

# **SEACAP 3.02 and 31**

**Mainstreaming and  
trailing low volume  
rural road standards  
and specifications**

**Two separate projects:**

**SEACAP 3.02: LVRR manual**

**SEACAP 31: Site trials**

**Recap of key issues:**

## **SEACAP 3**

**Developing and  
mainstreaming LVRR  
standards**

## 1. Appropriate standards – depend upon conditions:

**Materials**

**Terrain**

**Gradient**

**Risk of flooding**

**Funding**

**Rainfall & climate**

**Community involvement**

**Subgrade**

**Health and safety impact**

**Access needs**

**Green environment**

**Construction and maint' capacity**

**Traffic, incl. NMTs & pedestrians**



cf. high volume  
road design:  
Design conditions  
out  
Mainly traffic

## 2. Design varies as the conditions vary:

- \* from one road to another
- \* along a road

### Variable longitudinal design



## 3. Improve priority sections if funds are insufficient

Prioritisation according to:

- \* **Safety**
- \* **Passability, etc**

Spot improvements (criteria: see later)

(water crossing, hills, villages, flooding, etc)





**Stream crossing**

Low, wet, impassable

**Gravel source**



Slippery, eroded, impassable

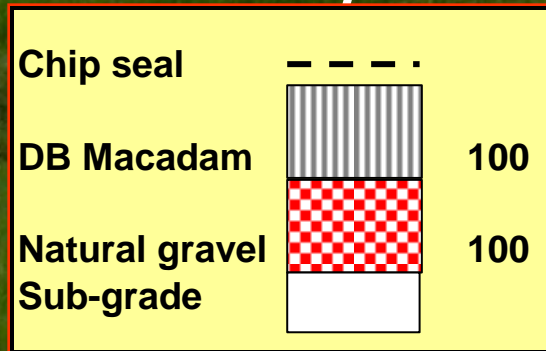
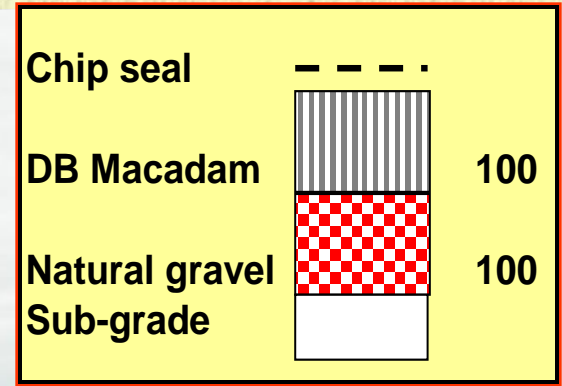
Village - people

No people

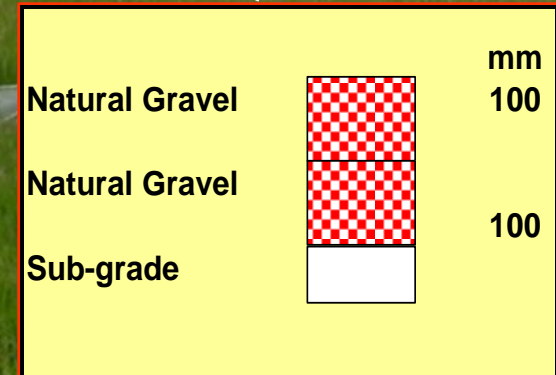
**Existing road**



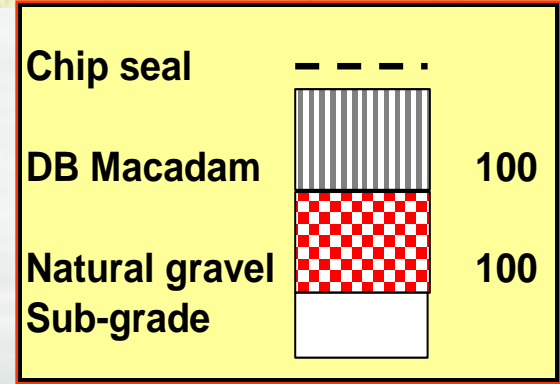
**Embankment  
+ culvert**



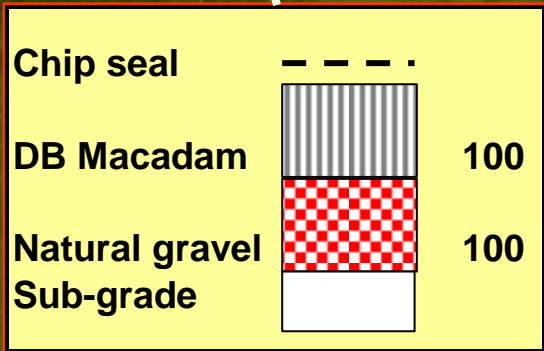
**Whole length  
improvement**



**Culvert**



**Unimproved**



**Spot improvement**

## 4. Target roads:

- \* Low traffic – volume, width, axle load
- \* Length – c. 5 km



## 5. Outputs

**Part I Road classification  
Geometric standards**

**Part II Pavement and surfacing options  
Specifications  
Design guidance**

**Part III Guidance document**

## Next steps for mainstreaming:

**LVRR Manual to present guidance in a site usable style  
.....SC3.02**

**Site trials of the LVRR standards and specifications  
.....SC31**

**Separate projects but run as a single project**

## SC3.02: LVRR Manual

- \* **July-November 2008**
- \* **Review of relevant manuals**
- \* **Reworking of LVRR standards and specifications into format for a manual**
- \* **Drafting of manual**
- \* **Workshop in August to discuss manual with LRD and SEACAP – approved**
- \* **Completion in November**

## LVRR Manual

### 1. Design process for road in poor condition

1. Assess budget

2. Assess traffic

**5 traffic categories** (NMT, 3W, Kolao, Isuzu, large)

**Is traffic within LVRR envelope?**

**Traffic group – low or medium?**

3. Assess terrain

4. Select cross section and geometry

**Based upon traffic, terrain and surface**

**Exceptions from geometric standards**

5. Look up annual rainfall

6. Assess local materials



## LVRR Manual

### 1. Design process for road in poor condition

### 7. Assess construction and maintenance capacity

Technical ability, resources and maintenance system

### 8. Survey and analyse the road

**Identify uniform sections** – gradient, condition, village, etc

**Measurements** – camber, width, etc

**Assess condition** – slippery, dusty, impassable, etc

**Assign priority criteria** – prioritised spot improvements

**Additional surveys** – DCPs, test pits, etc



## **LVRP Manual**

**1. Design process for road in poor condition**

**9. Select and design improvements**

**Condition-improvement table**

**Pavement and surfacing selection guidance**

**10. Estimate costs**

**11. Prioritise the improvements**

**Prioritisation guidance – reducing costs**

**12. Prepare contract documents**



## LVERR Manual – Priority criteria:

1. Very high risk of injury
2. Impassable in dry
3. Impassable in wet and dry
4. Moderate risk of injury
5. Likely to deteriorate
6. Unhealthy
7. Drainage below standard
8. Risk of erosion or landslip
9. Risk of environmental damage
10. Slight risk of injury
11. Cross section below standard
12. Geometry below standard
13. Surface below standard
14. Pavement below standard



## LVRR Manual

### 2. Design process for a new road

#### Differences:

- \* More flexibility on alignment
- \* Unable to use condition to assess a road

### 3. Appendices

Design charts from standards (traffic and subgrade)  
Guidance on shoulders, safety, slope protection, etc

### 4. Example calculations – traffic, pavement design

## SC31: Trials – Design and Construction

**Trial of LVRR Manual**

**Trial of LVRR Standards and Specifications**

**Training**

- \* **Samphan Road, Phongsali Province**
- \* **LSRSP III road improvement and gravelling contract**
- \* **Currently has been opened over 30 km – not full width**
- \* **54 km – focus on the first 10 km**
- \* **Additional pavement improvements – c. 2 km in total**



## Manual trials

Initial site visit in June 2008

Week 1 – early September  
4 days of trialling and training  
Given by LTEC and TRL

Attendees

DPWT Phongsali

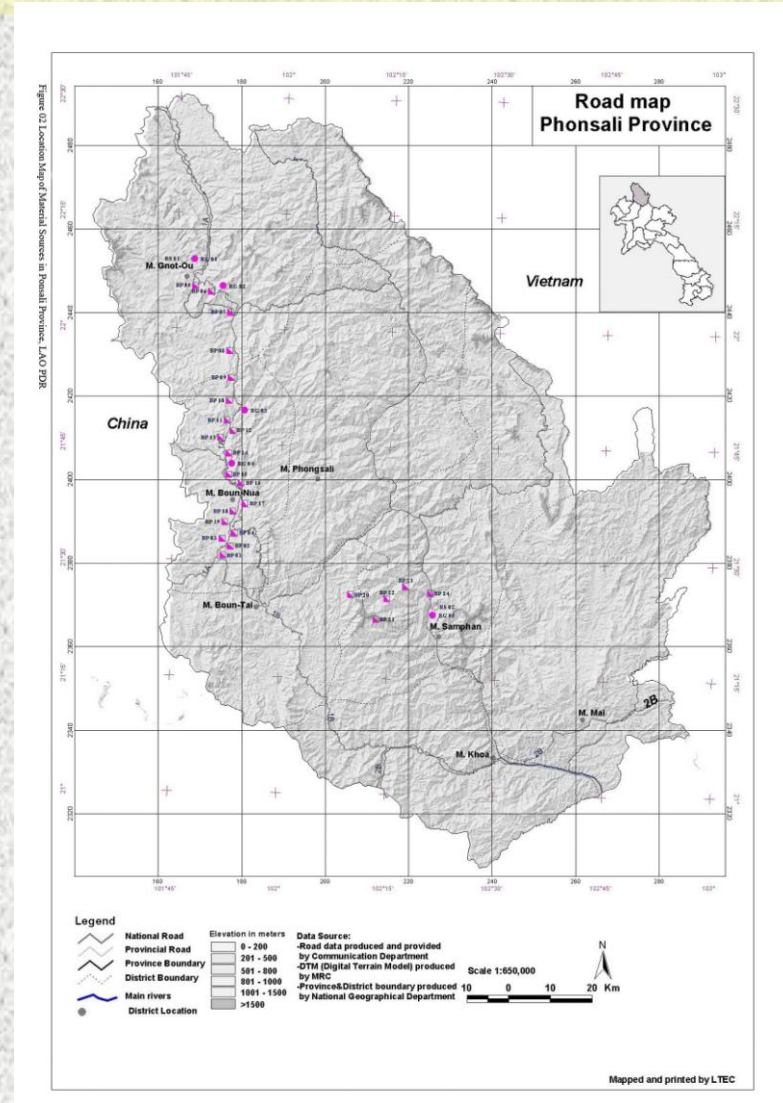
OPWT Khoa, Samphan, Bountai

LRD

Contractor

Site supervisor

National University of Lao



## Manual trials – week 1

**Day 1: Explanation of the manual  
Discussion  
Preparation for survey**

**Day 2: Survey of 10 km of Samphan Road in groups**

**Day 3: Identifying sections for improvement  
Selecting improvements for sections  
Preparation of group presentations**

**Day 4: Group presentations  
Discussions  
Group selection of improvements  
Discussion of manual**



## Group selection of improvements

Focus on:

**Villages**

**Steep sections**

(health and safety)

(unable to focus on poor condition or passability)



## **Caveats about the trial use of the manual on Samphan Road**

- \* Road is long and is likely to attract higher and heavier traffic**
- \* Unable to use condition as an indicator**
- \* Need to measure gradients accurately**
- \* Restriction to pavement improvements**

## Manual trials – week 2

**Need for road to be fully widened and formed ready for gravel**  
**Delays due to rain and landslides**  
**Soaked CBR tests carried out**

**Week 2 is planned – same participants:**

- 1. Discussion of pavement standards and design methods**
- 2. Site visit**
  - Confirm gradients**
  - DCP tests & comparison with soaked CBRs**
- 3. Design work**
- 4. Finalisation of design**

**After week 2:**

## **LVRR Standards and Specifications trials**

**Construction of trial improvements  
Supervision and training  
Monitoring**

**Demonstration of spot improvements  
Improved low volume rural access  
Sustainability**

**This phase or next phase?**