

SEACAP 003

**Mainstreaming Appropriate
Local Standards and
Specifications
& Developing a Strategy for
MCTPC Research Capacity**

TRL Ltd
In Association with
LTEC and Intech Associates



LVRR STANDARDS

LVRR Design
Classification

VI

VII

VIII

LVRR Standard
Specifications

Sealed Macadam

Gravel

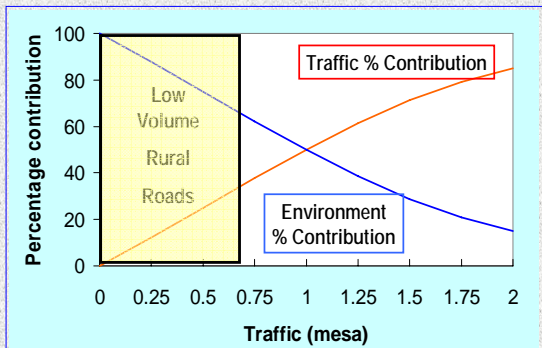
Concrete

etc

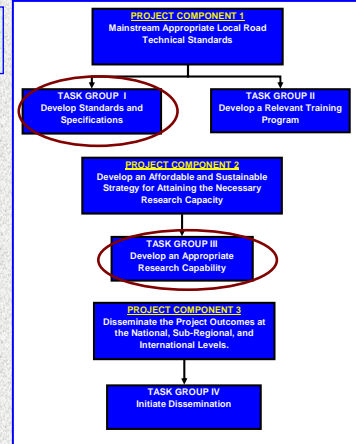
Commentary/Guidance Documents

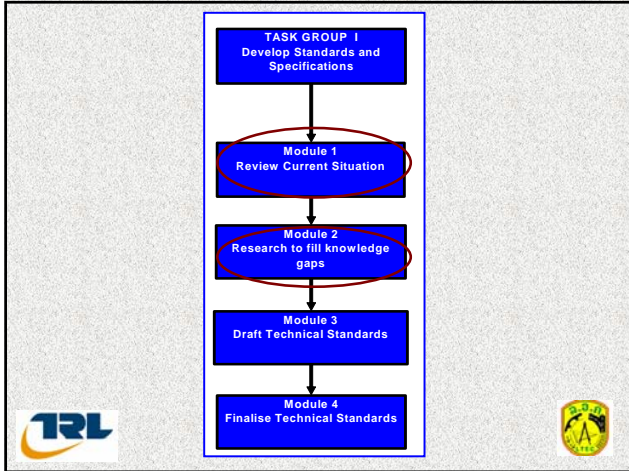


Contributions to Road Deterioration



**SEACAP 3
Structure**





Situation Review

Documents reviewed (100+): Including National, Regional and International sources on:

- Rural road standards (Classifications)
- Low volume road specifications
- Road design guidelines/manuals

Summary Tables -1

Classification Source	Classifications	Traffic Function	Terrain	Roadway Width (m)	Design Speed (km/h)	Vertical Gradient %
India						
Vietnam						
Cambodia						
World Bank						
SADC						
Australia						
USA						
Thailand						
ORN 6						
Lao PDR (Current)						

Summary Tables -2

Specification	Vietnam	Cambodia	Lao PDR	Kenya	India	Thailand	Australia	South Africa
Earthwork and gravel pavement layer	C	T	C	C	C	C	C	C
Bituminous emulsion-surface dressing chip seal	T		C	C		C	C	C
Bituminous emulsion-sand seal	T	T	T					C
Otta seals		T	T					C
Gravel sub-base/base	T	T	C	C	C			C
Lime stabilized sub-base/base	T			C	C	C	C	C

C: Mainstream Construction
T: Trial

Classification: Three Key Points

- Compatible with Lao PDR Road Law
- Based firmly on the road function NOT administration
- Falling within the Low Volume Rural Road traffic envelope



General Classifications

1. Predominantly 2-wheeled traffic; very low volume of light 4 wheel vehicles.
2. Low volume mix of 4 wheel and 2 wheel vehicles. No heavy vehicles
3. Low volume 4 and 2 wheel traffic. Occasional heavy vehicle
4. Predominantly low volume 4 and 2 wheel traffic. Significant risk of heavy vehicle traffic



Rural Road Classes

	VI	VII	VIII
ADT	51-100	21-50	<20
Lane	1	1	1
Carriageway (m)	3.50	3.00	2.50
Shoulder (m)	1.25-1.50	0.75-1.25	0.25-0.75
Formation Width (m)	6.00-6.50	4.50-5.50	3.00-4.00

PLUS:- Axle Load Limit Sub-divisions
2.5, 6.0 Tonnes



Road Environment: Knowledge Acquisition

Natural factors

- Climate/rainfall
- Hydrology
- Terrain
- Materials availability
- Sub-grade

Imposed factors

- Materials selection
- Traffic mix
- Axle loads
- Construction regime
- Maintenance regime

Socio-economic factors

- Whole-life costing
- Health and safety
- Local Employment
- Local Economy



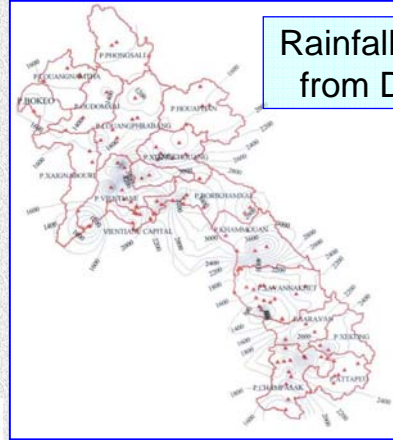
PRoMMs Database

We have used the PRoMMs database of maintainable roads to analyse data on:

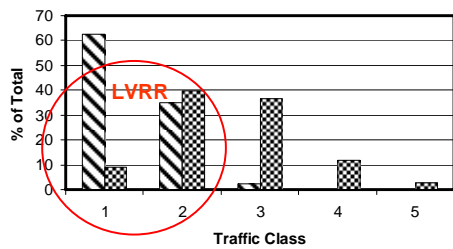
Road widths Drainage
 Traffic Surfacing Type
 Terrain Surface Condition



Rainfall Data from DMH



Rural Road Traffic (SweRoad)



	1	2	3	4	5
Bokeo	Light	Light	Medium	Heavy	Very Heavy
Q	> 200 VPD (0-2 heavy trucks)	100-200 VPD (1-4 heavy trucks)	50-100 VPD (2-3 heavy trucks)	20-50 VPD (0-2 heavy trucks)	10-20 VPD (0-1 heavy trucks)



Terrain

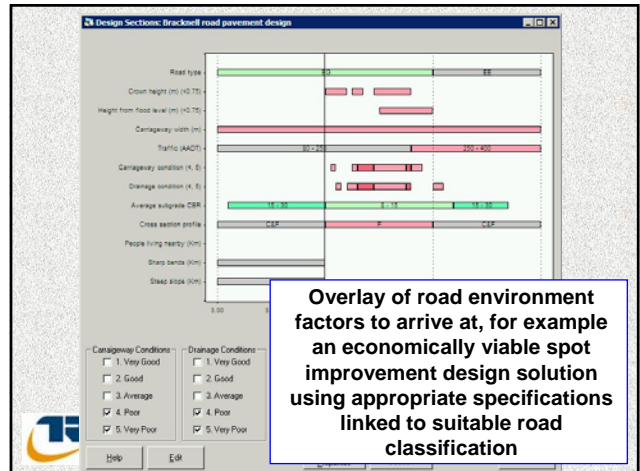
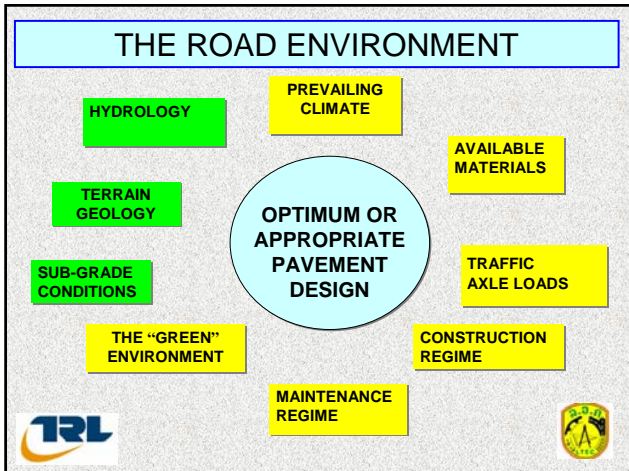
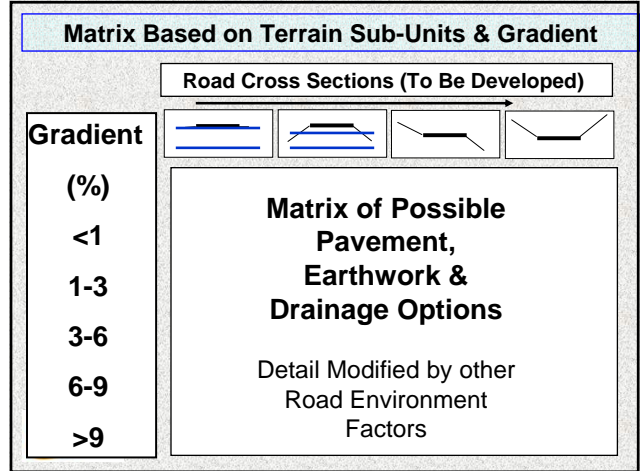
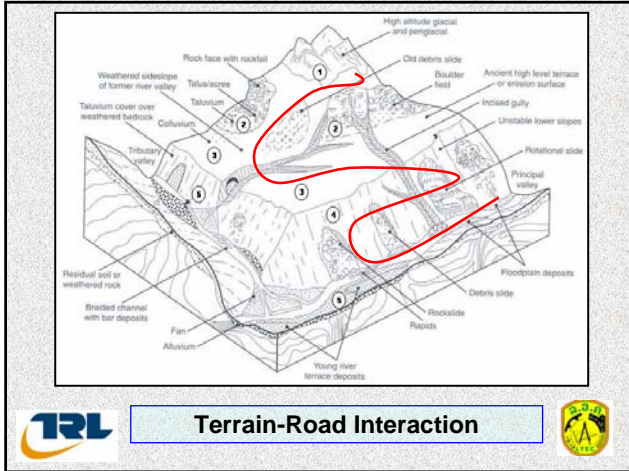
Broad divisions currently in use

- Flat
- Rolling Hills
- Mountainous

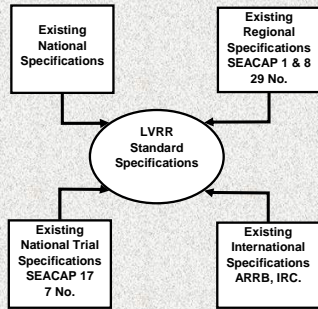
Likely to have a modifying effect on road geometry; eg

- Reduced standard in Mountainous Terrain





LVRR Specifications: Review and Assessment



Appropriate Specifications

Appropriate to the road function

Appropriate to available materials

Specifications must to be realistic and achievable – otherwise they are pointless



TASK GROUP III
Develop an Appropriate
Research Capability

Module 8
Gaps in Research Capacity
Identified

Module 9
Strategy for strengthening
research capacity

Module 10
Adoption of the Strategy by the
MCTPC



MCTPC Road Research Activity

Currently little or no research activity or capacity within DoR – previously research has been undertaken through the Planning and Technical Division (PTD). There is however both a need for a sustainable research capability and an expressed wish at ministerial level.



Principal Research Resources

DoR (PTD)

- Administration
- Strategy
- Mainstreaming

NUoL (Civil Eng)

- Methodologies
- Staff experience
- Equipment/Labs
- Student manpower

DCTPCs

- Local knowledge
- Manpower



Outline Structure

STEERING COMMITTEE

Lead by MCTPC, with NUoL. Identifies research issues; identifies funding; liaison with Donors.

RESEARCH MANAGEMENT UNIT

DoR (PTD): Commissions research contracts; monitors progress; applies and mainstreams outputs.

RESEARCH GROUPS

NUoL(Civil Eng) Leads research teams; undertakes research projects; supplies key specialist input; reports research outcomes to the Research Management Unit.

DCTPCs: Local field support

Outline Strategy

Basic Structure Agreed (Temporary Basis)

Trial projects identified and initiated under proposed structure. For example SRSs:

- Performance of locally adopted sealing options on laterite gravel
- Unsealed road performance in Lao PDR
- LVRR traffic patterns in Lao PDR.

Review structure (modify if required) and formally adopt .



SEACAP 3: Programme

Modules	2007												2008
	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	2008
1	■	■	■	■	■								
2													
3													
4													
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11													

