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UNPUBLISHED PROJECT REPORT

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Prepared for: Project Record: **SEACAP 03. Mainstreaming Appropriate Local Road Standards and Developing a Strategy for the MCTPC Research Capacity**

CONTENTS

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 Organisation
IRF	International Road Federation
IRI	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)

MCTPC	Ministry of Communication, Transport, Post and Construction
mm	Millimetre(s)
MERLIN	**M**achine for **E**valuating **R**oughness using **L**ow-cost **IN**strumentation
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 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

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 Standards and Specifications				
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 Relevant Training Programme				
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 Capability:				
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 Dissemination				
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	1-10th and 14th-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	1-16th June
Pham Gia Tuan (TRL)	Road Engineering Specialist	1-16th June
Bounta Meksavanh (LTEC)	Local Team Leader and Road Engineer Specialist	1-30th June
Saysongkham Manodham (LTEC)	Road Engineering Specialist	1-30th 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	1-30th June
Mr. Thipdavanh V. (LTEC)	Project Coordinator	1-30th 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.

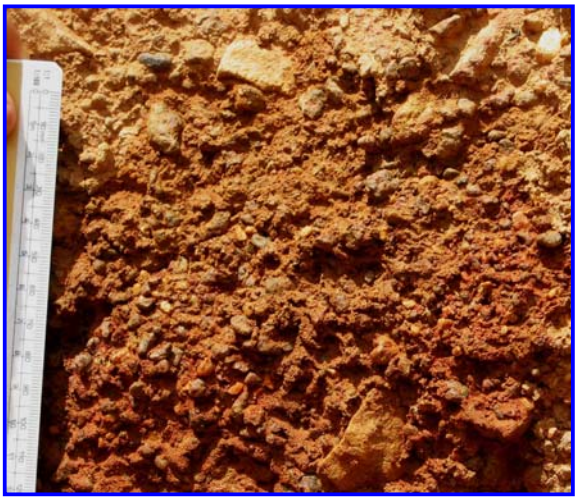
Some village authorities are using using uncrushed gravel as a local gravel "armouring" solution to inhibit wearing course erosion. The example is from a Class VII rural road. Gravel armouring is laid when road is a wet condition so that it may worked into the existing surface.

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.

Laterite gravel road on 5-6% gradient showing severe erosion rills

Underlying sub-grade is now exposed beneath a thin laterite gravel cover

Typical fine hill gravel (colluvium) derived from mixed sedimentary sources.



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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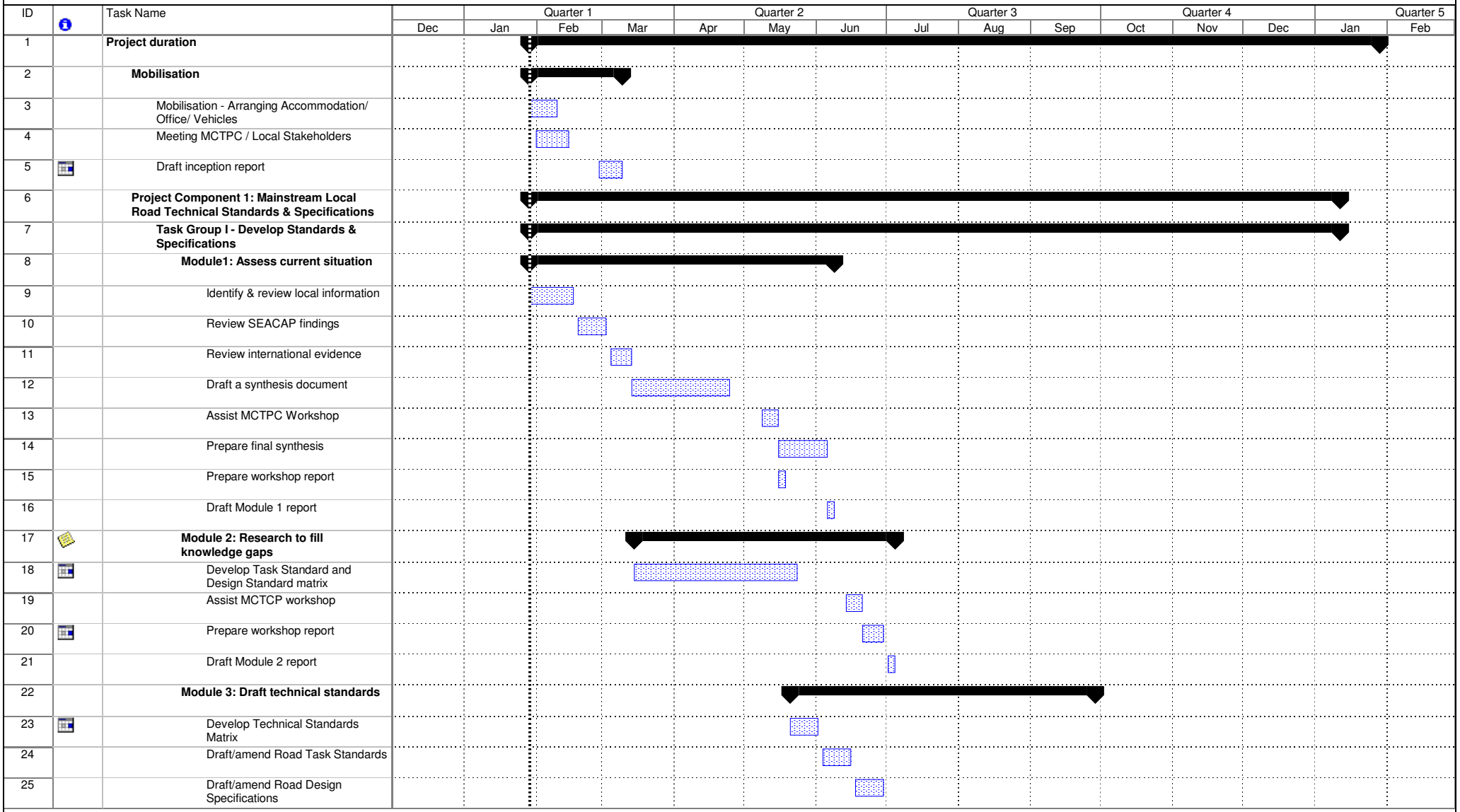
APPENDIX B

Programme

SEACAP - 3

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

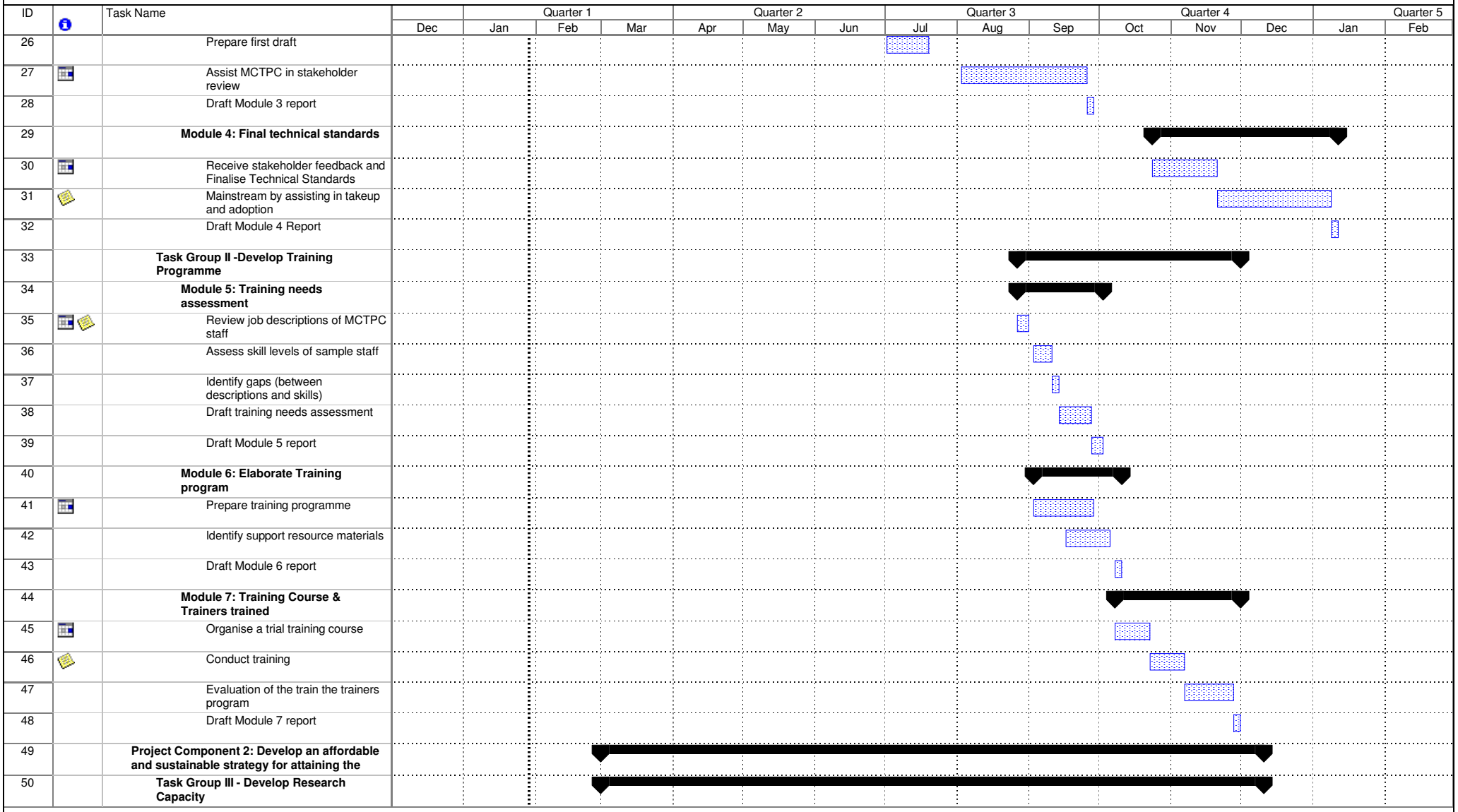


Project: SEACAP 03 - Lao PDR

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



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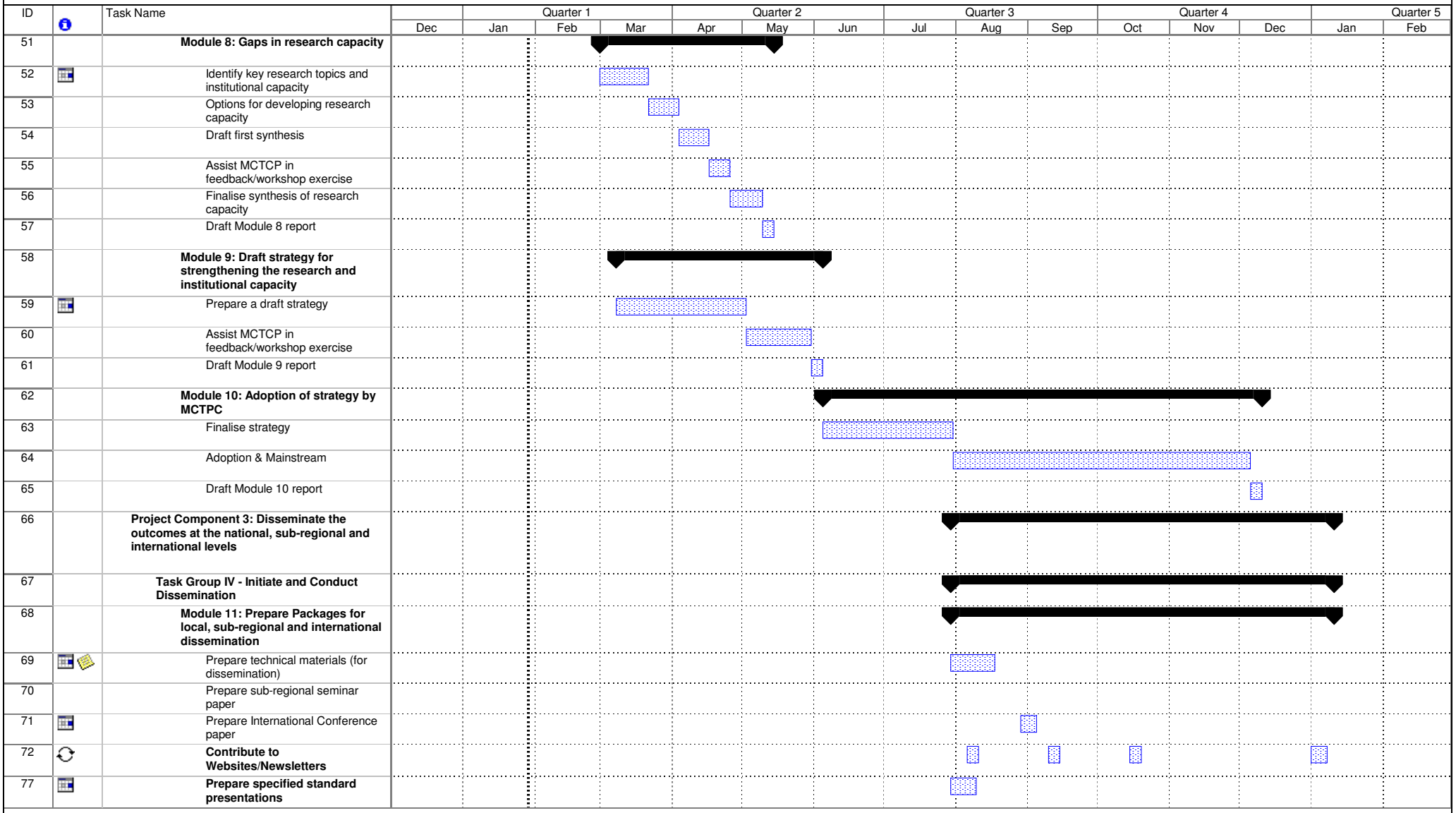
SEACAP - 3

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



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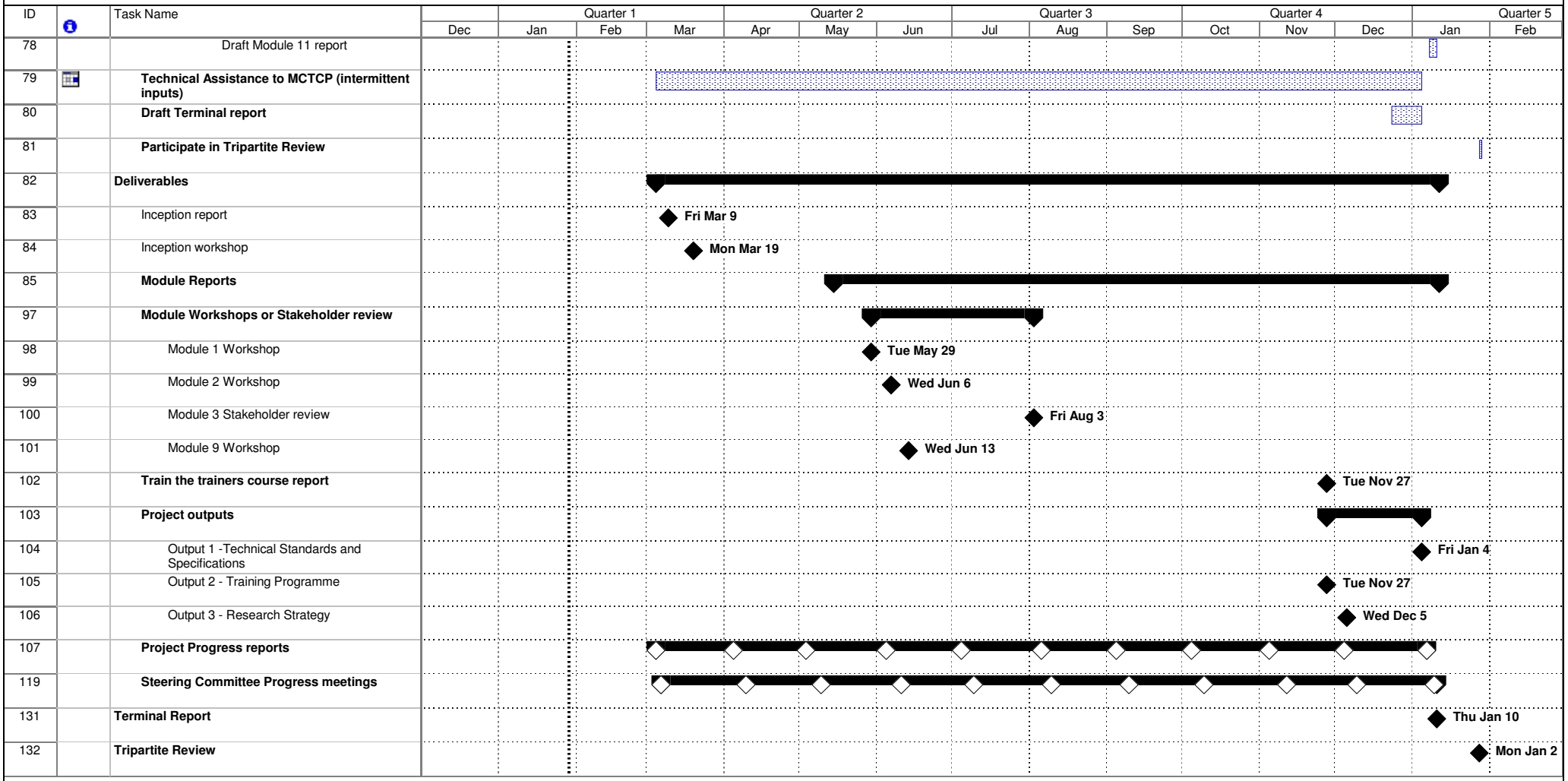
SEACAP - 3

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 Schedule of Staff Inputs

ID	Task Name	Position
1	**Project Duration**	
2	**International**	
3	**J Cook**	**Team Leader Geotechnical Specialist**
15	**M O'Connell**	**Transport and road eng. Spec. & Deputy Team**
21	**S Done**	**Training specialist**
23	**T Bradbury**	**Dissemination expert**
25		
26	**Domestic LTEC**	
27	**Bounta MEKSAVANH**	**Local Team Leader and Road Engineer Specialist**
29	**Saysongkham MANODHAM**	**Road engineering specialist**
31	**Keithiphan SENAMAHMOUNTRY**	**IT Engineer**
33	**Somphith BONNAPHON**	**Junior Engineer**
35	**Thipdavane VONGSAY**	**Project coordinator**
37	**Chanthida PHAPHIBOUN**	**Secretary / Office Manager**
39	**Xoumaitri PANYANOUVONG**	**Translator**
48		
49	**MCTPC Counterpart staff**	
50	**Khampaseuth Panyanouvong (LRD)**	**Civil Engineer (LRD)**
52	**Ounheuan Siliamphone (PTD)**	**Senior Technical Staff (PTD)**
54		
55	**Technical Panel**	
56	**R Petts**	**Quality Assurance**
57	Input 1 on Review	
58	Input 2 Whole life costings	
59	Input 3 Mainstreaming	
60	**A Ahmedi**	**Research capacity**
62	**A Beusch**	**Training**
64	**B Dzung**	**SEACAP -Vietnam**
66	**P Tuang**	**SEACAP - Vietnam**
68	**H Kackada**	**SEACAP-Cambodia**