

**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 6  
July 2007**

**SEACAP 03**

**UNPUBLISHED PROJECT REPORT**



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July 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**

ADT	Average Daily Traffic
ASEAN	Association of South East Asian Nations
CBR	California Bearing Ratio
CNCTP	Cambodia National Community of Transport Practitioners
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
EADT	Equivalent Average Daily Traffic
EDCs	Economically emerging and Developing Countries
ENS	Engineered Natural Surface
esa	equivalent standard axles
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
HRD	Human Resource Development
IFG	International Focus Group
IFRTD	International Forum for Rural Transport Development
ILO	International Labour Organisation
IRI	International Roughness Index
Km	kilometre
LCS	Low Cost Surfacing
LRD	Local Roads Division (DoR)
LVRD	Low Volume Rural Road
m	metre(s)
MCTPC	Ministry of Communication, Transport, Post and Construction
mm	Millimetre(s)
MERLIN	<b>M</b> achine for <b>E</b> valuating <b>R</b> oughness using <b>L</b> ow-cost <b>I</b> Nstrumentation
MPa	Mega pascals
MoU	Memorandum of Understanding

NUOL	National University of Lao
OCTPC	Office of Communication Transport Posts and Construction (District Level)
ORN	Overseas Road Note
PAD	Personnel and Administration Division (MCTPC)
PCU	Passenger Car Unit
Pen Mac	Penetration Macadam
PIARC	World Road Association
PTD	Planning and Technical Division (DoR)
QA	Quality Assurance
Ref.	Reference
RRGAP	Rural Road Gravel Assessment Programme (Vietnam)
RRSR	Rural Road Surfacing Research (Vietnam)
RRST	Rural Road Surfacing Trials (Vietnam)
RT1	Rural Transport 1 <sup>st</sup> Project, Vietnam
RT2	Rural Transport 2 <sup>nd</sup> Project, Vietnam
RT3	Rural Transport 3 <sup>rd</sup> Project, Vietnam
SBST	Single Bituminous Surface Treatment
SEACAP	South East Asia Community Access Programme
SIDA	Swedish International Developments Cooperation Agency
SOE	State Owned Enterprise
TRL	Transport Research Laboratory
UK	United Kingdom
UNOPS	United Nations Office for Project Services
VN	Vietnam
VOCs	Vehicle Operating Costs
VPD	Vehicles per day
WBM	Water Bound Macadam
WLC	Whole Life Costs

# 1 Introduction

## 1.1 General

The SEACAP 3 project is part of the wider South East Asia Community Access Programme 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 July 2007; presents a summary of staff resources used and outlines the anticipated programme for the coming month.

## 1.2 Contractual Arrangements

The Agreement 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 16<sup>th</sup> 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 21<sup>st</sup> 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 July 2007. Principal focus was on Task Group 1 and the associated Review Workshop, although progress was also recorded in Modules in the other Task Groups. The Progress on individual Modules within the Project Task Groups is summarised in Table 1. Project meetings are summarised in Table 2

**Table 1 Summary of Module Progress**

No.	Module Description	Completed	Programme	Activity in July 2007
<b>Task Group I: Develop Standards and Specifications</b>				
1	Review current situation	95%	100%	Review presented at workshop.
2	Research to fill knowledge gaps	90%	90%	Outcome presented at workshop
3	Draft technical standards	40%	50%	Outline principles presented at workshop.
4	Finalise technical standards	0%	0%	No activity this month
<b>Task Group II: Develop a Relevant Training Programme</b>				
5	Training needs assessment	10%	0%	No major activity this months
6	Training programme elaborated	5%	0%	Preliminary training ideas presented at workshop
7	Training course tested and trialled	0%	0%	No activity this month
<b>Task Group III: Develop an Appropriate Research Capability:</b>				
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 presented at workshop
10	Adoption of strategy by MCTPC	30%	30%	Ongoing discussions with DoR and NUOL
<b>Task Group IV: Initiate Dissemination</b>				
11	Materials for Dissemination	10%	0%	Initial discussions on website development

**Table 2: Key Meetings, July**

Date	Organisation	Key Personnel	Comment
11/07	LRD	Mr Sengarith Kattignasack	Progress, workshop preparation and SPM presentation
26/07	SEACAP Coordination Committee	Mr Phan Phouthavongs SCC Members	Review Workshop
26/07	SIDA	Mr Sombath S. Mr Belal Hussein	Post workshops discussions
26/07	KfW/GITEC	Mr Thongkhanh Th.	Post workshops discussions
28/07	LRD	Mr Sengarith Kattignasack	Post workshops discussions and SPM meeting
31/07	PTD	Mr Ounheuan Siriamphone,	Post workshops discussions

## 2.2 Task Group 1: Standards and Specifications

Work was centred on the following activities:

1. Developing a sound engineering basis for the proposed LVRR classification and associated technical standards.
2. Continuation of the costs assessment of an initial list of pavement and surfacing options (unsealed gravel; sealed gravel; sealed armoured gravel; sealed WBM/DBM and non reinforced concrete) using the SEACAP 1 Cost Model. As an example, Table 3 shows the apparent Whole Life Asset Costs advantages of sealed pavement over the initially cheaper gravel option in a mountainous environment.

**Table 3 Sample Whole Life Asset Costs for a Selection of Pavement/Surfacing Options**

Class of loading:	A1				Construction region: North region							
Axle Load:	6T				Gradient condition: 4-6%							
Subgrade strength:	7% CBR				Annual rainfall: >2000mm							
Terrain region:	Hilly and mountainous				Flood condition: Annual but small							
Option	Thickness (cm)				Const cost	Routine Mtce cost	Periodic Mtce cost	Total cost (const+mtce) (yrs 1-10)	NPV Total cost (Yrs 1-10)	Residual value end year 10	NPV of Net cost @ 10%	
	Layer 1	Layer 2	Layer 3	Total								
Non-Reinf Conc	16	5	10	31	\$76,800	\$608	\$3,840	\$82,875	\$80,378	\$53,760	\$61,616	
Sealed Arm Gravel	2	10	16	28	\$16,043	\$862	\$1,396	\$30,826	\$23,751	\$8,021	\$20,952	
Gravel	10	10	0	20	\$4,875	\$849	\$1,798	\$52,869	\$31,632	\$3,077	\$30,558	
Sealed DBM	2	7	12	21	\$15,003	\$862	\$1,305	\$29,786	\$22,711	\$7,501	\$20,093	
Sealed Gravel	2	10	10	22	\$9,383	\$818	\$938	\$38,662	\$24,496	\$4,691	\$22,859	

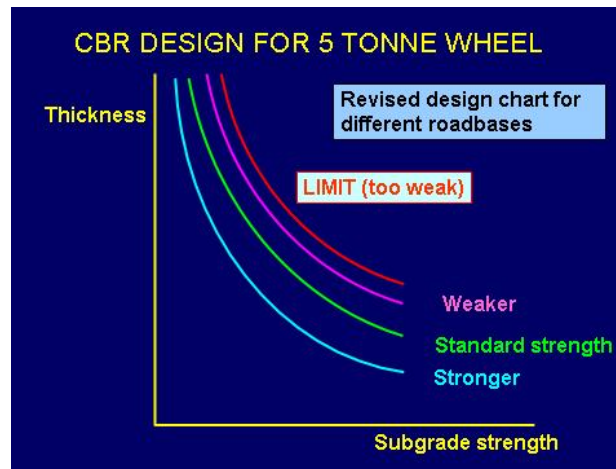
Costs in US\$/km

3. The preparation of documents and presentations for the Review Workshop followed by an assessment of the workshop recommendations. The Workshop Report is included as Appendix A to this report.
4. Review of existing technical specifications relating to the initial list of pavement and surfacing options.



Some important issues to arise out of the research and associated discussions in July are:

1. The SEACAP 3 “Standards and Specifications” should be developed from existing Lao documentation as much as possible; for example the 2005 MCTPC report “Specifications for Local Roads”.
2. The proposed LVRR classification should include axle loading as a defining factor; 4.5T and 2.5T limits have been identified based on the Gaz66/Loaded Kolao and the light pick-up type vehicles respectively, Plates 1-3.
3. An upper limit of an EADT of 200 is being considered although subdivision taking into account traffic mix is still under consideration.
4. The geotechnical nature of available pavement materials must be the starting point for the consideration of appropriate road pavement options and to this end reviews have been initiated on:
  - The impact of variable road-base strengths on standard pavement design (Figure 1)
  - Available information on construction materials.



**Figure 1 General Approach to Analysing the Impact of Variable Roadbase Strength on Layer Thickness**

5. Initially the project should target specifications and design options at a LVRR construction and upgrade strategy that incorporates Environmentally Optimised Design (EOD) and Spot Improvement principles, Table 4.

**Table 4: Road Improvements and Upgrade Strategies**

Strategy	Description	Impact
EOD	Applying the principle of adapting designs to suit regional road environments at an individual road alignment scale.	Allows differing pavement options to be selected in response to different impacting factors along an alignment and hence a more focussed use of limited construction resources.
Spot Improvements	The appropriate improvement of specifically identified road sections either in actual need of upgrade or deemed to be at high risk of failure.	Allows the appropriate application of limited resources to be targeted at key areas on existing earth or gravel road links to improve all year access.

6. The operational level for the application of the LVRR outcomes will be the District Offices (OCTPCs) and hence the need for an uncomplicated approach of producing a limited number of standard options accompanied by guidance on what to do if the road environment factors fall outside the design limitations.
7. There is a need to incorporate recommendations from the SEACAP 19 Low Cost Structures Manual review into SEACAP 3 outputs.

### **2.3 Task Group 2: Training**

Initial discussions on training, taken in conjunction with useful comments from the Review Workshop delegates, have led to the following guidance points:

1. SEACAP 3 is required to produce Training Modules to support our main Tasks and these must be "piloted" to a group of about 20 persons that is representative of an eventual target audience.
2. The key objective of the SEACAP 3 Task 2 is to produce; pilot; and assess training materials that can be used by other trainers. Undertaking a training course or training a group of trainers are not *per se* stated objectives of the project.
3. Workshop delegates from related projects raised valid points regarding the need for SEACAP 3 to avoid confusing overlap with other rural road sector training programmes and to ensure compatibility with the MCTPC yearly Training Master Plan.
4. SEACAP 3 have subsequently met with the MCTPC Personnel and Administration Division (PAD), who are tasked with coordinating all ministry training activities, and have agreed that SEACAP 3 should submit proposals for Training Modules through them.
5. It is generally agreed that the SEACAP 3 Training Modules should concentrate on the background and application of standards and specification outputs in practical terms to support an initial LVRR emphasis on differential road design (EOD and spot improvements).
6. There will be a general two-pronged theme to the Task Group 2 activity ; one specialist (Andreas Beusch) will work at a strategic level on the sustainability of research within the DoR through HRD and whilst the other (Simon Done) will, in close cooperation, concentrate on the design and detail of the training modules.

### **2.4 Task Group 3: Research**

Continued progress is being made on the details of the proposed Research Strategy. Key points to arise out of the Review Workshop and associated discussions were:

1. The Civil Engineering Department of the NUOL has presented a capacity and a willingness to undertake LVRR related research.
2. There is a need for clear lines of management within the proposed Research Management Unit; it is likely that PTD would be charged with the lead role in this regard with the DoR.
3. There was general agreement at the Review Workshop that there is in principle no difficulty in research projects being identified by the DoR and then outsourced to organisations such as the NUOL.

### 2.5 Task Group 4: Dissemination

Initial discussions were held on appropriate contacts to be made with the managers of the MCTPC website. Mr Trevor Bradbury (TRL Ltd) was mobilised on 30th July and has been tasked with the following:

1. Assess the dissemination options available to the SEACAP 3 outcomes with particular reference to the effective use of existing websites and/or the establishment of a new one.
2. Discuss with key stakeholders the options for website dissemination and assess cost implications of website use.
3. Establish links with the appropriate unit within MCTPC regarding IT and dissemination.
4. Draft notes on the style and general content of any proposed website.
5. Draft visit report making recommendations on achieving dissemination objectives.

## 3 Staff Resources

A summary of the SEACAP 3 staff resources utilised up to the end of July 2007 is presented in the following Table 5.

**Table 5: Staff Resources July 2007**

<b>Name</b>	<b>Position</b>	<b>Project Time : July 2007</b>
Dr Jasper Cook (TRL)	Team Leader Geotechnical Specialist	24 <sup>th</sup> -31 <sup>st</sup> July
Michael O'Connell (TRL)	Transport and Road Engineering Specialist and Deputy Team Leader	1 <sup>st</sup> -18 <sup>th</sup> July
Simon Done (TRL)	Training Specialist	No input
Trevor Bradbury (TRL)	Dissemination and IT Specialist	30-31 <sup>st</sup> July
Bach The Dzung (TRL)	Road Engineering Specialist	No input
Pham Gia Tuan (TRL)	Road Engineering Specialist	No input
Bounta Meksavanh (LTEC)	Local Team Leader and Road Engineer Specialist	1 <sup>st</sup> -31 <sup>st</sup> July
Saysongkham Manodham (LTEC)	Road Engineering Specialist	1 <sup>st</sup> -31 <sup>st</sup> July
Somphit B (LTEC)	Training Support	1 <sup>st</sup> -31 <sup>st</sup> July
Mr. Keithiphan Senamahmounry (LTEC)	IT Support	1 <sup>st</sup> -31 <sup>st</sup> July
Mr. Bounhom K. (LTEC)	Translator	1 <sup>st</sup> -31 <sup>st</sup> July
Ms Chanthida Ph (LTEC)	Office Management	1 <sup>st</sup> -31 <sup>st</sup> July
Mr. Thipdavanh V. (LTEC)	Project Coordinator	1 <sup>st</sup> -31 <sup>st</sup> July

## **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 1 indicates that the project is generally on target; with the following points to be noted:

1. There is general agreement from stakeholders as to the SEACAP 3 approach to the draft Standards and Specifications project task
2. Some caution is required as to the relationship of the proposed training modules with other training programmes
3. More clarity is recommended in the management roles for the proposed research framework.

## PLATES

### Road Design Vehicles

Plate 1: GAZ 66



Plate 2 Kolao/Hyundai light truck



Plate 3: Light Pick-up



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**APPENDIX A**

**Report on the Review Workshop**

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

### REVIEW WORKSHOP SUMMARY REPORT



26<sup>th</sup> July 2007

SEACAP 03

UNPUBLISHED PROJECT REPORT



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<b>Annex 1</b>	<b>Workshop Discussion Notes</b>	
<b>Annex 2</b>	<b>List of Participants</b>	

## 5 Introduction

The SEACAP 3 Module 1 Review Workshop was held at the offices of the Local Roads Department (LRD) on Thursday 26<sup>th</sup> July 2007. At the request of the SEACAP Coordination Committee the scope of the workshop was extended to cover elements of all project Modules.

This short report summarises the output from workshop and identifies key implications for the ongoing SEACAP 3 programme

The workshop was opened by Mr Phan Phouthavongs; Acting Director of Department of Roads, and comprised 7 presentations and associated discussion sessions. Presentation topics are listed in Table 1 below.

<b>Presentation</b>	<b>Author(s)</b>	<b>Presenter</b>
LVRR Standards and Specifications: The International and Regional Perspective	M O'Connell, Dr J Rolt	Dr J Rolt
The Current Low Volume Rural Road Functional Environment in Lao PDR	Saysongkham M, Dr J Cook	Saysongkham
The Way Forward: A Task-Based Low Volume Rural Road Classification	Bounta M, M O'Connell	Bounta
The Practical Application of Appropriate Specifications in Low Volume Rural Road Planning, Design and Construction	Dr J Cook	Dr J Cook
A Framework to Address Knowledge Gaps and Sustain Current Initiatives	Bounta M	Bounta
Research Support Capacity by Civil Engineering Department	Professor Nhinxay:	Professor Nhinxay
Training Modules- Framework and General Content	Dr J Cook	Dr J Cook

**Table 1: Workshop Presentations**

## 6 Workshop Discussions

The workshop presentations provoked some very useful discussion on the SEACAP 3 strategy and objectives. A summary of these discussions is included as Annex 1 to this report. Non-project participants were asked to comment on the project by completing a questionnaire. A total of 10 participants returned questionnaires and comments; these are summarised in Tables 2 and 3.

Query	Yes	No	No View
1. Is there a need for specific Low Volume Rural Roads (LVRR) Standards and Technical Specifications for Lao PDR	100%		
2. Axle loading is an appropriate LVRR classification criterion for Lao PDR	60%	30%	10%
3. Using 6T axle loading limits on LVRR will be difficult to enforce with barriers	80%	10%	10%
4. A very low volume – low cost classification and design option (+/- 1T) would be useful.	40%	30%	30%
5. Pavement specifications must take into account the nature of available local materials	100%		
6. There should be alternative options available to unsealed gravel wearing courses	90%	10%	
7. There is a problem in achieving satisfactory periodic maintenance on gravel roads	80%	20%	
8. Composite alignment designs (Spot Improvement) are likely to be a useful option for LVRRs	100%		
9. Should more emphasis be put on Safety in LVRR specification and design	90%	10%	
10. Do you agree with the general approach to classification and specification	70%	20%	10%
11. Do you agree with the general approach to setting up a research strategy	80%	20%	
12. Do you agree with the general approach to the training modules	70%	20%	10%

**Table 2: Completed Workshop Questionnaires**

<p><b>Additional suggestions on LVRR Classifications</b></p> <ol style="list-style-type: none"> <li>1. There is need to study the Lao context and situation in more depth</li> <li>2. There is need to include a very basic access option as the lowest road category.</li> <li>3. “Basic Access” is one step below the LVRR and it needs a different specification depending on actual conditions</li> <li>4. More details on road structures should be provided by this project.</li> </ol>
<p><b>Additional suggestions on LVRR pavement options</b></p> <ol style="list-style-type: none"> <li>1. Need to provide more clear detailed pavement options for Lao PDR</li> <li>2. The use of local materials should be the first priority.</li> <li>3. In order to reduce dust in villages, some kind of sealed pavement should be used as well as barriers to control traffic.</li> </ol>
<p><b>Additional Suggestions on the Research Strategy</b></p> <ol style="list-style-type: none"> <li>1. Need to undertake more road trials in the nearest areas as pilot projects</li> <li>2. Engineers involved in research should be screened by highly qualified senior experts</li> <li>3. Financial support for research should be made available</li> <li>4. Life cycle cost calculation for various road classes should be one of the research topics.</li> </ol>
<p><b>Additional suggestions on the Training Modules</b></p> <ol style="list-style-type: none"> <li>1. The trainers from PTD and LRD should be involved in the first training session</li> <li>2. There is a need to coordinate with other ongoing activities relating to the road training</li> <li>3. A group of 20 people for the training course is too limited.</li> </ol>

**Table 3: Additional Suggestions by Participants**

## 7 Workshop Conclusions

Based on the discussions at the workshop; the completed questionnaires and subsequent meetings with key participants, TRL-LTEC considers the principal conclusions to be drawn from the workshop are:

1. There is a general agreement on the need for appropriate LVRR Standards and Specifications and that we should classify roads by traffic characteristics and road function rather than by administrative designation.

2. There is general agreement that an upper axle load limit for LVRR is an appropriate step, but there are doubts as to the ability of provinces/districts to enforce this.
3. There are mixed views on the usefulness or the need for a very low “Basic Access” classification under the DoR/LRD umbrella.
4. During subsequent discussion with members of the SEACAP Steering Committee (SCC) on items 2 and 3 it was agreed that the project should look at an upper classification that accommodated Kolao light trucks and the 6T (Gaz 66/Isuzu) trucks. This implies an upper axle load limit of between 4 and 5T (allowing for some overloading). Consideration should also be given to a lighter classification basic access road with the “pick-up” as the designated vehicle; this implies an upper axle load limit of 2.5T.
5. The importance of road drainage and low cost structures was emphasised.
6. Periodic maintenance, which includes the preservation of cross sectional shape, is an ongoing problem which should be taken into account in pavement option selection.
7. There is general agreement on the need for alternatives to unsealed gravel, and bearing in mind budget constraints, there is agreement that a variable longitudinal design (Spot Improvement) strategy for LVRR development is an appropriate approach for Lao.
8. There is general agreement that safety issues need to be given more attention in LVRR standards and designs. Issues such as a low design speed and wider shoulders need to be addressed in mixed traffic environments and that specific safety considerations need to be addressed in LVRR sections through villages.
9. The workshop identified some issues common to current projects in the rural road sector and hence there is a need to share facts, results and outcomes. Perhaps an informal collaboration procedure should be investigated.
10. There are recognised concerns about the training element of the SEACAP 3 project and that it might overlap or interfere with other training programmes and the Training Master Plan. There is also a danger of training overload at provincial and district level.
11. There is general agreement on the principle that DoR should identify, own and mainstream research but that actual research programmes should be out-sourced, to the NUOL for example. However, there is a recognised need to look more closely at the detail of the proposed research strategy and that a research programme needs a single point of management. PTD should perhaps be recognised as the lead division within the proposed Research Management Unit.
12. There is general agreement that it would be very beneficial to be able to undertake small research projects as pilot applications of the Research Strategy.

## 8 Project Impacts

Outcomes from the Review Workshop and related discussions have impacts on the SEACAP 3 programme as follows:

1. TRL-LTEC will proceed with the tasks of defining the LVRR classification based on an upper axle limit of 4T-5T and will look at the implications of including a lower classification based on a 2.5T limit. They will also look at the implications of traffic mix within these classifications.

2. Other key issues to take into consideration should be:
  - The inclusion of village areas within any pavement/surface option matrix
  - The need to incorporate safety issues within the standards and specifications
  - The desirability of cooperation with SEACAP 19 in adopting the Low Cost Structures manual for use in Lao
3. TRL-LTEC will continue with reviewing appropriate specifications and a limited range of standard designs bearing in mind the importance of local material usage and the impacts of marginal materials on design.
4. TRL-LTEC will take advice from the Coordination Committee on the content and application of the Training Modules. Training topics will also be discussed with appropriate divisions within the DoR, although it is expected that these will be focussed on SEACAP 3 issues.
5. The project is required only to “pilot” proposed training modules with selected trainers. TRL-LTEC need to consider closely the candidates for this pilot study in conjunction with the Coordination Committee.
6. Further discussion on the detail of the general research strategy will be held with relevant stakeholders once results of a pilot research design study have been assessed.
7. It is important that the cooperation initiatives identified at the workshop are continued. SEACAP 3 will be actively pursuing this cooperation issue.
8. A September-October meeting with the steering committee should finalise the issues of road classification.

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**REVIEW WORKSHOP  
SUMMARY REPORT**

**Annex 1**

**Workshop Discussion Notes**

## SEACAP 3 Workshop July 2007

## Discussion Notes

Comments from Delegates	Responses by Presenters
<p><b>Presentation 1: J Rolt: LVRR Standards and Specifications: The International and Regional Perspective</b></p> <p><i>Dick Jonsson (SweRoad)</i></p> <p>Queried the implications of re-gravelling of unsealed roads and their sustainability.</p> <p><i>Sombath (SIDA)</i></p> <p>Whole life costs should include construction and both routine and periodic maintenance.</p> <p>There should be an optimum design for rural roads; a standard design that allows a standard approach to maintenance.</p>	<p>We agree with these comments and later presentations will make clearer some problems with unsealed gravel roads</p> <p>Costs of both maintenance and construction should be included in a whole life costing approach.</p>
<p><b>Presentation 2: Saysongkham: The Current LVRR Functional Environment in Lao PDR</b></p> <p><i>Nhinxay (NUOL)</i></p> <p>Queried the slide giving field moisture content/lab moisture content ratios – on what numbers of sample was this based?</p>	<p>The slide is based on figures from ADB-10 investigations – it is not a definite conclusion, it merely illustrates a general trend</p>
<p><b>Presentation 3: Bounta: The Way Forward: A Task-Based LVRR Classification</b></p> <p><i>John Weir (WFP)</i></p> <p>The importance of drainage structure should not be forgotten</p>	<p>We agree with the need to look both at road drainage and low cost structures and these issues will be addressed by the project.</p>



<p><b>Presentation 4: J R Cook: The Practical Application of Appropriate Specifications in LVRR Planning, Design and Construction</b></p> <p><u>Dick Jonsson (SweRoad)</u></p> <p>Congratulated TRL-LTEC on the presentation and would welcome closer cooperation with the SC3 project.</p> <p><u>Belal Hussian (Basic Access Programme)</u></p> <p>The Standards and Specifications should remember the practical situation with for example the Basic Access programme having to work with a budget of around US\$6000/km</p> <p><u>Thongkhanh (KfW)</u></p> <p>Has been working for many years in the rural road maintenance sector; in particular in Bokeo, Luangnamtha and Oudomxay provinces. He has information and data available that could be of use to the project.</p> <p>The project need to take note of the need for resources for maintenance in the future</p> <p><u>Dr Maysy (PTD)</u></p> <p>The project needs to be concerned with:</p> <ul style="list-style-type: none"> <li>• The techniques of road base design</li> <li>• The use of local materials</li> <li>• Differing designs for different areas</li> </ul> <p><u>John Weir (WFP)</u></p> <p>We would be most interested in the progress on the Low Cost Structures Manual.</p> <p><u>Sayabandith (ESD)</u></p> <p>There is a need to address the issue of the environment in village sections; problems of dust and road width.</p>	<p>TRL-LTEC would welcome close cooperation.</p> <p>TRL-LTEC are aware of the budget constraints that exist on some projects and although donors should be aware of the sustainability implications of such budgets, it is possible that the “spot improvement” approach is suitable approach for basic access in Lao.</p> <p>TRL-LTEC would welcome any information on the use of local materials and their properties.</p> <p>The issue of materials for maintenance is important. Local people will tend to use local materials for maintenance and will not want to use materials hauled for some distance. There is a danger of roads deteriorating due to the use of poor materials in maintenance.</p> <p>TRL-LTEC noted these useful points.</p> <p>A Low Cost Structures Manual is currently being reviewed under SEACAP 19 for use in Cambodia. It is hoped that SEACAP will be able to support its transfer to Lao.</p> <p>TRL-LTEC agree with these points and may need to amend the road option matrix to include a peri-urban (Village) environment for separate consideration.</p>
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<p><b>Presentation 5: Bounta: A Framework to Address Knowledge Gaps and Sustain Current Initiatives</b></p> <p><i><u>Dick Jonsson (SweRoad)</u></i></p> <p>Considered that the proposed Research Management Unit was confusing and that only one DoR division should have overall responsibility; possibly PTD.</p> <p>Other divisions also need to be involved, for example ESD (road safety).</p> <p><i><u>Dr Maysy (PTD)</u></i></p> <p>Considered that there should be a main role for PTD in the research framework. DoR should identify research issues which could then be out-sourced to other institutions.</p>	<p>TRL-LTEC will seek to clarify these issues in discussion with the SEACAP Coordination Committee.</p> <p>In general terms the project is recommending a strategy that allows the DoR to identify and mainstream research whilst the actual research procedures may be led by the NUOL.</p> <p>TRL-LTEC agree with these comments.</p>
<p><b>Presentation 6: Professor Nhinxay: Research Support Capacity by Civil Engineering Department.</b></p> <p><i><u>Dick Jonsson (SweRoad)</u></i></p> <p>Asked whether the list of suggested research topics was in order of priority</p> <p>Programme experts should be encouraged to give guest lectures etc</p> <p><i><u>Sombath (SIDA)</u></i></p> <p>There was obvious need for coordination and discussions with the ministry on the research programme.</p> <p><i><u>Dr Maysy (PTD)</u></i></p> <p>MCTPC and NUOL will need to discuss research topics</p> <p><i><u>Sengdarith (LRD)</u></i></p> <p>Research proposals will need to be made. Research programmes need to be coordinated with, for example, KfW and JICA.</p> <p>NUOL students can be used as a research resource.</p>	<p>These were not in any specific order of priority but were put forward for discussion.</p> <p>TRL-LTEC agree with this and it is part of the project strategy. There have been discussions between TRL-LTEC and NUOL on this and it is planned that these lectures should take place after the start of the new university academic year.</p> <p>There were only the NUOL views on research and there was an agreed need for ongoing discussion.</p> <p>TRL-LTEC agree with these comments.</p>

<p><b>Presentation 7: J R Cook: Training Modules- Framework and General Content</b></p> <p><u>Sombath (SIDA)</u></p> <p>There is potential for confusing overlap with training components from other programmes; for example the Basic Access programme and other maintenance programmes.</p> <p>Who is the Agency for implementing the development of the training Modules for SC3?</p> <p>SC3 should work within the Master Plan for Road Sector Training.</p> <p><u>Sengdarith (LRD)</u></p> <p>Agreed in principle with Sombath. The SC3 training modules will undertake a supporting role and will not overlap. The training topics should be agreed with PAD.</p> <p>Focal issues for training should be real issues and care should be taken in targeting trainees.</p> <p>Need to be wary of training overload; especially at district office level.</p>	<p>TRL-LTEC are very much aware of previous, ongoing and proposed training programmes that have a much bigger scope than the much smaller SC3 training component. TRL-LTEC do not seek to overlap but rather wish to support other programmes.</p> <p>The SC3 programme is directed through the DoR SEACAP Coordination Committee and we work under their general guidance.</p> <p>The SC3 training modules will concentrate on supporting the sustainability of the main SC3 aims.</p> <p>TRL-LTEC note these important points.</p>
<p><b>General Discussion</b></p> <p><u>Belal Hussain (Basic Access)</u></p> <p>Found the workshop very useful and informative. It would be helpful if SC3 discussed their findings and proposals with the Basic Access programme prior to issue so that relevant comment could be given.</p> <p><u>Thongkhanh (KfW)</u></p> <p>Identified difficulties in the classification of proposed roads based on traffic where no previous road existed.</p> <p>LVRs are difficult to formally justify on economic grounds.</p> <p>Also queried how to identify whether new LVRR should be built or not; how to identify priorities for candidate roads.</p>	<p>TRL-LTEC would welcome comment on findings and will seek to enhance cooperation.</p> <p>There is a huge amount of literature about the economic justification for new roads but the work required to collect the data to carry out such prioritisation is far too much for LVRR; it only applies to major new roads. But there is also some literature available on LVRR. Simple methods are required. TRL ORN 22 Deals with including social benefits in the calculations and ORN 5 is all about how to do feasibility studies for new roads.</p>

**General Summary by J R Cook**

1. There is an important need for cooperation between low volume road projects and the workshop has identified some issues common to various projects.
2. Hence there is a need to share facts and perhaps an informal method of working together should be investigated.
3. There are concerns about the training element of the project and that it might overlap or interfere with other training programmes and the Training Master Plan. TRL-LTEC will take advice from the Coordination Committee and will concentrate on SEACAP 3 issues in the training.
4. The sustainability of research is a problem and there is some work to be done on the detail of an agreed research strategy.
5. The limits of what we mean by LVRR needs to be revisited and clarified/defined. For example is a 6 tonne axle limit the most appropriate one.
6. We must classify roads by traffic characteristics and road function rather than administration.
7. SEACAP 3 ends in February 2008. It is important that the initiatives begun here are continued.
8. The September-October meeting with the Coordination Committee should finalise the issues of road classification.

J R Cook

30/07/07

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

**REVIEW WORKSHOP  
SUMMARY REPORT**

**Annex 2**

**Workshop Participants**

No.	Name	Position	Organization
1	Mr Phan Phouthavongs	DDG	DoR
2	Mr Sengdarith Kattignasack	Director	LRD
3	Dr. Maysy Viengvilay	Dir of PTD, DoR	PTD
4	Mr Ounheuane Siriamphone	Senior Engineer	PTD
5	Dr. Jasper Cook	SC3 Team Leader	TRL
6	Dr. John Rolt	SC 19 Deputy Team Leader	TRL
7	Mr Bounta M.	SC3 Local Team Leader	LTEC
8	Mr Saysongkham M.	SC3 Road Engineer	LTEC
9	Mr Nouanta H.	Engineer	DCTPC- VT Cap
10	Mr Phouthasen R.	Deputy Director	RAD
11	Mr Khampaseuth P.	Engineer	LRD
12	Mr John Weir	Consulting Engineer	WFP
13	Mr Xayabandith	Deputy Director	ESD
14	Mr Thongkhanh Th.	Consultant	GITEC (KFW)
15	Mr Xayphone Ch.	Consultant	SEACAP 21
16	Mr Vanhdy V.	Resident Engineer	SEACAP 17
17	Mr Belal Hussain	TL/RAA	BAC-LSRSP 3
18	Mr Dick Jonsson	TL/LSRSP III	SweRoad
19	Mr Sombath S.	NPO	Swedish Embassy.
20	Assoc Prof. Nhinxay V.	Head of CE Dept.	NUOL
21	Mr Bounhom K.	SC3 Interpreter	LTEC
22	Mr Somphit B.	SC3 Junior Engineer	LTEC
23	Mr Kiathiphan S.	SC3 IT Engineer	LTEC
24	Mr Thipdavanh V.	SC3 Project Coordinator	LTEC
25	Ms. Chanthida Ph.	SC3 Office Manager	LTEC

### List of Workshop Participants

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

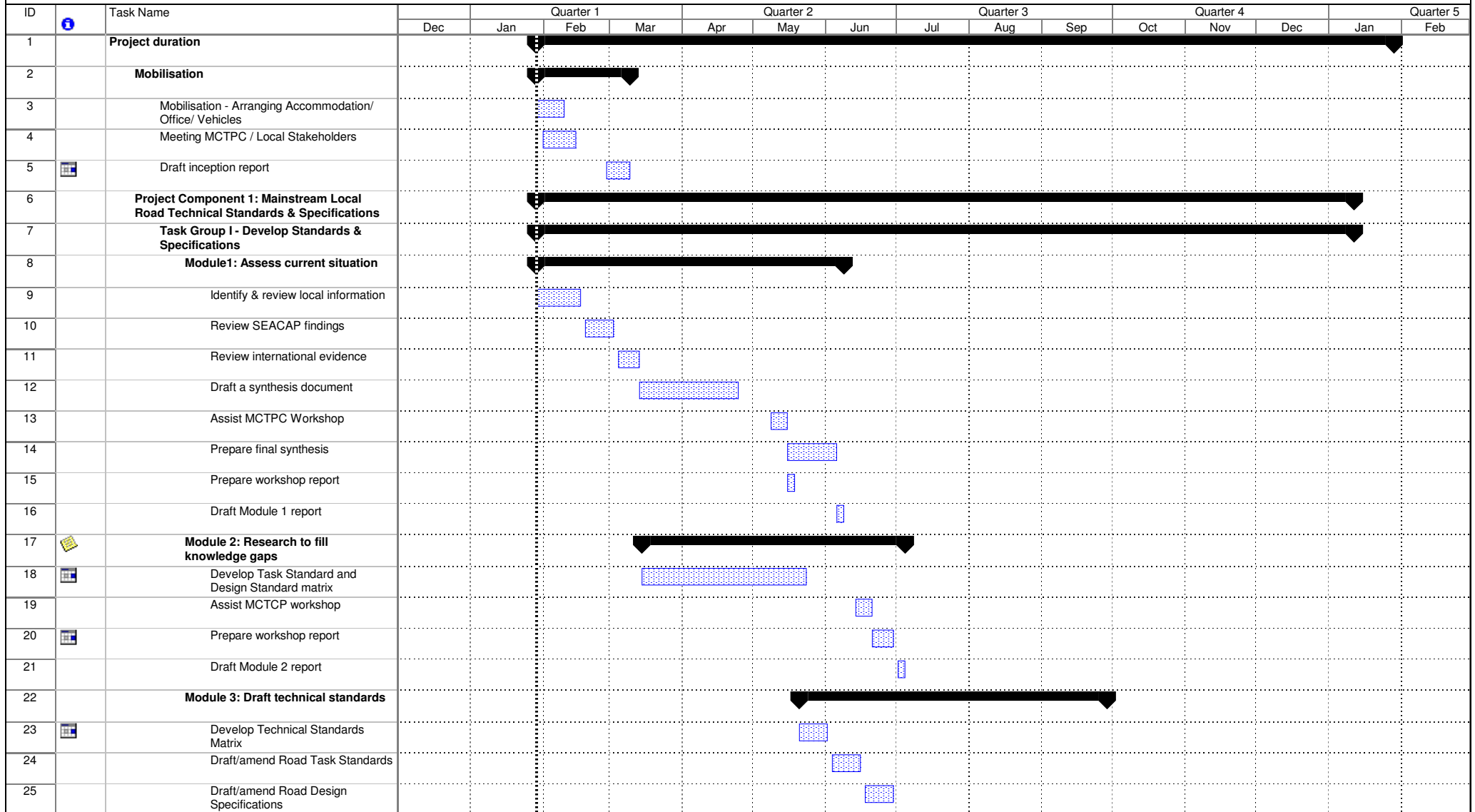
**PROGRESS REPORT 6  
July 2007**

**APPENDIX B**

**Programme**

SEACAP - 3

Mainstreaming appropriate local road standards and specifications & developing strategy for MCTPC research capacity



Project: SEACAP 03 - Lao PDR

Task		Summary		Rolled Up Progress		Project Summary	
Progress		Rolled Up Task		Split		Group By Summary	
Milestone		Rolled Up Milestone		External Tasks			



SEACAP - 3

Mainstreaming appropriate local road standards and specifications & developing strategy for MCTPC research capacity

ID	Task Name	Quarter 1			Quarter 2			Quarter 3			Quarter 4			Quarter 5		
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
26	Prepare first draft															
27	Assist MCTPC in stakeholder review															
28	Draft Module 3 report															
29	<b>Module 4: Final technical standards</b>															
30	Receive stakeholder feedback and Finalise Technical Standards															
31	Mainstream by assisting in take up and adoption															
32	Draft Module 4 Report															
33	<b>Task Group II -Develop Training Programme</b>															
34	<b>Module 5: Training needs assessment</b>															
35	Review job descriptions of MCTPC staff															
36	Assess skill levels of sample staff															
37	Identify gaps (between descriptions and skills)															
38	Draft training needs assessment															
39	Draft Module 5 report															
40	<b>Module 6: Elaborate Training program</b>															
41	Prepare training programme															
42	Identify support resource materials															
43	Draft Module 6 report															
44	<b>Module 7: Training Course &amp; Trainers trained</b>															
45	Organise a trial training course															
46	Conduct training															
47	Evaluation of the train the trainers program															
48	Draft Module 7 report															
49	<b>Project Component 2: Develop an affordable and sustainable strategy for attaining the</b>															
50	<b>Task Group III - Develop Research Capacity</b>															

Project: SEACAP 03 - Lao PDR	Task		Summary		Rolled Up Progress		Project Summary	
	Progress		Rolled Up Task		Split		Group By Summary	
	Milestone		Rolled Up Milestone		External Tasks			

SEACAP - 3

Mainstreaming appropriate local road standards and specifications & developing strategy for MCTPC research capacity

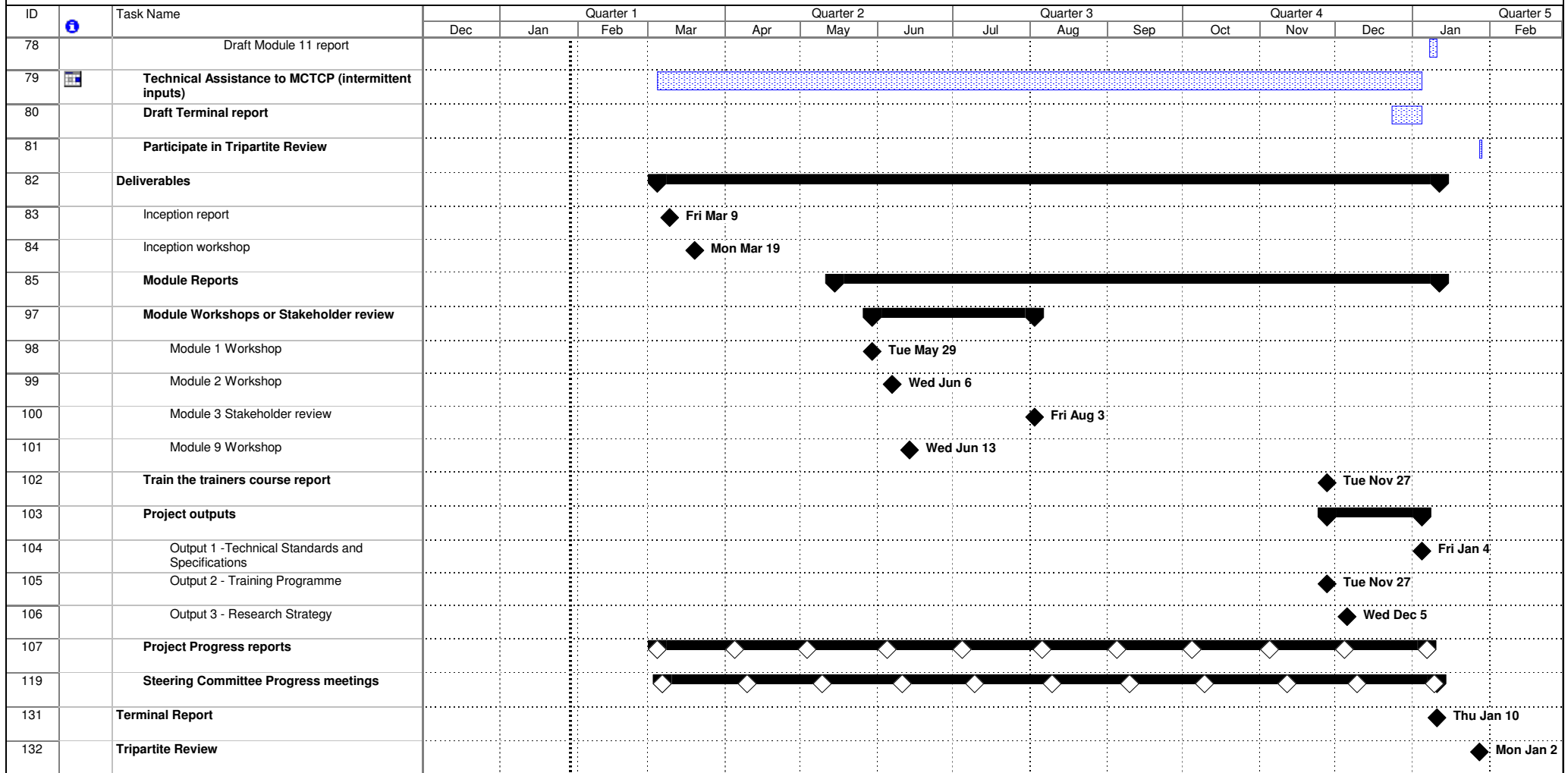
ID	Task Name	Quarter 1		Quarter 2			Quarter 3			Quarter 4			Quarter 5			
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
51	<b>Module 8: Gaps in research capacity</b>				▶		▶									
52	Identify key research topics and institutional capacity				■											
53	Options for developing research capacity				■											
54	Draft first synthesis					■										
55	Assist MCTCP in feedback/workshop exercise						■									
56	Finalise synthesis of research capacity						■									
57	Draft Module 8 report							■								
58	<b>Module 9: Draft strategy for strengthening the research and institutional capacity</b>				▶		▶									
59	Prepare a draft strategy				■											
60	Assist MCTCP in feedback/workshop exercise						■									
61	Draft Module 9 report							■								
62	<b>Module 10: Adoption of strategy by MCTPC</b>							▶		▶						
63	Finalise strategy							■								
64	Adoption & Mainstream								■							
65	Draft Module 10 report														■	
66	<b>Project Component 3: Disseminate the outcomes at the national, sub-regional and international levels</b>							▶		▶						
67	<b>Task Group IV - Initiate and Conduct Dissemination</b>							▶		▶						
68	<b>Module 11: Prepare Packages for local, sub-regional and international dissemination</b>							▶		▶						
69	Prepare technical materials (for dissemination)								■							
70	Prepare sub-regional seminar paper															
71	Prepare International Conference paper									■						
72	<b>Contribute to Websites/Newsletters</b>								■		■		■			■
77	<b>Prepare specified standard presentations</b>								■							

Project: SEACAP 03 - Lao PDR

Task		Summary		Rolled Up Progress		Project Summary	
Progress		Rolled Up Task		Split		Group By Summary	
Milestone		Rolled Up Milestone		External Tasks			

SEACAP - 3

Mainstreaming appropriate local road standards and specifications & developing strategy for MCTPC research capacity



Project: SEACAP 03 - Lao PDR	Task		Summary		Rolled Up Progress		Project Summary	
	Progress		Rolled Up Task		Split		Group By Summary	
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