacity	Dec	Jan :	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
52	-		Identify key research topi institutional capacity	cs and				<u>*</u>		•									
53			Options for developing re capacity	search					<u></u>										
54			Draft first synthesis																
55			Assist MCTCP in feedback/workshop exerc	cise															
56			Finalise synthesis of rese capacity	arch															
57			Draft Module 8 report										:						
58		strer	ule 9: Draft strategy for igthening the research tutional capacity					V			•								
59	111		Prepare a draft strategy						<u> </u>										:
60			Assist MCTCP in feedback/workshop exerc	cise									:						
61			Draft Module 9 report										:						
62		Mod: MCT	ule 10: Adoption of stra PC	tegy by							V		:						
63			Finalise strategy																
64			Adoption & Mainstream																
35			Draft Module 10 report																
66			onent 3: Disseminate t he national, sub-region evels									•						•	
67		Task Gro Dissemin	up IV - Initiate and Condation	duct								•	Y						
68		local	ule 11: Prepare Packag , sub-regional and inter emination									•							
69	III 🛞		Prepare technical materia dissemination)																:
70			Prepare sub-regional sen paper																
71	111		Prepare International Cor paper	nference															
72	0		Contribute to Websites/Newsletters																
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1 1	Project Duration															
2	International															
3	J Cook	Team Leader Geotechnical Specialist														
5	M O'Connell	Transport and road eng. Spec. & Deputy Team														
1	S Done	Training specialist		:												
3	T Bradbury	Dissemination expert														
5																
3	Domestic LTEC															
7	Bounta MEKSAVANH	Local Team Leader and Road Engineer Specialist														
9	Saysongkham MANODHAM	Road engineering specialist														
1	Keithiphan SENAMAHMOUNTRY	IT Engineer		:											:	
3	Somphith BONNAPHON	Junior Engineer														
5	Thipdavane VONGSAY	Project coordinator														
7	Chanthida PHAPHIBOUN	Secretary / Office Manager														
9	Xoumaitri PANYANOUVONG	Translator		: : :												
В				:												
9	MCTPC Counterpart staff														:	
0	Khampaseuth Panyanouvong (LRD)	Civil Engineer (LRD)														
2	Ounheuan Siliamphone (PTD)	Senior Technical Staff (PTD)														
4				:												
5	Technical Panel						:									
6	R Petts	Quality Assurance		:												
7	Input 1 on Review			:												
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6	P Tuang	SEACAP - Vietnam														
8	H Kackada	SEACAP-Cambodia														