

SEACAP PRACTITIONERS MEETING

(DF 68 - SPM)

Vientiane, Lao PDR

4 – 7 November 2008

Report on the presentations and discussions

by Tony Greening

on behalf of DFID/SEACAP

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CONTENTS

1. Introduction.....	4
2. Highlights of presentations and discussions Day1.....	4
Welcome address by H.E. Minister Sommad Pholensa.....	4
DFID statement on SEACAP by Peter O’Neill.....	5
Over view of SEACAP by David Salter.....	5
Vietnam country progress report by Dr Nguyen Van Nhan.....	6
Cambodia country presentation by H.E Sous Kong.....	7
Lao PDR country progress presentation by Laokham Sompeth.....	7
SEACAP 24: A case study of the premature failure of a trial road in Dak Lak province, Vietnam by Jasper Cook, John Rolt, Bach The Dung and Pham Guam Tuan.....	8
SEACAP 27: Mid-term pavement condition monitoring of rural road surfaces by Pham Gua Tuan.....	9
SEACAP 30 Rural road surfacing trials III: Cooperation with RT3 provinces by Bach The Dung.....	10
DF55: Transfer of low-volume rural road knowledge and experience by Do Huan.....	10
SEACAP 19: Development of local resource-based standards in Cambodia by Heng Kackada.....	10
SEACAP 19: A pilot road materials database for Cambodia by Jasper Cook.....	11
SEACAP 17: LAO PDR by Simon Gillette.....	11
SEACAP 3.01: Appropriate LVRR standards and specifications for Lao PDR by Bounta Savanh.....	12
SEACAP 3.02 and 31 Mainstreaming and trialling low-volume road standards and specifications Simon Done.....	13
Knowledge gaps in the provision of sustainable LVRR’s by John Rolt.....	13
Discussion on LVRR sustainable engineering.....	14
3. Highlights of presentations and discussions Day 2.....	15
gTKP – A partnership for global transport knowledge by Charles Melhuish.....	15

CONTENTS (continued)

gTKP – Rural transport by Robert Petts.....	15
An introduction to the Africa Community Access Programme by Robert Geddes.....	16
Networking for south-south cooperation by Ranjit de Silva.....	16
Dissemination of SEACAP outputs abroad by Fergus Gleeson.....	17
Value of transport research: a DFID perspective by Peter O’Neill, David Salter and Tony Greening...17	
Keynote Address: SEACAP – An agent for change by Robert Petts.....	18
Discussion on the value of research and keynote address.....	18
SEACAP 21/001 Slope stabilisation trials on Route 31N and Route 7 in Lao PDR by Gareth Hearn and Tim Hunt.....	19
SEACAP 21/003 mainstreaming slope stability outcomes by Gareth Hearn and Tim Hunt.....	20
Summary of key points and discussions by David Salter.....	20
4. Closure of meeting.....	20
5. Study tour.....	21
Appendix I: AFCAP leaflet.....	22
Appendix II: Programme.....	23
Appendix III: List of participants.....	24 - 28

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1. INTRODUCTION

This is a report on the presentations, discussions and study tour which together formed the activities of the (DF 68) SEACAP Practitioners Meeting (SPM) held in Vientiane, Lao PDR, on 4 to 7 November 2008.

The aim of the SPM was to report on progress and facilitate and encourage the sharing of new knowledge and experiences that could help steer country programmes and rural strategies.

The SPM presented an opportunity to bring together representatives from the countries participating in SEACAP together with other countries, sponsors and international organisations that have expressed an interest in SEACAP activities.

The meeting itself contained the following three main components

- An update on the outcomes and progress of the SEACAP projects.
- Discussions led by a panel of experts on priority projects.
- A keynote address by a leading expert.

2. HIGHLIGHTS OF PRESENTATIONS AND DISCUSSIONS: DAY 1

Welcome address by H.E. Minister Sommad Pholsena - Ministry of Public Works and Transport (MPWT) in Laos PDR

(The address was delivered by the Permanent Secretary MPWT)

The speaker began by welcoming the delegates and thanking SEACAP for holding the SPM in Laos PDR. He also thanked the various organisers of the meeting. Transport is one of the four components of the National Growth and Poverty Eradication Strategy (NGPES) in Laos. The goal in this sector is 'to fully integrate the economy, thereby providing an enabling environment for trade and commerce and access for all Lao people to basic services'. Statistics were presented for the road network in Laos. One target under NGPES is to provide access roads to all villages by 2020

The Minister expressed his appreciation of the contribution of SEACAP to the development of the local road program through its participation in the MWPT steering group. In Lao PDR, SEACAP has focused on sustainable and appropriate technologies, local road surfacing, slope stability management, appropriate specifications, guidelines and knowledge exchange.

SEACAP is particularly effective in assisting Laos meet the challenge of sustainability, which is an issue of major concern. The Minister encouraged participants to take the opportunity of the SPM to share knowledge and experiences.

DFID statement on SEACAP by Peter O'Neill

SEACAP was launched with an uncertain future but DFID is proud of its work and pleased with its successful impacts to date, which have achieved a high regional profile. The SEACAP components of sustainable transport, research and its implementation in appropriate designs by the users attending the SPM demonstrate the impacts of SEACAP.

Good knowledge is essential for sound investments in road infrastructure. The outputs from the DFID-sponsored KAR (Knowledge and Research) Programme were disseminated through TRL Road Notes. Currently, information from DFID-sponsored research in programmes such as SEACAP and AFCAP (African Community Access Programme) is being shared through the Global Transport Knowledge Partnership (gTKP). It is an umbrella organisation aimed at creating and disseminating knowledge to influence positive change. It has seven themes each headed by a theme champion. The rural transport theme is headed by Rob Petts. The theme champions are overseen by Charles Melhuish and both Charles and Rob are attending SPM together with the technical managers of SEACAP (David Salter) and AFCAP (Rob Geddes).

23% of WB loans are in the transport sector with the aim of stimulating research and innovation to improve sustainability and performance in transport sector programmes. Good knowledge will be shared both through gTKP and the World Bank Transport Sharing Partnership (TSP) to facilitate knowledge exchange on a global scale.

More needs to be done at the local level through the involvement of local academic institutions with research outputs customised to meet local needs by local engineers, both of which are being undertaken in SEACAP. Documentation published in local languages can reduce barriers to knowledge-sharing and implementation. Increased participation by local institutions is needed to ensure the continuity of the collection of performance data from trials.

The speaker thanked all the collaborating organisations in SEACAP and delegates for attending the SPM with a particular mention for the SEACAP technical manager and requested continued support for the program which is currently due to end in 2009.

Overview of SEACAP with respect to objectives, scope of the work and future orientation by David Salter

The speaker thanked the MPWT in Laos for hosting the meeting and for its cooperation in SEACAP.

Examples of prevailing problems in the road sector were highlighted. Good knowledge facilitates technical and investment decisions which sustain the road network and preserve its value as a national asset. An example of the negative impact of under-investment in a rural road was presented. The objectives of SEACAP include influencing positive change and affordable and sustainable rural transport through new approaches such as life cycle costing, improved utilisation of local resources and mainstreaming of new technologies. These objectives are achieved through appropriate standards and specifications, guidelines of good practice, revised local policies and collaboration with academic institutions.

The following are examples of the range of SEACAP activities

Research

- Cambodia - engineered natural surfaces (ENS)
- Laos - Environmentally Optimised Design (EOD) and slope stability
- Vietnam – trials and performance monitoring

Mainstreaming

- Policies and strategies – Vietnam and Cambodia
- Standards and specifications – Laos
- Guidelines on technology choice, construction and maintenance
- Lectures, projects and courses at universities
- LVRR structures

Dissemination

- Conferences/meetings/workshops
- Website
- Media
- gTKP

The focus will now be on completing the current SEACAP projects and continuity during the transition period. Amongst the lessons learned from SEACAP were that research on active roads is difficult but enhances relevance, the benefits of an engaged and continuous presence of expertise and the need to adapt to a changing environment. The need for a long term commitment was stressed to continue monitoring and gain maximum benefit.

The suggested way forward included the need for Communities of Practice to professionalise and sustain the SEACAP objectives of transferring knowledge in to current practice. The SEACAP approach has worked with outputs already achieving positive impacts from research and innovation with long-lasting benefits to local communities.

Vietnam Country Progress Report by Dr Nguyen Van Nhan, Director of Department of Science and Technology in the Ministry of Transport

The principal areas of collaboration with SEACAP in Vietnam are

- Rural road surfacing research.
- Inter ministerial and program cooperation for rural transport development.

SEACAP 27: Monitoring the performance of the trials from RT1 and RT2

The current monitoring phase of 41 trial sections in 12 provinces using the SEACAP 1 guidelines will be completed by the end of 2007 and the data available will be analysed to update the cost and performance models, although monitoring is expected to continue after 2007. This will enable appropriate technology choices to be made in the future development of rural roads.

SEACAP 24: Investigation of distressed trial roads in Dak Lak province

Two of the roads which deteriorated rapidly are being examined to determine the causes of the rapid deterioration.

SEACAP 30: Extending the RRSR to new provinces – RT3

Trials are being designed to extend the RRSR programme.

DF55: Dissemination of the Low Volume Rural Road (LVRR) knowledge and experience

This project is designed to improve the sustainability of the LVRR programme by disseminating knowledge to provincial engineers.

The Government of Vietnam has made the improvement of rural transport a national priority and has committed 1% of GDP to the programme. Support is being sought in three areas.

- Research RRSR - extending the programme to other provinces
Slope stability – similar programme to Laos
Inland water transport - developing this mode
- Dissemination RRSR – build further on inter-Ministerial cooperation
Regional cooperation – regional knowledge exchange
- Mainstreaming LVRR standards – specifications and guidelines
University courses
In-service training – provincial, district and commune

Cambodia Country Presentation by H.E. Sous Kong, Secretary of State, Ministry of Rural development

The report included progress on projects and on future priorities.

SEACAP 6: Infrastructure constraints to growth and poverty reduction in Cambodia. The Rural Road Policy and Rural Road Development Strategy documents are awaiting official endorsement

SEACAP 20: Development of locally made, low cost equipment for the road sector. The project found that the local market in the region could respond to the demand for equipment for road sector projects.

SEACAP 19: Development of local resource-based standards. This project will be completed by the end of 2007. It is being undertaken in collaboration with the Institute of Technology Cambodia (ITC).

The low-cost structures manual is in final draft.

An important output of SEACAP2 has been the formation of the Cambodian National Community of Transport Professionals (CNCTP) providing consultative and dissemination capacity and links to organisations such as IFRTD.

The Royal Government of Cambodia intends to make rural development a national priority. Future activities will include.

- Research Rural Road Research - new projects are being formulated
Inland water transport – development
- Dissemination Nationwide dissemination of the Rural Road Policy/ Strategy
Project formulation – Need for support and advice
Regional Cooperation - Regional knowledge exchange
- Mainstreaming CNCTP – a professional body with international links
LVRR Standards, specifications and guidelines
University courses
In-service training - provincial, district and commune

Lao PDR Country Progress Presentation by Laokham Sompeth, Director General, Ministry of Public Works and Transport

Rural poverty reduction is the central objective of the Government of the Lao PDR over the next 10 years and a key element of the strategy is the cost effective improvement of rural transport infrastructure.

There are three key areas in the program.

- Sustainable and appropriate technologies for local road surfacing and paving and slope stability management

SEACAP 17: ADB/NEC Paving and surfacing trials. National knowledge exchange workshop held and first round of monitoring to be completed this year.

SEACAP 31: SIDA Samphan road paving and surfacing trials. Appropriate paving trials in 5 mountainous locations to test local standards and specifications and the EOD Manual.

SEACAP 21: Slope stability Field trials completed and now testing the manuals and handbooks and integrating knowledge into the engineering faculty of the National University of Laos.

- Appropriate standards, specifications and Guidelines

A high priority is to develop local solutions and apply them within a local framework of standards and specifications for all LVRR projects in Lao, given the range of regional and international organisation operating in the country.

SEACAP 3: LVRR standards, specifications and guidelines. These have been compiled and a manual is being developed for their application in an EOD approach.

- International and domestic knowledge, experience and information exchange

The activities with SEACAP support include:

- DF 63 ADB Transport Forum
- DF 69 National Workshop on Rural Transport and Poverty Reduction
- DF 71 NUoL Study Tour of slope stability projects
- DF 76 Translation of TRL Overseas Road Note (ORN 18)
- DF 78 Japanese Landslide Hazard Conference

Future priorities will include:

- Research Rural road technology
Slope stability
Inland water transport
- Dissemination Local roads standards, specifications and guidelines
Regional cooperation
- Mainstreaming Support for integrating research outputs into new projects
University courses
In-service training at provincial, district and commune level

SEACAP 24: A Case Study of the premature failure of a trial road in Dak Lak Province, Vietnam by Jasper Cook, John Rolt, Bach The Dung and Pharn Gia Tuan.

This presentation described the outcome of an investigation into the reasons for the premature failure of some of the trial sections constructed in Dak Lak province in Vietnam. The trial sections were part of an investigation of alternative surfacing options for rural roads because maintaining gravel roads in a satisfactory condition had been found to be unsustainable in parts of Vietnam. The trials were incorporated into the SEACAP activities in Vietnam.

The trials were constructed to local design standards specified for Commune Class A roads. The structural design and surfacing characteristics of the trial sections were presented, each of which was designed to carry the expected traffic over a 10 year design life but rapid deterioration was observed on some sections within 6 months of the completion of the trials.

It was observed that two sections of similar design constructed by different contractors performed very differently, suggesting different levels in the quality of construction. Intensive site investigations, traffic surveys and laboratory testing of the construction materials were carried out to determine the factors causing the accelerated deterioration.

The results from the investigations concluded that

- The design was suitable for Commune A traffic
- Some of the construction materials were out of specification
- The as-built road was suitable for Commune A traffic but would probably have required periodic maintenance in its 10 year design life
- The as-built road was totally inadequate for the actual traffic
- The road carried double its 10-year design traffic during the first 6 months and this was the primary cause of failure but its poor construction and the use of sub-standard materials was also a contributing factor.

An acceptance of supervisors' authority to ensure the on-site compliance of standards and specifications by contractors is an important factor that influences construction quality as well as acknowledgment of the importance of recording the on-site and laboratory testing of materials.

SEACAP 27 Mid-term pavement condition monitoring of the rural road surfaces by Pham Gia Tuan

SECAP 27 is being carried out by TRL as the lead consultant in association with OtB Engineering, TEDi and the University of Transport and Communication in Hanoi.

Its overall objectives are the essential continuation of monitoring of the rural road surface trials (RRST) as part of the Rural Roads Surfacing research to determine the suitability of a range of rural road pavement options and assign whole life costs to them that will help define the limits of their usage.

Also as part of the project will be an updated and improved database, links between the data from short-term and longer-term monitoring, an updated RRST cost model and a pavement selection procedure for rural roads with key documents posted on the relevant website. Of particular relevance is the extension of the 5.89km in the RRST-1 programme to 121.09km in the central highlands (RRST-2), which is a significantly different environment. A total of 12.57km in 100m and 200m sections are being monitored.

Under the project relationships have been re-established between TRL, MoT, RRST steering committee and the World Bank and the Vietnam Road Authority (VRA). The VRA has been identified as the institutional home of the RRST data.

Data collection and analysis is continuing with development of the Damage Extent Index (DEI) and Damage Condition Index (DCI) being established to indicate the scope and level of damage to the road.

SEACAP 27 is beginning to provide valuable performance data and the work needs to continue to ensure that the resources committed to the research are not wasted.

(The chairperson commented that the lessons learnt from the earlier SEACAP RRSR phases are being used Rural Transport Project 3 which is being sponsored by DFID and the World Bank)

SEACAP 30 Rural Road Surfacing Trials III: Co-operation with RT3 Provinces by Bach The Dung

Following the success of the previous trials, the MoT proposed that the WB and DFID support surfacing trials (RRST-III) in some of the 17 provinces in Central and Northern Vietnam which are participating in the Third Rural Transport Project.

The test sections will include a bitumen emulsion seal, Otta seal, cement concrete bricks, DBM, quarry-run sub-base/shoulder and unreinforced concrete. The provinces proposed the use of local consultants experienced in RT3 designs and the use of locally certificated laboratories for materials testing.

Provinces can apply experience from neighbouring provinces but the results from local trials may be more readily acceptable. There are clear benefits from the involvement of local stakeholders. The technical lessons learnt from earlier trials will be applied. Most provinces are keen to try an Otta seal.

Implementation planning is continuing with further support expected from DFID and the WB. Although SEACAP30 is due for completion in January 2009, continued support is essential for the research and for the benefits from the results to be realised.

DF 55: Transfer of low-volume rural road knowledge and experience by Do Huan

The primary objective of the project is to improve the sustainability of low-volume rural roads improved and maintained by the Ministry of Agriculture and Rural Development (MARD) and the Integrated Rural Development Sector Project for Central Provinces (IRDSPCP). The strategy is to transfer the technical knowledge developed in the RRSR to 10 trainers in the MARD and MoT and to 90 IRDSPCP provincial engineers in the 13 provinces.

The project began in July 2008 and is due to be completed by December 2008. The project consists of a competency-based training programme both for the initial training of trainers (TOT) and the main courses. These courses are designed to produce sustainable outcomes with the active involvement of local authorities.

The project uses a modular approach to training with emphasis on learning by doing. Sustainable support is provided through the web site. The methodology adopted comprises task groups for programme planning, development of training programmes, TOT course implementation and for support and monitoring of the main courses.

Quality assurance is effected through continuous self-assessment procedures combined with examination and evaluation. The LVRR TOT and main courses include indoor training and field studies in cooperation and support coordinated through SEACAP, MARD, MoT, and EDUCONS.

The outputs from the project include a LVRR curriculum and training materials for trainers, similar material for implementation staff with 10 trainers and 90 technical and management staff trained in 13 provinces. A major outcome has also been the unprecedented level of cooperation between different Government Ministries in Vietnam and their commitment to the project.

SEACAP 19 Development of local resource-based standards in Cambodia by Heng Kackada

The project has the three main components of applied research, studies and project document development.

The applied research component includes the behaviour of bamboo reinforced concrete and engineered natural gravel pavements. The studies component includes the development of a manual for small structures and a unit rate costing system. Project documents include lime stabilisation, WBM and other pavement options, pavement upgrading, embankment protection and a materials database.

Various technical papers have been produced on the above topics, which describe the knowledge gained from the research and provide a sound basis for the way forward. Of considerable importance is the result of research on bamboo reinforced concrete pavements which has concluded that the technique is of no significant benefit in the construction of LVRR's and is not recommended for use in road pavements.

Support for local engineers working to provide Engineered Natural Gravel Surfaces (ENS) continues and further support and training remains essential. The draft manual on Low Cost Structures (LCSM) is being reviewed in advance of the preparation of the final version.

Key tasks for the future include a final workshop on SEACAP19, follow up of the recommendations in the technical papers, regional dissemination of the LCSM, continued monitoring of the trials, dissemination of university course modules, the development of standards and specifications (SEACAP 3) and integration of the RRSR knowledge with other donor programmes.

SEACAP 19 A pilot road materials database for Cambodia by Jasper Cook

The key objective in rural road provision is to best match the available construction materials to road function. This is a key requirement in areas with poor road construction materials but it requires knowledge of the occurrence and properties of locally available materials.

The location of roadbuilding materials is usually undertaken as a specific task associated with each road project. The uncertainty of the location and quality of materials leads to uncertainty in design and high costs. A national Road Materials Database (NRMD) can play a key role in the identification of and quality of local materials. The knowledge contained in a NRMD can be of benefit to local communities, government departments, research institutions, practitioners and donors by reducing the costs of road construction and adverse environmental impacts.

In SEACAP 19 (Task 7) the assignment is to establish a methodology for assembling and managing a database of naturally occurring road construction materials in Cambodia. The information would be based primarily on existing quarries linked with other materials databases and a GIS. Forms for logging the information have been prepared.

It is important that materials used for road construction are neither sub-standard nor excessively above the standard required for the road to serve its anticipated purpose. The research is aimed at providing a working pilot system for the database and a defined procedure for developing this pilot system into a National Materials Database that will enable the more effective to be made of the naturally available resources in Cambodia.

The usual requirements of political will, institutional capacity, technical capability and financial commitment are essential for maintaining the momentum necessary to achieve this goal.

SEACAP 17 Lao PDR by Simon Gillette

The main objective of the project is to identify cost-effective methods of improving all-year sustainable access to the rural poor through low-cost, locally resource based improvement of

problematic lengths of road in the Lao PDR. An additional objective was to raise awareness in Lao PDR of the results of relevant SEACAP research carried out elsewhere in the region.

The project is located on access roads near the Northern Economic Corridor (NEC) linking Thailand, Lao PDR and China. The technical assistance for managing and supervising the project is financed through SEACAP with the MPWT and ADB financing the civil works. The research was implemented in four modules namely project planning and implementation, management and data capture, data interpretation and dissemination of information.

The trials were based on pavement types presented at a previous knowledge exchange workshop in Vientiane in 2004. They include a standard NEC gravel road, bamboo reinforced concrete, single and double Otta seals, geocell construction, handpacked stone, mortared stone, concrete paving blocks, sand seal and ENS. Some important construction issues emerged. Contractors have little interest in research and training of the 'foreign' contractors' staff was difficult due to insufficient skills and language problems. The supervising consultant did not have the authority to force the contractor to rectify poor work. The construction costs above subgrade were calculated for each section and projected whole-life costs calculated using a 6% discount rate.

Only limited conclusions on performance can be drawn at this early stage but other important conclusions include:

- There is a need for experienced engineers familiar with the region to explore possible solutions based on available resources and skills.
- The construction process has enabled comparisons of construction costs for the various pavement types.
- Contractual problems can occur when linking research to an ongoing project.
- Long term monitoring is required to develop deterioration models for the sections and enable mainstreaming of those which are most successful.
- Successes and failures are not always universally transferable in the region but need to be modified according to local environments, materials and skills.
- The EOD approach to a spot design philosophy may be the best approach.
- It is too early to make definitive conclusions on performance but the single sand seal shows signs of deterioration, confirming experience of its limited durability in other environments.
- Unsurprisingly, the more expensive surfacing options were more durable and sustainable.
- Hand-packed and mortared stone surfaces appear likely to be the most cost-effective options but need staff skilled both in preparation and in laying.
- Drainage is particularly important in ENS roads.
- Sustainable benefits to local communities and governments are most likely if skills and knowledge are transferred to local staff rather than foreign workers.
- Contractor training in advance is most likely to produce better on-site performance.
- Local community participation in maintenance is important for sustainability of access roads.
- Maintenance considerations need to be considered at the time of pavement selection.
- Dissemination and training are essential for mainstreaming.
- Long-term monitoring is required.
- Optimal geometric design consistent with the adverse impacts of the terrain is important

SEACAP 3.01 Appropriate LVRR standards and specifications for Lao PDR by Bounta Meksavanh

The aim of the project is to develop and mainstream appropriate rural road standards based on road function and available resources. Formal standards provide the framework within which resource-

based LVRR options can be mainstreamed with appropriate technical specifications. The key issues are designs and options based on the road requirements, available budgetary, human, materials and construction resources and are appropriate to the environment (i.e. Environmentally Optimised).

Standards must comply with Lao PDR road laws and regulations, be based on the road function and fall within the LVRR traffic envelope (Upper axle load of 4.5T and maximum ADT of 150 plus an assessment of key vehicle types). Key functions of LVRR's include catering for mixed traffic (including pedestrians), safety, reduced traffic speed and the provision of wide shoulders.

The use of local materials is essential together with an EOD and spot improvement strategy to reduce costs.

The key outputs from the project are

- A new LVRR classification
- A matrix of pavement and surfacing design options
- Guideline documents for surfacing and pavement design

The application framework is based on whole life costing and Environmentally Optimised Design (EOD) as shown in the photographic examples in the presentation.

SEACAP 3.02 and 31: Mainstreaming and trialling low volume rural road standards and specifications by Simon Done

Appropriate standards depend upon materials, terrain, gradient, drainage, funding, rainfall and climate, community involvement, subgrade, health and safety, access needs, green environment, construction and maintenance capacity and traffic (including pedestrians).

The design approach for LVRR's varies both between roads and along the length of the road. A spot improvement approach is appropriate if funds are scarce with prioritisation on passability and safety. The next steps are mainstreaming through a LVRR manual (SEACAP 3.02) and site trials of revised standards and specifications (SEACAP 31).

Trials of the LVRR manual, the standards and specifications and training are being carried out on the Samphan road in Phongsali Province. These include CBR testing, confirmation of gradients and discussion of design options. Focus has been concentrated on improving steep sections and through villages with classroom and on-site training of contractors and other stakeholders... Some delays have occurred due to rain and landslides.

Knowledge gaps in the provision of sustainable LVRR's by John Rolt

The knowledge process in the road sector is one of identifying the problem, accessing and evaluating the required technical knowledge, preparing standards and specifications, applying quality control to ensure sound application and conducting the maintenance necessary to ensure long life. The process of acquiring knowledge and using it is complex. New knowledge takes a long time to be accepted. Historically there are examples of new knowledge that have taken over 200 years to be accepted.

More recent examples are available of technical knowledge which has taken decades to be accepted. Typically, it takes one professional generation for the acceptance of engineering knowledge, although there are few fundamental knowledge gaps in LVRR engineering. The problem is applying available knowledge to specific local circumstances.

Two main problems in analysing the performance of roads are variability and quality. Overall costs of LVRR provision can be reduced by 60% to 70% by the right choices. Monitoring and data collection

are essential in providing statistical evidence on road performance and this requires long term commitment. Knowledge gaps can be personal, national or international. Engineers tend to be conservative because disasters have occurred when the boundaries of knowledge have been pushed too far but there are also other barriers, both known and unknown to the acceptance of knowledge.

Mainstreaming new knowledge is helped by demonstration projects. In LVRR's, identification of the benefits to NMT's, pedestrians and social benefits would help acceptance. Sometimes the presentation of knowledge is too prescriptive which can deter acceptance.

It is important to understand the barriers and know how to overcome them.

Discussion on LVRR sustainable engineering

The initial discussion centred on the need for systems that deliver better quality control in the provision of LVRR's. It was suggested that things are sometimes done badly because somebody benefits. Incentives for good practice could help. Road managements systems might help improve quality.

The delay in acceptance of good knowledge was a general concern with discussion on the potential barriers to implementation. The application of new knowledge needs considerable guidance and is greatly facilitated by explicit government support, which is a prerequisite in formulating new standards and specifications.

The funding and management of the maintenance of rural roads appears to remain a problem even in countries with an established road fund. It was suggested that perhaps road maintenance capacity can be factored into the design of LVRR's. The link between axle load control and maintenance was discussed with the conclusion that technically axle load control is not difficult but it needs political support.

It was suggested that a shorter design life for LVRR's might be preferable if traffic growth rates are uncertain.

Road safety and passability issues were raised, especially with relevance to the disabled, of which 82% reside in rural areas. The impact of traffic accidents on the poor was also raised. It was confirmed that road safety is not part of SEACAP.

The relative quality of LVRR's constructed by conventional and labour-based methods were discussed. Evidence of comparative costs is available in Cambodia. Labour based methods are initially more costly but can be cheaper if all the benefits are considered. It was pointed out that SEACAP is not a labour-based programme. The technology used was deemed to be the most appropriate and depended on the task and on the availability of labour.

The issue of bamboo reinforced concrete (BRC) was discussed and it was stated that most recent research has confirmed that this type of construction should no longer be recommended. Unreinforced concrete roads are common in the Philippines but they need a good support layer.

Evidence from Lao PDR on sand seals appears to confirm other international evidence that single sand seals are not cost effective in whole life cost terms.

The difference between road function and road classification and its influence on design and performance were discussed.

It was stated that rates of gravel loss are high on roads in areas with steep gradients and high rainfall even when traffic is light and there is a need for more durable solutions.

Support was expressed for the SEACAP approach and the positive impact that it is having on the region. The sharing of knowledge between the participating countries has been beneficial with many impacts including creating awareness of alternative approaches by academic institutions.

3. HIGHLIGHTS OF PRESENTATIONS AND DISCUSSIONS DAY 2

gTKP – A partnership for global transport knowledge by Charles Melhuish

gTKP is an innovative partnership aimed at making more effective use of existing transport knowledge with a particular focus on developing and transition countries. It was formed in recognition of the role of transport in social and economic development and the need for an independent global forum to serve practitioners in the sector.

Its over-arching goal is the achievements of the millennium development goals. Its purpose is to identify transport knowledge, improve access to it and promote good practice through networking and long-term partnerships.

gTKP covers the seven theme areas of road safety, governance, rural transport, urban transport, social development, finance and economics, climate change and environment, which form a community of practice. It delivers by providing information through its website and direct access to its theme champions, a monthly newsletter, workshops and conferences and general information.

The activities of the various themes were described with information on how to become a member of gTKP. Further information and contact details of the theme leaders can be found on the gTKP website, info@gtkp.com

gTKP rural transport by Robert Petts

The transport theme of gTKP seeks to use knowledge to improve rural access and thereby reduce poverty.

The main activities include web pages on key topics, signposting of key documents, newsletters, discussion groups, professional papers and articles, seminars and workshops and a technical enquiry service.

Specific current RT enquiries include

A review of intermediate equipment in Vietnam (low-cost locally manufactured equipment).

A report on the use of rice husk fired clay bricks for low-cost low-maintenance roads in areas lacking in roadbuilding materials.

A report of the potential use of agricultural sector products in the rural road sector. (wood or palm lignin, pine resin or tan oil, resins, pozzolans, geotextile and biofibre reinforcement.

Development of the IFG Technical Information Notes (TINs)

Cooperation with SEACAP and AFCAP

Future planned outputs include a low-cost structures manual (with SEACAP), an international document on surface/paving options, a review of road maintenance, prioritisation of knowledge gaps, a review of ORN's, email discussion groups and a follow-up of green road technologies.

It is suggested that road maintenance should be the starting point for planning rural transport infrastructure initiatives.

Questions to be addressed by the theme in the future will include:

How can we more effective in rural transport knowledge management?

How can we improve the mainstreaming of transport knowledge?

How can we mobilise more resources to sustain the gTKP initiative?

The two important dissemination forums for S E Asia are the gTKP website and SEACAP (www.seacap-info.org)

An introduction to the Africa Community Access Programme (AFCAP) by Robert Geddes

LVR's are used by various forms of transport (cars, buses, trucks, tractors, bullock carts, bicycles, etc) and pedestrians and for access to essential services (schools markets, health centres, work opportunities, etc). The roads vary in design and condition and many roads pose safety problems for their users.

The institutional constraints to rural transport provision in Africa include a lack of clear policies, inadequate management capacity, inadequate funding, and undeveloped contractor capacity. AFCAP is a DFID funded programme managed by Crown Agents undertaking knowledge dissemination and research. It started in June 2008 with 5 year budget of £7.5

Any of the 53 African countries can participate. Mozambique, Malawi, South Africa, Ghana and Ethiopia were preselected to start the programme and others have expressed an interest in joining the programme. It has links with organisations such as ASANRA, ARMFA, SSATP, gTKP and ILO and research and academic institutions in Africa.

As with SEACAP, its approach will be research, dissemination and mainstreaming. Project will be selected on the basis of strong local ownership, research or knowledge dissemination, sustainable improvements to rural transport, build national or regional capacity.

All pre-identified countries have been visited as well as regional institutions. Host coordinators have been identified and the first AFCAP project has begun in Mozambique. Experience from SEACAP will benefit AFCAP.

A leaflet on AFCAP is given in Appendix I.

Networking for south-south cooperation by Ranjit de Silva

The International Forum for Rural Transport Development (IFRTD) is based in the UK with 4 regional coordinator offices in Kenya, Cameroon, Sri Lanka and Peru. It is a global network of individuals and organizations working together for improved access and mobility for the rural poor in developing countries. It has 4000 members and 30 National Forum Groups. It is supported by SDC and SIDA.

IFRTD has developed a networked research methodology to ensure that the research findings relevant to poverty reduction are taken up by poor people and those that work with them. It aims to encourage learning, harness local knowledge, create national ownership, stimulate debate and create awareness raising opportunities.

Its international programmes include activities in gender and transport, mobility and health and a development toolkit for promoting rural transport infrastructure and transport indicators in collaboration with the World Bank. Innovative solutions are at the heart of many IFRTD projects.

The impact of improved access is reflected in many of the human development indicators such as education, maternal health, infant mortality etc. It also has an impact on the relative number journeys made by men and women. Information is disseminated through the Forum News and IFRTD Updates publications and on various websites.

IFRTD supports national and regional advocacy initiatives in cooperation with international organisations to sensitise donors and to develop the capacity of the National Forum Groups.

IFRTD has 15 years of networking experience. Current activities in Asia include facilitating south-south knowledge exchange, promoting inclusive transport initiatives for people with disabilities, collaboration with ILO, SEACAP, gTKP, ADB, Practical Action, Helvetas, etc.

The IFRTD websites are www.ifrtd.org, www.ruralwaterways.org, www.mobilityandhealth.org.

Dissemination of SEACAP outputs abroad by Fergus Gleeson

SEACAP has been operational since 2004 with over 20 completed projects with other projects still ongoing. It has attracted international interest from countries other than the target countries.

There is evidence of its impact in Afghanistan and Sri Lanka although its influence may extend to other countries.

SEACAP work has directly influenced at least 9 projects in Afghanistan with a combined value in excess of \$190m and over 2600km of roads have been constructed under these projects. It has also influenced the uptake of a whole-life-cost approach to rural road provision.

There is a well-developed road sector in Sri Lanka but post-tsunami funding for the sector has increased with 3 paved road projects directly influenced by SEACAP with a value of \$40.6m.

SEACAP influence has been through advocacy (government and donors), demonstration projects (road trials) and participation by stakeholders at SEACAP events. Advocacy needs to be continuous with further examples of the impact of SEACAP projects. Demonstration projects need to be undertaken at sites easily accessible to potential users of SEACAP initiatives.

Value of transport research: a DFID perspective by Peter O'Neill

In 1995, UK Government research showed that for every £1m spent on R&D, UK society benefited by over £20m annually. Other studies have shown that economic growth is directly proportional to investment in research. DFID currently spends £4m per year on transport research for developing countries.

Research in the health sector other sectors has been responsible for vaccines that have saved millions of lives. In agriculture, the development of drought and pest-resistant crops has produced more frequent and higher yields thus contributing to food production in developing countries.

The investment in transport in Asia by 2020 is expected to be of the order of \$2-\$3 trillion. Currently, 23% of World Bank loans are in the transport sector. The total annual spend on road transport in the European Union is about 20% of GDP (i.e. 20% of \$16.6 trillion). R&D spend in the EU is about \$35 billion (approximately 1% of the total investment in road transport). In developing countries it is often close to zero, yet these countries have the greatest need. Road safety is a major concern. 85% of worldwide fatalities occur in developing countries costing these economies about 3% of GDP. The proportion of pedestrian casualties is three times greater than in developed countries. The impact of these fatalities on poor rural families can be devastating.

Poor access affects all road users. Local problems require local solutions. Research can help in providing affordable, sustainable and safe access as shown by the results from research projects in Africa and Asia, including SEACAP.

Transport research not only provides solutions to local transport problems but also yield high and lasting economic benefits.

Keynote address: SEACAP Agent for change by Robert Petts

SEACAP has been developing new knowledge in Cambodia, Lao PDR and Vietnam since 2004. It is timely to review progress and outputs, synthesise the knowledge and discuss future mainstreaming needs.

SEACAP has been an agent for change, with projects producing a better understanding of the performance of earth and gravel roads, solutions for slope stability and various road surfacing options. With the involvement of stakeholders, it has improved the understanding of the needs of the various road users, of road maintenance capacity, of the impact of EOD, of the importance of affordable standards and local specifications with the overall objective of improving sustainable access.

There is still a lot to do. Knowledge gaps remain but much of the good knowledge and good practice has still not been mainstreamed thus putting poverty reduction goals at risk, which suggests the need for better knowledge management. Knowledge needs to be better compiled and disseminated with the assistance of all stakeholders.

Community participation is essential at all stages with the recognition that intermediate transport is particularly important at tertiary spokes and hubs.

Recognition of the impact of effective management of the transport sector as a national asset is important. There is a clear link between poverty and access for the rural poor. The goal is a well maintained road network providing affordable and safe passage for all road users. Whole life costing, efficient contracting, quality assurance, controlled access by large vehicles and technical audits are all factors which contribute to an efficient transport network.

The development of local capacity is an important factor for sustainable development. This requires a commitment to education, training, demonstration and mentoring. Identifying key local champions can be an important factor for influencing change.

Access roads are complementary with other rural poverty reduction initiatives. The knowledge created through investment in the SEACAP and AFCAP initiatives can also be disseminated through organisations such as gTKP and IFRTD. The challenge is the effective mainstreaming of the knowledge gained through these initiatives.

Is ACAP (Agent for Change in Asia and the Pacific) a possible successor to SEACAP?

Discussion on the value of research and the keynote address

Maintenance funding is a key issue and the discussion began with a comment that unpaved roads in Nepal require high cost maintenance inputs due to the mountainous and highly dissected nature of the terrain. The funding is inadequate to maintain the roads in a good condition and more maintainable options may be required. The rural road development programme in Nepal presents an opportunity for research and to implement innovative solutions.

Recognition of the road network as a national asset changes the perspective towards maintenance. Preserving the roads as part of national asset management tends to improve opportunities for maintenance funding.

The definition of 'green' roads was raised and it was agreed that this term usually means environmentally friendly as opposed to bio engineering activities.

The relevance of SEACAP to University curricula was mentioned as an important factor in mainstreaming knowledge, and not just to engineers but to the wider transport sector of which few are represented at the SPM.

The chairman suggested that poverty alleviation was not explicit in the themes and that there needs to be more emphasis on inclusiveness. There is a need to place greater stress on accessibility issues, the benefits of local solutions and the sensitising of policymakers.

SEACAP 21/001 Slope stabilisation trials on Route 31N and Route 7 in Lao PDR by Gareth Hearn and Tim Hunt

The principal land use in Northern Laos is forest. 70% of the terrain is hilly. The structural geology is highly weathered metamorphic rock creating unstable slopes and embankments. Landslips are prevalent in the region. The project area is approximately 25km north of Vientiane in a high rainfall area (approx 2000mm annually) at elevations of between 450m and 1450m. 50% of the road network in hilly terrain is at risk.

The objectives of the project were

- to use best-practice and appropriate soil stabilisation methods using local materials and technologies
- to extend the technologies to cover specific landslips
- to assist in the procurement of trials
- to disseminate the results through workshops, manuals and specifications.

The project sites were divided into sites requiring predominantly bioengineering measures (3 sites) and sites requiring predominantly geotechnical measures (10 sites). The activities were constrained by the choice of sites, funding, contractor capability and innovation.

The sites were subjected to engineering geology mapping and ground investigations. Remedial measures were designed and construction drawings prepared followed by the remedial works.

A slope maintenance site handbook has been prepared for use by technicians and supervisors in English and Lao. The handbook gives guidance of the routine and emergency maintenance for slopes and for rehabilitation and improvement.

A Slope Maintenance Manual has also been prepared for road management professionals together with technical specifications for slope stabilisation and protection. Both documents are available in English and Lao.

Innovative approaches have been developed for dealing with the approach, bioengineering wall design, drainage and in the development of manuals.

There is a knowledge gap on the occurrence of landslips in the region.

SEACAP 21/003 Mainstreaming slope stability outcomes by Gareth Hearn and Tim Hunt

The objectives of this project are to:

- integrate the SEACAP 21 outputs into the core engineering courses of the National University of Laos (NUoL)
- field trial the SEACAP 21 approaches, design manuals and specifications within the MPWT.

The undergraduate engineering core curriculum was reviewed at the NUoL with revisions recommended for undergraduate and graduate theses and new courses. Interested students and other faculty members were incited to participate in the field trials.

A feasibility study was carried out to assess the magnitude and occurrence of landslips and their economic and social impact and also to assess the feasibility of a slope management programme within MWPT. The cost of landslips to the economy is approximately \$6m through delays and increased vehicle operating costs. A Risk Ranking procedure was also developed.

Six sites with slope stability problems were selected for field trials approaches using the design manuals and specifications in collaboration with MWPT. In-service training was carried out with provincial MWPT counterpart staff. A feasibility study was carried out in which a Risk Ranking procedure was developed. The benefits of SEACAP 21 include a review of the management of landslide management by MWPT.

Summary of key points and discussions by David Salter

Knowledge gaps can be individual, national or international. Data and its analysis can help fill these gaps and there is a need to prioritise and focus Information should have a defined institutional home. Dissemination of knowledge is important as is a long term commitment to research.

Sustainability is enhanced through a total asset management approach, appropriate technical solutions, integration of maintenance planning and investment and the integration of rural development initiatives.

Appropriate standards and specifications create a framework for the application of appropriate technologies together with an appropriate classification of roads which relate to function.

Quality assurance is clearly an important factor on road performance. Integration of financial and technical planning and auditing is required. The development of local capacity with the authority to carry out quality control is needed with possible rewards for good quality and penalties for poor quality. (i.e. carrots and sticks).

There is a need for continuous institutional strengthening together with demonstration projects and training to put good practice into practice.

There are clear economic and social benefits from transport research but it needs long-term commitment to continually update the results and quantify the benefits.

The speaker thanked the hosts, sponsors, presenters, facilitators, representatives of organisations, participants, the Crown Agents management team and the venue personnel.

4. CLOSURE OF MEETING

The meeting was closed by Mr. Laokham Sompheth who thanked the speakers, organisers and participants for their attendance at the SPM meeting in Vientiane.

A list of the participants attending the meeting is given in Appendix II.

5. DAYS 2 - 4: SEACAP 21 STUDY TOUR

A report for the study tour of the land slip sites was provided for the participants.



AFCAP - African Community Access Programme

THE IMPORTANCE OF ACCESS

Reliable access is essential for rural communities in Africa. Access is required to reach basic services and all kinds of economic and social opportunities. Unreliable and difficult access reduces growth opportunities and negates the benefits from investments in other sectors designed to improve the livelihoods of poor communities.

WHAT IS AFCAP?

The African Community Access Programme (AFCAP), a DFID funded research initiative, is designed to address the challenges of providing reliable access for poor communities. AFCAP will provide advice and undertake research to facilitate the delivery of safe and sustainable access. AFCAP will be based around a portfolio of research, demonstration, advisory and training projects, which will identify and support the uptake of low cost, proven solutions for rural access that maximise the use of local resources.

The outputs from these projects will feed directly into regional and national rural transport policies and strategies for poverty reduction.



The challenges of rural access in Africa

WHO WILL BENEFIT FROM AFCAP?

The main beneficiaries will be rural communities in Africa. They will benefit from improved access to investments in other sectors; better access to health and education services, improved road safety and greater gender equality in how the transport sector operates. AFCAP has the support of regional economic communities in Africa, the New Partnership for Africa's Development (NEPAD) and the Sub Saharan African Transport Policy Programme (SSATP). At the national level, Ethiopia, Ghana, Kenya, Malawi, Mozambique, South Africa, Tanzania and Zimbabwe have been directly involved in the design of AFCAP and the identification of its first project activities.



Improved access will benefit rural communities across Africa

HOW WILL AFCAP WORK?

AFCAP is not a new institution, but will work with existing organisations. It will work closely with programmes funded by other development partners, supporting innovative field research and bringing this knowledge into use. The Department for International Development (DFID) has contracted Crown Agents to provide a Core Management Group (CMG) for AFCAP. The CMG comprises Jeff Turner, (Programme Manager), Rob Geddes (Technical Services Manager) and Elinor Caborn (Project Manager). They will be supported by Crown Agents' head office in the UK and its international offices in the participating countries.

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Disclaimer: *This programme has been funded by The Department for International Development (DFID), however the views expressed do not necessarily reflect that of official UK Government policy.*

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APPENDIX II

Programme

TUESDAY 04 NOVEMBER - DAY 1		
Item	Time	Description
1	08:00 - 08:30	Registration
2	08:30 - 08:50	Welcoming address
3	08:50 - 09:05	DFID Statement
4	09:05 - 09:20	Overview of SEACAP with respect to objectives, scope of work, future orientation
5	09:20 - 10:05	Summary of Country Programs: Progress in Viet Nam, Cambodia, & Laos PDR
6	10:05 - 10:30	Coffee/Tea/Networking
7	10:30 - 12:00	LVRD Sustainable engineering
8	12:00 - 13:00	Lunch/Networking
9	13:00 - 14:45	LVRD Sustainable engineering (continue)
10	14:45 - 15:15	Coffee/Tea/Networking
11	15:15 - 15:35	LVRD technical knowledge gaps – Dr. John Rolt
12	15:35 - 16:50	LVRD Sustainable Engineering – Panel of Experts Discussion
13	16:50 - 17:00	Close of Day 1 programme
14	18:00	Reception/ Dinner at Don Chan Palace Hotel
WEDNESDAY 05 NOVEMBER - DAY 2		
15	08:30 - 08:35	Opening of session.
16	08:35 - 09:15	gTKP presentations
17	09:15 - 09:30	AFCAP presentation
18	09:30 - 09:45	IFRTD presentation
19	09:45 - 10:00	Dissemination of SEACAP Outputs abroad
20	10:00 - 10:15	Value of Research
21	10:15 - 10:30	Coffee/Tea/Networking
22	10:30 - 11:10	Panel of expert – Discussion of Value of Research
23	11:10 – 11:40	Key note address
24	11:40 – 12:00	Discussion of Key note address
25	12:00 - 13:00	Lunch
26	13:00 - 14:10	Slope stability
27	14:10 - 14:20	Summary of key points and discussions
28	14:20 - 14:30	Closing of Meeting
29	15:30	Field trip depart to Vang Vieng//or Cultural visit round Vientiane

APPENDIX III

LIST OF PARTICIPANTS

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