

UNITED REPUBLIC OF TANZANIA

Ministry of Infrastructure Development (MOID)
Prime Ministers Office, Rural Administration and Local Government (PMO-RALG)

Africa Community Access Programme
AFCAP

NAURU SPRINGS HOTEL, ARUSHA, TANZANIA 28 – 30 APRIL 2009

WORKSHOP ON MAINSTREAMING THE LOW-VOLUME SEALED ROAD APPROACH TO THE ANNUAL WORKPLANS OF ROAD SECTOR AGENCIES IN TANZANIA

WORKSHOP REPORT

TONY GREENING AND MICHAEL PINARD

(Workshop Facilitators)



CONTENTS

	Page
1. Introduction.....	3
2. Background.....	3
3. Objective.....	3
4. Workshop Programme.....	4
5. Highlights of Day 1.....	4
6. Highlights of Day 2.....	7
7. Highlights of Day 3.....	8
8. Workshop Resolutions.....	12
9. Conclusions.....	12
10. Workshop Closure.....	12
11. Workshop Evaluation.....	13

APPENDICES

Appendix 1: List of Participants.....	14
Appendix 2: Opening Speeches and Closing Comments.....	18
Appendix 3: Evaluation Report.....	27

1. INTRODUCTION

This is a report on the presentations, discussions, actions, resolutions and site visit which together formed the programme of activities for the workshop on “Mainstreaming the Low-Volume Sealed Road Approach in the Annual Workplans in Tanzania.”

The workshop was jointly sponsored by the Road Fund Board (RFB), the Ministry of Infrastructure Development (MOID), the Prime Minister’s Office Regional Administration and Local Government (PMO-RALG), the Tanzania Road Agency (TANROADS) and the African Community Access Programme (AFCAP).

Attendees at the workshop included the Deputy Minister from PMO-RALG, the Chairman and Manager of the Road Fund Board the Technical Manager of AFCAP, other representatives from the sponsoring organisations and delegates from various public and private organisations with an interest in the road sector in Tanzania. A full list of participants is given in Appendix 1.

2. BACKGROUND

Gravel roads form a significant portion of the trunk road network in Tanzania. Most of these roads carry low traffic volumes but have strategic significance in the national road network. Gravel roads are subject to rapid deterioration due to environmental factors and traffic. The resultant maintenance demand is high, threatening the future sustainability of the network. Meanwhile wearing course quality gravel is becoming increasingly scarce, or is available only at long haulage distances. This further increases the cost of gravelling and re- gravelling roads.

Tanzania subscribes to the principles of the SADC Guideline on Low-volume Sealed Roads (LVSR). This Guideline enables a more comprehensive and coherent approach to the use of locally available materials for low volume road construction. The major impacts of adopting such approaches include a reduction of life-cycle costs, a reduction in the continuous exploitation of non-renewable gravel sources, lower vehicle operating costs, environmental benefits due to reduced erosion, and health benefits due to reduced dust. Despite widespread acceptance of the approach in Tanzania, it is not yet being implemented on a national scale. The Tanzania Road Fund Board wishes to initiate a process that will identify and overcome barriers to adoption of the LVSR approach, and will mainstream it in the annual work plans of the road agencies.

The Africa Community Access Programme (AFCAP) has been asked by the Road Fund to support a Strategic Planning Workshop for Low Volume Sealed Roads in Tanzania. AFCAP is a research programme funded by the UK government, which is promoting safe and sustainable rural access in Africa. AFCAP supports knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources.

3. OBJECTIVE

The overall objective of the workshop was to develop a draft strategy for the adoption of LVSR approaches on a national scale in Tanzania by:

- Reviewing current approaches to the provision of low volume roads in Tanzania (current works and past experience, design standards, financing, maintenance systems)
- Identifying barriers to implementing LVSR approaches on a national scale
- Preparing a strategic plan to overcome the identified barriers.

4. WORKSHOP PROGRAMME

The workshop activities broadly followed the programme shown in Appendix 3 with some minor amendments. The workshop delegates completed all the assigned tasks within the programme schedule.

5. HIGHLIGHTS OF DAY 1

The workshop began with welcoming remarks by the Manager of the Road Fund Board, Mr Joseph Haule, who was also Chairman of the Workshop Organising Committee.

Highlights of the address included:

- A welcome to dignitaries, guests and participants
- Confirmation that there were approximately 65 participants from various institutions in Tanzania
- The workshop was hosted by MOID in collaboration with AFCAP, Road Fund Board, TANROADS, and PMO-RALG, with representation on the Organising Committee
- Expression of thanks to the collaborating institutions with special reference to AFCAP for funding the workshop
- Expression of thanks to CRDB Bank for sponsoring the course dinner
- A reminder that participant support is required throughout the workshop
- Assistance to participants would be available through the Event Manager, Mr Charles Massawe and Workshop Administrator, Ms Roselyne Mariki.

This was followed by an address by the Chairman of the Road Fund Board, Mr Phillip Magani, in which he welcomed the Guest of Honour, Deputy Minister Aggrey Mwanri in PRO-RALG and other participants.

Highlights of the speech included the following items:

- 90 percent of the Road Fund is dedicated to maintenance and 10 percent to development
- Only 7 per cent of the road network in Tanzania is paved.
- Maintaining the remaining 86,473 kilometres of unpaved roads with the limited funds available needed a constant “fire-fighting” approach.
- The workshop is timely in terms of actions being undertaken for stabilising the road network and preserving the road network asset.
- A current initiative to improve the situation is being spearheaded by the Road Fund as part of the high level Joint Transport Infrastructure Sector Review.
- The Road Fund Board and the other sponsoring institutions were pleased to be able collaborate with AFCAP representatives in organising the workshop.

This was followed by an address by the Deputy Minister’s which included the following items:

- A welcome to the facilitators to Tanzania.
- Confirmation that the objectives of the workshop in contributing to the goals of economic and social development, poverty reduction and improved livelihoods are in line with the Vision2025 goals for Tanzania and the National Strategy for Growth and Reduction of Poverty (MKUKUTA).
- Acknowledgement of the importance of road infrastructure in contributing to access by rural communities to basic services, markets and other opportunities vital for increasing rural incomes, agricultural diversification and improved quality of life.
- The potential contributions that the research, dissemination and training activities in AFCAP and the principles of the SADC Guideline approach of promoting the use of local resources could make to achieving road sector goals in Tanzania.

- Agreement that whilst the principles of the SADC Guideline were accepted in Tanzania, they were yet to be implemented on a national scale.
- Reforms in road financing and management and the establishment of the Road Fund Board, together with other measures being undertaken by Government have increased the Road Fund to over TSh218 billion for 2007/08.
- Government will continue to support partnerships as demonstrated by the organisation of the workshop together with knowledge exchange and implementation of good practice in the provision of Low Volume Sealed Roads (LVSRs).
- The Deputy Minister declared the workshop open.

The full text of the opening speeches is given in Appendix 2.

The Workshop then received some scene-setting presentations beginning with one by the Technical Manager of AFCAP, Robert Geddes who presented a brief summary of the African Community Access Programme (ACAP). Highlights of this presentation included:

- AFCAP is a research and knowledge dissemination programme promoting innovative solutions for improving access for rural communities
- AFCAP is funded by the UK Department for International Development (DFID)
- It aims to help overcome technical and institutional barriers to change.
- AFCAP projects must be able to fulfil four conditions for acceptance
- Collaborating partners in Tanzania
- Activities to date.

This was followed by a presentation by Mike Pinard in which he gave an overview of approaches aimed at the sustainable provision of sealed roads carrying low traffic volumes. Highlights of the presentation included:

- A definition of a low-volume road
- The importance of low-volume roads and the links between road infrastructure and economic development
- The limitations of gravel roads in providing all-weather access
- The benefits of sealed roads to communities
- The change of approaches for low-volume sealed road provision recommended by the SADC LVSR Guideline, for which Tanzania professionals provided inputs
- The importance of community inputs to the decision making processes
- The Life Cycle Cost approach to sealed road provision and how this can lead to upgrading at lower threshold levels of traffic
- The principles of Environmental Optimised Design
- The effects of moisture on pavement performance
- Impacts of various approaches to geometric and road pavement design
- The need for specification and standards and compaction techniques which enable best use to be made of local material resources
- The principles of resistance to change
- The benefits of adopting new approaches

Then followed a presentation by Joseph Nyamhanga in which he described experiences from the application of an Otta Seal in the Kagera region in Tanzania. Highlights of this presentation included:

- A review of the various surfacing options for sealed roads
- A description of the road network in Kagera region and its location in Tanzania
- Various aspects of the constituent components of an Otta seal
- Costs relating to the application of a Otta seals

- Practical aspects of its application
- Photographs taken before, during and after construction
- The challenges encountered during its construction
- Conclusions and recommendations from the experience

The presentation presented clear evidence of the benefits that can accrue when local engineers, who are champions for change, adopt, adapt and apply new approaches for the benefit of road users in Tanzania.

Tony Greening gave a presentation on experience from the South East Asia Community Access Programme (SEACAP) which is a similar programme to AFCAP. Highlights of this presentation included:

- SEACAP goals are similar to AFCAP
- SEACAP has been in progress for 5 years
- Participating countries are Cambodia, Laos and Vietnam
- It provides opportunities for research, demonstration trials of innovative technology using local resource-based technologies, knowledge exchange and training
- SEACAP is also funded by the UK DFID
- Research needs and road safety issues
- Problems are both similar (sustainability of gravel roads) and different (land slips) than in Africa
- List of surfacing options used in trials
- Development of new approaches and guidelines for bioengineering
- Evidence of the impacts of SEACAP

Highlights of the discussions on the above presentations included:

- Clarification of costs and technical issues relating to Otta seals
- Benefits of sealed shoulders and adequate drainage
- Important contribution of research and the need for feedback from trials
- The importance of knowledge exchange
- The benefits from end user implementation in, and knowledge exchange between regions
- The importance of political support
- The need for flexibility in design and the importance of good drainage
- The need for greater involvement by communities
- Importance of making stakeholders aware of the initial (gravel road) appearance of Otta seals before the project commences
- Confirmation of the good performance of Otta seals in Tanzania
- The importance of feedback and dissemination of information from surfacing trials
- The benefits of Life Cycle Cost approaches
- Suggestions for additional contributions to development from the Road Fund
- The need for assistance in implementing new approaches
- The need for sustainable commitment and funding

The workshop then split up into groups tasked with identifying the barriers and constraints to implementing the LVSR approach in Tanzania under the sustainability headings:

- Institutional
- Economic
- Technical
- Social

- Financial
- Political
- Environmental.

The outputs from the groups were combined with issues raised in discussions in the plenary sessions to produce the list of barriers and constraints shown in Table 1.

The workshop activities in Day 1 concluded with a presentation by Mr Bennett Bankobeza of CRDB Bank. Highlights of the presentation included:

- A list of CRDB branches and locations
- Organisations served
- Financial services provided by the bank to the road sector
- Features of term loans and overdrafts
- Securities accepted by the bank.
- Benefits of the loans offered
- Challenges experienced by clients applying for loans
- Solutions for clients wishing to access loans

CRDB Bank hosted the workshop dinner.

TABLE 1
Current Practice and Barriers to Successful Mainstreaming the LVSR Approach in Tanzania

Dimension	Barrier/Constraint
<ul style="list-style-type: none"> • Institutional 	<ul style="list-style-type: none"> ○ Inadequate capacity at LGA level ○ Institutional resistance to change ○ Lack of top management support to implement new ideas ○ Limited technical capacity to evaluate new technologies ○ Aversion to risk taking/sharing associated with the introduction of new technology ○ Lack of training curriculum that covers the LVSR approach ○ Inadequate community involvement/participation in LVSR planning ○ Inadequate multi-disciplinary inputs (environmental, social, etc) at planning stage of LVSR projects ○ Little incentive to examine innovative technologies pertaining to LVSRs
<ul style="list-style-type: none"> • Economic 	<ul style="list-style-type: none"> ○ Tendency to focus on initial construction costs that favour gravel option rather than life cycle option that might favour sealed option ○ Inability to capture social and environmental benefits in LVSR appraisal models
<ul style="list-style-type: none"> • Technical 	<ul style="list-style-type: none"> ○ Insufficient research on locally available materials ○ Inappropriate/outdated specifications and standards for non-standard materials ○ Lack of effective overload control ○ Inadequate capacity of local contractors/consultants for execution LVSRs ○ Lack of monitoring and feedback on surfacing trials ○ Poorly presented documentation which does not facilitate uptake by decision-makers ○ Negative perception/inadequate awareness of some LVSR approaches
<ul style="list-style-type: none"> • Social 	<ul style="list-style-type: none"> ○ Inadequate attention to social aspects of LVSRs
<ul style="list-style-type: none"> • Financial 	<ul style="list-style-type: none"> ○ Insufficient funding for maintenance of LVSRs ○ Lack of reliability/continuity of future funding for LVSRs
<ul style="list-style-type: none"> • Political 	<ul style="list-style-type: none"> ○ Lack of political awareness of LVSR approach ○ Lack of coherent policy on provision of LVSRs ○ Inappropriate split between maintenance and development funds from the Road Fund
<ul style="list-style-type: none"> • Environmental 	<ul style="list-style-type: none"> ○ Lack of awareness of adverse impacts of environmental degradation, dust, pollution and safety issues associated with gravel roads during dry and wet weather ○ Inadequate appreciation of new technologies that reduce use of finite, non-renewable gravel resources

6. HIGHLIGHTS OF DAY 2

Following a brief summary of the activities of Day 1, the activities of Day 2 began with a group session identifying possible solutions to the barriers compiled in the deliberations of the previous day. This list had been consolidated by the facilitators to remove duplication and enable an equal distribution of tasks for the four discussion groups.

The solutions identified in the group discussion and feed-back sessions are summarised in Table 2.

The morning session of the workshop concluded with a presentation by Eng D Kokoko on the performance of a road with a cement stabilised base course within the municipal boundary of Arusha. Highlights of the presentation were:

- A description of the location of the site
- A description of site conditions
- Failures needing repairs and rehabilitation
- The reasons for choosing cement stabilisation
- Results of the rehabilitation exercise

The afternoon session of the workshop comprised a site visit to the road project described in the above-mentioned presentation. Whilst not being directly relevant to the workshop, the site visit raised interesting issues relating to road construction projects in locations with a high water table and on expansive soils.

TABLE 2
Solutions to Constraints and Barriers

Constraint/Barrier	Solution
(1) Institutional resistance to change}-----	- Conduct research
(2) Lack of management support to implement new ideas}-	- Document facts; promotion & awareness creation
(3) Inadequate community involvement}-----	- Conduct EIAs, SIA, Road safety Audits and ensure early involvement and participation of local communities
(4) Inadequate multi-disciplinary inputs}-----	
(5) Inadequate attention to social aspects of LVSRs}-----	
(6) Tendency to focus on initial construction costs, not LCC---	- Get support for long term plan based on LCC analysis
(7) Poorly presented documentation}-----	- Documents to be simple and concise
(8) Negative perception/inadequate awareness of LVSR}-----	- Awareness campaigns, seminars, demonstration projects, documentation (leaflets, etc), media promotion
(9) Lack of political awareness}-----	
(10) Lack of awareness of adverse environmental impacts}-----	
(11) Inadequate appreciation of new technologies}-----	
(12) Limited technical capacity to evaluate new technology-----	- Establishment of research units within transport organisations (TANROADS, MoID, etc)
(13) Aversion to risk taking}-----	- Increase confidence of practitioners & policy makers - Train at all levels - Monitor and document successes
(14) Lack of training curriculum for LVSRs}-----	- Develop appropriate training curriculum
(15) Little incentive to examine innovative technology}-----	- Obtain funding and ensure recognition of work done by individuals involved in innovative work
(16) Insufficient research on local materials}-----	- Establish research unit in MoID to oversee

(17) Inadequate consultant/contractor capacity for LVSR-----	<p>implementation by TANROADS (CML) and Univ</p> <ul style="list-style-type: none"> - Training of contractors and consultants to be organised by ERB, CRB, NCC etc.
(18) Lack of monitoring and feedback on trials-----	<ul style="list-style-type: none"> - Roads agencies to carry out regular monitoring using programs such as RMMS, DROMAS; - Research Unit to compile data and ensure accessible to end users
(19) Insufficient funding for maintenance and LVSRs-----	<ul style="list-style-type: none"> - Increase funding base (license fees, mining exemptions for fuel levy, etc) - Review maintenance/development split based on study - Introduce policy that donor funds for gravel roads be used for LVSRs
(20) Lack of reliable/sustainable funding for future LVSR-----	<ul style="list-style-type: none"> - Develop long-term funding targets
(21) Inappropriate standards and specs-----	<ul style="list-style-type: none"> - Research unit under MoID to use results from monitoring to develop new standards and specifications
(22) Lack of effective axle load control-----	<ul style="list-style-type: none"> - LGAs and TANROADS to acquire mobile weighbridges - Sensitise road users and communities about high costs of overloading

7. HIGHLIGHTS OF DAY 3

The deliberations on Day 3 of the workshop were aimed at preparing an Action Plan for taking forward implementation of the LVSR approach and in drafting the workshop resolutions.

The outputs from the previous two days were consolidated into a form which enabled the task groups to indicate actions, identified who should initiate the actions and a time scale for their implementation. The outcome from this exercise is shown in Table 3.

Following the discussions and agreement on the action plans, a short presentation was made by Mr Albert Attias on a commercial soil stabilizer product for road maintenance. Highlights of the presentation included:

- The principles of pothole repair
- An outline of the uses of the product
- The advantages of using the product
- A description of the repair method.

TABLE 3
Low Volume Sealed Roads – Draft Action Plan for Tanzania, April 2009

Action	Responsibility	Collaboration with	Timing
CAPACITY DEVELOPMENT			
Undertake Construction Industry Needs Assessment for LVSR	MoID	Min of Education National Council for Education PMO-RALG, TANROADS Private sector Universities TIRDO, COSTECH, NCC	Draft report by April 2010
Establish Research Units (or focal point) in MoID and TANROADS with separate budgets.	MoID TANROADS (CML)	PMO-RALG Universities Private sector	Establish units by Oct 2009
POLICY DEVELOPMENT			
Awareness campaign <ul style="list-style-type: none"> • Seminars • Demonstration sites • Leaflets • Media promotion • Policy briefs 	MoID TANROADS PMO-RALG		MoID, TANROADS and PMO-RALG implement one activity in each category by April 2010
Prepare format for policy briefs	MoID	RFB, TANROADS PMO-RALG	July 2009
Establish technical monitoring of LVSR trials and report in quarterly reports	TANROADS DEDs PS Zanzibar	Universities Professional associations	First quarter report 2009/10
TANROADS prepare technical paper of LVSR trials for JTC and JTSR	TANROADS	Professional associations	October 2009
Prepare investment policy and programme for LVSR linked to TSIP.	Tanzania (MoID) and Zanzibar (MoCT)	PMO-RALG RFB TANROADS	First draft by April 2010
FINANCE			
Send proposal to MoF to increase funding base for RF	RFB		Feb 2010
Undertake study to review maintenance and development spilt in RF allocations	RFB	MoID	Draft report by April 2010
Prepare proposal for state budget allocation for LVSR construction in regions and districts	MoID PMO-RALG	TANROADS	April 2010
TECHNICAL			
Conduct EIAs, SIAs and RSAs	Implementing agencies		Planning and design phase of LVSR projects
Adopt Life Cycle Cost approach	Implementing agencies		Planning and design phase of LVSR projects
Appoint consultant to update design standards and specifications for LVSR	MoID	TANROADS PMO-RALG	April 2010
Extend axle load control to LVSR as network size increases	TANROADS		Follow construction of LVSR

The final task on Day 3 of the Workshop was to draft resolutions to take the proposed actions forward.

8. WORKSHOP RESOLUTIONS

The agreed workshop resolutions were as follows:

- 1. The low-volume sealed road (LVSR) approach shall be adopted in principle for incorporation in the annual work plans of all road sector agencies in Tanzania.**
- 2. The Strategic Action Plan developed by workshop participants shall form the basis for mainstreaming the LVSR approach in all road sector agencies in Tanzania.**
- 3. Implementation of the Strategic Action Plan shall be coordinated and monitored by a coordinator appointed by RFB. The coordinator shall report progress on implementation of the Action Plan to the Joint Technical Committee for Transport. Coordinators will also be appointed in MoID, TANROADS, PMO-RALG, and Zanzibar MoCT to liaise with the RFB LVSR coordinator.**
- 4. A review workshop shall be held within 12 months of the inaugural workshop to review progress on the Strategic Action Plan and to agree the way forward for consolidating the LVSR approach in road sector agencies in Tanzania.**

9. CONCLUSIONS

The workshop was held to facilitate the mainstreaming of the LVSR approach in Tanzania by identifying barriers to its implementation, suggesting solutions to overcome the barriers and developing a strategy in the form of an action plan and time scale for the carrying the actions forward. The workshop participants achieved all the tasks assigned to them in the allotted time and also developed resolutions as a commitment to achieving the actions proposed. Included in the resolutions was a commitment to hold a similar workshop after one year, at which progress on the agreed actions will be assessed.

10. CLOSURE

The workshop was officially closed by the Deputy Minister in PMO-RALG, Mr Phillip Mangani, who thanked participants for their constructive contributions by not only identifying the barriers and constraints, but also proposing measures for overcoming them in a time-bound programme.

11. WORKSHOP EVALUATION

The workshop participants were asked to provide individual evaluations of the workshop, including the efficiency of the organisation and achievement of its purpose. A summary of the evaluations is given in Appendix 3.

APPENDIX 1

LIST OF PARTICIPANTS

No.	NAME	INSTITUTION	JOB TITLE	CONTACTS
1	Nuberes P. J. Nyange (Eng.)	Association of Consulting Engineers Tanzania (ACET)	Chairman	Tel: +255 754 782 149 npjnyange@intafrica.com acet@cats-net.com
2	Col. SM Ndazi (Eng.)	The Institution of Engineers Tanzania (IET)	Vice President	smndazi@yahoo.com snakassera@yahoo.com
3	Tumaini Lemunge (Eng.)	National Construction Council (NCC)	Researcher	Tel: +255 784 407 679 tlemunge2000@yahoo.co.uk
4	David Jere (Eng.)	Contractors Registration Board (CRB)	Research Officer	Tel: +255 754 844 610 djere@crbtz.org
5	Pancras Bujulu (Dr.)	College of Engineering and Technology (COET) (University of Dar es salaam)	Lecturer	Tel:+ 255 22 2410128 pbujulu@hotmail.com
6	Jubily Musagasa (Dr.)	Dar es Salaam Institute of Technology (DIT)	Lecturer, Civil Engineering Department	Tel: +255 788 396 983 jmusagasa@hotmail.com
7	Kazungu R. Magili	Tanzania Civil Engineering Contractors Association (TACECA)		taceca@cats-net.com
8	Alfred Mkinga	National Environmental Management Council (NEMC)	Environment Management Officer	Tel: +255 714 652 377 fredmkinga@yahoo.co.uk
9	Chard D.S. Wemba	Tanzania Roads Association (TARA)		Tel: +255 787 369 680 namajani@yahoo.com tanzaniaroads@yahoo.com
10	Robert Lyimo (Eng.)	National Institute of Transport (NIT)	Highway Engineer, Lecturer	Tel: +255 754 026 698 kireirobert@yahoo.com elimgonja@yahoo.com
11	Ronald Lwakatare (Eng.)	Road Fund Board	Planning & Monitoring Engineer	rlwakatare@raha.com
12	Musa Iyombe	MoID	Acting Director, Roads	Tel: +255 754 434 930 musaiyombe@yahoo.com
13	Fintan Kilowoko	MoID	Assistant Director, Roads	Tel: +255 754 271 879 totkilowoko@yahoo.com
14	Laurent Kyombo	MoID	Senior Engineer, Roads	Tel: +255 784 441 105 lamkyo2000@yahoo.co.uk
15	Isack Mwanawima	MoID	Assistant Director, Roads	Tel: +255 754 276 829 mwanawima@yahoo.com
16	Severine Rwegumisa	MoID	Assistant Director, Roads	Tel: +255 754 483 967 srwegu@yahoo.com
17	Deusdedit Kakoko	TANROADS	Regional Manager, Arusha	Tel: +255 784 494 666 dckv1965@yahoo.com

LIST OF PARTICIPANTS (CONTINUED)

No.	NAME	INSTITUTION	JOB TITLE	CONTACTS
18	Charles Madinda	TANROADS	Regional Manager, Morogoro	Tel: +255 754 819 549 tanroadsmoro@yahoo.co.uk
19	Mussa Mataka	TANROADS	Regional Manager, Mtwara	Tel: +255 754 386 016/ 23 2333904 mussamataka@yahoo.co.uk
20	Joseph Nyamhanga	TANROADS	Regional Manager, Rukwa	Tel: +255 754 322 660/ 25 2802134 jmnyam@yahoo.com
21	Tumaini Sarakikya	TANROADS	Regional Manager, Kilimanjaro	Tel: +255 784 503 081 tumainisarakikya@yahoo.co.uk
22	Raphael B. Chasama	TANROADS	Rep: Regional Manager, Manyara	Tel: +255 781 318 014 ykasaini@yahoo.com
23	Williamu Shilla	TANROADS	Director, Maintenance	Tel: +255 784 640 151 william.shila@tanroads.org
24	Elaimin Tenga	TANROADS	Director, Maintenance	Tel: +255 784 650 115 tenga_eliamin@yahoo.co.uk
25	John T. Malisa	TANROADS	Director, Planning	Tel: +255 754 285 532 malisajt@yahoo.com
26	Ferdinandi Lwelenjela	TANROADS	Director, Planning	Tel: +255 754 361 070 lwelenja@yahoo.com
27	Elina Kayanda	PMORALG	Coordinator Infrastructure	Tel: +255 713 448 835 ekayanda@yahoo.co.uk
28	Gilbert Mwoga	PMORALG	Engineer	Tel: +255 26 2322051 OR: +255 754 872 131 gmwoga@yahoo.com
29	Kennedy Kayungi	PMORALG	District Engineer – Mpwapwa	Tel: +255 784 912 717 kkayungi@yahoo.co.uk
30	Stephen Mhauka	PMORALG	District Engineer – Morogoro	Tel: +255 715 875 338 mhaukastephen@yahoo.com
31	Reuben Muyungi	PMORALG	District Engineer – Hai	Tel: +255 784 285 826 reuben-muyungi@yahoo.com
32	Felix Ngomano	PMORALG	District Engineer – Bagamoyo	Tel: +255 764 000 100 felixngomano@yahoo.com
33	Meleck Silaa (Eng.)	PMORALG	District Engineer – Siha	Tel: +255 754 266 854 myesilaa@yahoo.com
34	Venant Komba (Eng.)	PMORALG	District Engineer – Mbarali	Tel: +255 754 539 101 komba22004@yahoo.com
35	Leopold Runji (Eng.)	PMORALG	District Engineer – Iringa	Tel: +255 717 452 245 deiringa@yahoo.com

LIST OF PARTICIPANTS (CONTINUED)

No.	NAME	INSTITUTION	JOB TITLE	CONTACTS
36	Bupe Angetile (Eng.)	PMORALG	RS Engineer - Coast	Tel: +255 733 797 921/ 756 797 921 bupe10@yahoo.com
37	Wilbert Dede (Eng.)	PMORALG	RS Engineer - Tanga	Tel: +255 784 581 738 wdede2002@yahoo.com
38	Okuli Ndossi (Eng.)	PMORALG	RS Engineer - Kilimanjaro	Tel: +255 784 320 218 tiraufoo@yahoo.com
39	Peter Mawere (Eng.)	PMORALG	District Engineer - Mufindi District Council	Tel: +255 765 600 600
40	Joab Mutagwaba (Eng.)	PMORALG	District Engineer - Moshi District Council	Tel: +255 786 211 592 joab_joabalex@yahoo.com
41	Elirehema Ringo	Job Engineering Services Ltd.	Administrator	Tel: +255 784 584 374 ntimajd2000@yahoo.com
42	Agustino G. Mnyari	TANROADS	Roads Inspector	Tel: +255 754 568 216
43	John Mongi	Contact Enterprises	Director	Tel: +255 754 475 270
44	Kefas Willyrayson	Deniko Construction		Tel: +255 783 036 227
45	S. R. Tarimo	Stance Technic	Director	Tel: +255 713 653 889 stancetechnic@yahoo.com
46	Jenti Patel	Arusha Aggregates	Director	Tel: +255 784 723 456 arushaaggregates@yahoo.com arushaaggregates@bol.co.tz
47	Gurpal Bharya	Becco Ltd.	Managing Director	Tel: +255 786 700 500 gsb49@hotmail.com
48	Vincent Ngomuo	Neng Engineering	Site Agent	Tel: +255 754 587 681
49	Reginald Ngarami	Otomizak Limited	Director	Tel: +255 754 653 293 otomizak@gmail.com
50	Abdi Khamis Abdalla	Roads Fund Board Zanzibar	Executive Director	Tel./Fax: +255 24 2231095 zanroad@zanzinet.com
51	Hussein M. Rajabu	Roads Fund Board Zanzibar	Chief Roads Engineer	Tel./Fax: +255 24 2231095 zanroad@zanzinet.com
52	Mwanamtiti Hassan	Zanzibar Ministry of Communications and Transport	Civil Engineer	Tel: +255 773 066 943 mwanamtiti@yahoo.com
53	Japhet Malambi (Eng.)	Zanzibar Ministry of Communications and Transport	Maintenance Engineer	Tel: +255 773 193 877 debho2001@yahoo.com

LIST OF PARTICIPANTS (CONTINUED)

No.	NAME	INSTITUTION	JOB TITLE	CONTACTS
54	Niels Kofoed (Eng.)	PMORALG	Technical Advisor	Tel: +255 754 788 396 niels_kofoed50@yahoo.co.uk
55	Bennet Bankobeza	CRDB		bbankobeza@crdbbank.com
56	Philip Magani	Road Fund Board	Chairman	
57	Patrick Mfugale	Road Fund Board	Board Member	
58	Joseph Haule	Road Fund Board	Roads Fund Manager	Tel: +255 754 999 916 jhaule@raha.com
59	Charles Massawe (Eng.)	Road Fund Board	Planning & Monitoring Engineer	chamas@raha.com
60	Hon. Aggrey Mwanri (MP)	Ministry of Local Governments	Deputy Minister	
61	Mike Pinard		Facilitator	mipinard@global.bw
62	Tony Greening		Independent Consultant	tonyk.greening@sky.com
63	Rob Geddes	African Community Access Programme (AFCAP)	Technical Manager	Tel/fax +263 4 708624 rgeddes@hms.co.zw
64	Roselyne Mariki	Great African Safaris	Administrator	roselyne@habari.co.tz
ADMINISTRATIVE TEAM:				
65	Julieth Kilyinga	Great African Safaris	Assistant Administrator	
66	Msitiri Malongwe	Road Fund Board	Driver	
67	Driver: BUS 1		Driver	
68	Driver: BUS 2		Driver	

APPENDIX 2

Opening Speeches and Closing Comments

WELCOME ADDRESS BY THE CHAIRMAN: LOW VOLUME SEALED ROAD WORKSHOP ORGANISING COMMITTEE MR. JOSEPH HAULE

**Our Guest of Honour; Honourable Aggrey Mwanri (MP), Deputy
Minister of Prime Minister's Office Regional Administration and
Local Government,
Chairman of the Roads Fund Board, Mr. Philip Magani,
Technical Director of AFCAP, Mr. Rob Geddes,
Board members in attendance,
Representatives of our Development Partners,
Distinguished Guests,
Ladies and Gentlemen.**

On behalf of the Organising Committee, I would like to welcome you to this Workshop on Low-Volume Sealed Roads being held in Arusha, also known as the Geneva of Africa. I take this opportunity to thank you for accepting our invitation to come, learn and share experiences with colleagues engaged in low volume sealed roads.

This Workshop has attracted 65 delegates from various institutions in Tanzania. The Seminar will have 11 sessions over three days in which there will be seven presentations including five Case studies on experiences from Tanzania, Asia, Africa and Kenya, in the use of various approaches of sealing low volume roads. We have also provided space for Group discussion sessions to consolidate the understanding of the approaches that will be presented. Tomorrow, Tuesday, there will be a Technical Excursion (Site visit) where participants will be able to see one of the approaches being implemented.

Honourable Guest of Honour, Participants, Ladies and Gentlemen,

The Ministry of Infrastructure Development is the host of this workshop in collaboration with African Community Access Programme (AFCAP), Roads Fund Board, Tanzania National Roads Agency (TANROADS) and Prime Minister's Office Regional Administration and Local Government. An Organising Committee of 6 persons drawn from the above name institutions was formed. The Organising Committee is supported by an Administrator from Great African Safaris Ms. Roselyne Mariki.

Honourable Guest of Honour, Participants, Ladies and Gentlemen,

The Organising Committee expresses its sincere thanks to those who have supported this seminar and the team during the entire period of Workshop preparations. I would like to particularly mention institutions that have supported this seminar, namely: the AFCAP, who have met the entire

cost of this Workshop and our two Ministries for support and guidance. I wish also to extend my sincere thanks to CRDB Bank who have agreed to meet the cost of the Workshop dinner that will be held today immediately after the end of today's business.

Your support will still be requested until the conclusion of the Workshop. The Organizing Committee members are readily available to offer assistance to the meeting delegates to ensure that you have a comfortable stay in Arusha. The committee is ready to receive any recommendations to improve the conduct of program as we go along. Should you need any assistance do not hesitate to contact Eng. Massawe, our Event Manager, and the Administrator Ms. Roselyne Mariki.

Lastly, our Honourable guest, ladies and gentlemen, I wish all of you a happy stay in Arusha.

I thank you for your kind attention.

APPENDIX 2 (Continued)

WELCOMING ADDRESS BY THE CHAIRPERSON OF THE ROADS FUND BOARD

Our Guest of Honour; Hon Aggrey Mwanri (MP), Deputy Minister in the Prime Minister's Office, Regional Administration and Local Government;

Roads Fund Board Members Present

The Roads Fund Manager, Mr. Joseph Haule;

Technical Manager of the African Community Access Programme; Mr. Rob Geddes

Representatives of the Road Sector Development Partners;

Workshop Facilitators

Distinguished Participants,

Ladies and Gentlemen,

I would like on behalf of the Roads Fund Board to extend a very warm welcome to you all to this important workshop. We are particularly privileged, and indeed greatly honoured, by the presence of the Deputy Minister in the Prime Minister's Office, Regional Administration and Local Government, Hon Aggrey Mwanri.

That you have been able to afford us your time to accommodate our meeting in your extremely busy and tight schedule shows your keen interest in the development of this very important sector of our economy – the Roads Sector.

Honourable Deputy Minister, we say Karibu Sana.

Allow me also to extend a special welcome to our foreign delegates and facilitators who are here with us today, to share with us their experiences and request them to feel at home. Tanzania is a very beautiful country endowed with hospitable people. I hope that you will use this opportunity to visit places of attraction including our National Parks, where you will be able to see diversity of wild animals in their natural habitat.

Honourable Guest of Honour, the main purpose of the Road Fund is to finance maintenance of classified roads in mainland Tanzania. Pursuant to the Act that established the Fund and the Board, the Board is required to allocate at least ninety percent of its financial resources for road maintenance and not more than ten percent to support development works including rehabilitation and upgrading of roads. Implicitly this means that the Fund is primarily responsible for road asset preservation. Road asset preservation is ensured by carrying out timely routine and periodic maintenance using suitable material and technology for sealing. Unfortunately, we are not able to practice sound road asset preservation in the real sense of it, due to inadequacy of funds and the need to carry out repeated repairs over the same sections because of the nature of the network.

Honourable Guest of Honour, let me remind ourselves that we have a total classified road network of 86,473km out of which only 6,383km or 7% is paved while 80,090km or 93% is unpaved. The implication of this is that, first the bulk our road network is very unstable and therefore prone to drastic changes after just a slight rainfall; and secondly this is aggravated by our dependence on poor soil material to repair or maintain the network. Given these facts one can imagine how difficult it is to maintain such a network since they have to be attended to after every rainy season in a fire - fighting fashion, in order to restore passability. To make things even worse, the poor quality materials used to repair these roads sections are easily washed out into rivers and subsequently into ocean and lake beds where they can never be recovered for re-use. This is why we need to come up with alternative materials and technologies for sealing our roads. Such material should be able to cope with the aforementioned challenges, namely they should be stable, not prone to erosion and must be environmentally friendly. It is expected that proper road sealing will minimise the frequency of maintenance activities which in return reduces maintenance costs. Besides roads so maintained will cut down vehicle operational expenses, reduce the time required to commute on the road as it is expected the good roads will enable user to improve their speeds. As far as the rural communities are concerned, access to the markets for their products will improve and hopefully improve their incomes by getting better farm gates prices. In this way social and living standards in the rural areas will gradually improve.

Dear Guest of Honour and Workshop Participants; let me say that this workshop is taking place at the right time when the Roads Fund Board is contemplating what actions should be taken by the road maintenance Implementing Agencies in order to stabilise the network. The Board is spearheading the concept of network stabilisation by raising the issue in various forums including in the high level Joint Transport Infrastructure Sector Review meetings. This is why the Roads Fund Board together with MOID, TANROADS and PMORALG did not hesitate to join hands with our colleagues from the African Community Access Programme in organising this important workshop with the objective of addressing the challenges related to road network stability, gravel loss and environmental concerns. I wish to take this opportunity to commend the Organising Committee, Paper presenters and all those who have contributed in any how to making this event a success.

Finally, once again I wish all the delegates and visitors a nice stay in Arusha and hope that they will take the opportunity to visit our Game Parks and other tourist attractions.

With these few remarks, I now have the honour and pleasure of inviting the Honourable Deputy Minister in the Prime Minister's Office, Regional Administration and Local Government, our Chief Guest, to address and formally open this Workshop.

Thank you for your attention.

APPENDIX 2 (continued)

OPENING SPEECH BY THE DEPUTY MINISTER IN THE PRIME MINISTER'S OFFICE REGIONAL

ADMINISTRATION AND LOCAL GOVERNMENT HON. AGGREY MWANRI (MP)

Chairman of the Roads Fund Board, Mr. Phillip Magani

The Roads Fund Manager, Mr. Joseph Haule

Representatives from Development Partners;

Heads of Government Institutions and other Government officials;

Representatives from the Private Sector;

Workshop Facilitators;

Workshop Participants;

Distinguished Invited Guests and

Ladies and Gentlemen.

It is my pleasure and indeed I feel very greatly honoured to be with you this morning to open the Strategic Planning Workshop which is aimed at mainstreaming the Low Volume Sealed Roads Approach in the Annual Work Plans of Roads Sector Agencies in Tanzania. I would particularly like to express my gratitude to the Ministry of Infrastructure Development (MOID) for inviting me to officiate in this ceremony. It is also my pleasure to recognise and acknowledge the presence of Representatives of the Development Partners in the road subsector.

2. *Distinguished Participants*

I have been informed that the facilitators to this Workshop are professionals from outside Tanzania; on behalf of the Government and People of Tanzania, and on my own behalf I wish to welcome you to Tanzania and Arusha in particular. I believe you will enjoy being in Tanzania because of the hospitality of the people and in particular the richness in tourism attractions around Arusha. I hope you will take this opportunity also to see the likes of Ngorongoro Crater (the Eden of Africa), Mountain Kilimanjaro and Arusha National Park. To my fellow Tanzanians who are participating in this workshop, I argue you to use this opportunity to visit these attractions before you return to your respective working stations.

3. *Mr Chairman, Participants, Ladies and Gentlemen*

I have been informed that this is the first workshop to be organized by the Tanzania Institutions in the road sector in collaboration with the African Community Access

Programme (AFCAP) in Tanzania and the goal of the programme is sustained economic and social development, poverty reduction and improved livelihoods of the rural poor through more effective, efficient and equitable access to social-economic opportunities which is in line with our Vision 2025 and National Strategy for Growth and Reduction of Poverty “(MKUKUTA)”. As we are all aware rural and community access is crucial to the every-day life and development of rural communities across Tanzania and Africa at large. Access to basic services, markets and opportunities is recognized as a crucial element in MKUKUTA that road infrastructure is vital for increasing rural income, agricultural diversification and improved quality of life. I am informed also that to achieve the programme goal and purpose, AFCAP has a vision of delivering an integrated, wide-ranging portfolio of research, dissemination and training activities.

4. *Mr Chairman, Participants, Ladies and gentlemen*

I am also informed that Tanzania subscribes to the principles of the SADC Guideline on Low-volume Sealed Roads (LVSR). This Guideline enables a more comprehensive and coherent approach to the use of locally available materials for low volume road construction. The major impacts of adopting such approaches include a reduction of life-cycle costs, a reduction in the continuous exploitation of non-renewable gravel sources, lower vehicle operating costs, environmental benefits due to reduced erosion, and health benefits due to reduced dust. Despite the widespread acceptance of the approach in Tanzania, today the Government is yet to implement on a national scale. It is therefore my hope that this workshop will identify and overcome barriers to adoption of the LVSR approach, and will initiate a process of mainstreaming it in the annual work plans of the road agencies.

5. *Mr. Chairman, Participants, Ladies and Gentlemen*

Poor rural and community access have partly contributed to the current level of poverty in rural communities where more than 85% of the population live. Due to inadequate funds coupled with poor management of road network, the government has carried out reforms in road financing and management. Measures which have been undertaken include the establishment of Roads Fund Board (RFB) and the Road Agency (TANROADS) and currently the government is looking at ways in which it can strengthen the management of roads under Local Authorities. TANROAD is now autonomous and a board to oversee its operations has been appointed. The Parliament of the United Republic of Tanzania enacted the Road Tolls (Amendment) (No.2) ACT, 1998, which established the Road Fund and the Road Fund Board. The Road Fund has been established to provide dedicated fund for road maintenance. Due to efforts being under taken to fight corruption, tax evasion and widening the tax base, it has been possible to increase Road Fund Collection in Tanzania from Tsh 47.252 billion in financial year 2003/04 to Tsh. 218.474 billion in financial year 2007/08. Furthermore, the new Road Act of 2007 has replaced the Highway Ordinance Cap 167 of 1969 and preparation of regulations is at its final stages and roads are now being grouped into classes according to criteria stipulated in the Act.

Other efforts, which have been implemented by the Government, include launching of Taking Labour Based Technology to scale, which will facilitate mainstreaming and coordination among different institutions/projects engaged in Labour Based activities.

6. *Distinguished Guests, Ladies and Gentlemen*

This gathering of distinguished personalities and experts will certainly provide opportunities for everyone, to share and exchange experiences as well as to acquire more skills on sealing of Low Volume Roads thus reducing life cycle costs, Vehicle operating Costs and being environmental friendly.

The Government will continue to support this kind of a partnership demonstrated here today by the partners who supported the organization of this workshop and because we know that it is through such kind of partnership the work of the government becomes effective through exchange and sharing of knowledge, experiences and best practices hence implementation of LVSR projects.

7 *Mr Chairman, Participants, Ladies and Gentlemen*

After these remarks, I now have the honour to declare the Strategic Workshop on Low Volume Sealed Roads officially opened, and I wish you fruitful discussions and every success in your deliberations.

Thank you for your kind attention

APPENDIX 2 (Continued)

CLOSING SPEECH BY ROAD FUND BOARD CHAIRMAN, MR PHILLIP MAGANI

Honourable Deputy Minister for PMO-RALG, Comrade Aggrey Mwanri (MP),

Road Fund Manager,

Workshop facilitators,

Workshop Participants,

Distinguished Invited Guests, and

Ladies and Gentlemen.

It gives me great pleasure to be given this opportunity to officiate the closing session of the low volume sealed road workshop. I would, therefore, like to express my gratitude to the organizers for the invitation and for this opportunity to share with participants a few thoughts as we finally come to the end of this workshop. I am pleased to note that much of substance has been deliberated upon and the way forward spelt out in the form of the workshop resolutions and I hope the resolutions will not end up in the shelves. I thank you very much for your active participation.

Distinguished Participants, Ladies & Gentlemen

I take this opportunity also express my sincere thanks to the Deputy Minister PMO-RALG Comrade Aggrey Mwanri (MP) for accepting our invitation to open the Workshop and further taking your time to participate in the workshop. It is very rare to see such personalities dedicating their time in such forums. This shows how keen you are in the development of this very important sub-sector of our economy.

As you all aware, the Government of Tanzania is implementing the National Strategy for Growth and Reduction of Poverty (NSGRP), with its Kiswahili acronym "MKUKUTA". The Strategy places great emphasis on growth and reduction of income poverty, improved quality of life and social well-being, and governance and accountability. The main challenge as we address the problem of poverty, especially income poverty, has been how to ensure our people benefit from the achievements recorded at the macro level and thus how they can effectively participate in the development process. We have learnt in this workshop that there is a direct link between reliable access with pro-poor growth. The provision of LVSR will enhance mobility, interaction of people, and improved social services such as health, education thus providing an enhanced environment for scaling up poverty reduction. It is therefore evident that this workshop has come at an appropriate time when we are putting up policies that are aimed at alleviating poverty of our people.

Distinguished Participants, Ladies & Gentlemen

I am gratified to learn that the workshop identified constraints and barriers in mainstreaming Low Volume Sealed roads in our annual work plans of road sector agencies and proposed solutions to overcome them. We have learnt through research that the life cycle costs for low volume sealed road are cheaper compared to earth/gravel roads thus in long term there are financial savings. Thus for a

poor country like Tanzania, we cannot afford to allow such savings go down to the drain by concentrating on gravel roads which is proven to be unsustainable.

Distinguished Participants, Ladies and Gentlemen

Allow me at this juncture to assure you participants that the Roads Fund Board will follow up the implementation of the workshop resolutions, particularly those that require board decisions. We will for instance look critically on the possibility of dedicating the 10% of the Roads Fund currently earmarked for road development to cater for the LVSR to start with. I believe this is the only option of ensuring that LVSR is given due recognition in our plans. We will also advise the government that we should put in place a policy guideline that would require mainstreaming of LVSR in our plans as soon as it is practicable, so as to benefit from the envisaged savings and thereby produce more mileage in road development.

Distinguished Participants, Ladies & Gentlemen

Finally but not least, it will be unfair if I don't recognize the efforts and efficiency embedded and shown by those involved in one way or another in supporting, organising and participating in the meeting. Without their dedication and commitment the outcome of the workshop would not have been as fruitful as it has been. In particular, I wish to thank AFCAP for financing this very important Workshop.

Allow me also to applaud the workshop facilitators who have come from outside Tanzania. Rest assured that we were very happy to be with you in our country, and that you are always welcome back to visit Tanzania. I understand another workshop will be held after 12 months to take stock on what we have planned to implement during this time. I urge all of you to follow up with secretariat and ensure that the milestones we have set up for ourselves are achieved.

Distinguished Participants, Ladies and Gentlemen

After these few remarks, I now take the pleasure to announce that strategic planning workshop on low volume sealed roads approach in annual workshop plans of road sector agencies, is officially closed and I wish you all the best in your endeavours and safe journey back home.

I thank you for your attention and GOD BLESS YOU.

APPENDIX 3

EVALUATION REPORT: LVSR WORKSHOP IN ARUSHA TANZANIA ON 28th to 30th APRIL 2009

Total Number of Workshop Respondents = 48 Total Number of responses = 432

Question No	Category	Rating								
		Outstanding		Very Good		Good		Fair		Poor
		No.	%	No.	%	No.	%	No.	%	
1	Overall Impression of the workshop	6	12.5	29	60.4	13	27.1	0	0	0
2	Methodology in terms of presentations, group work and discussions	6	12.5	24	50.0	18	37.5	0	0	0
3	Quality of presentations	5	10.4	23	47.9	20	41.7	0	0	0
4	Performance of facilitators	15	31.2	20	41.7	13	27.1	0	0	0
5	Performance of event manager	10	20.8	31	64.6	6	12.5	1	2.1	0
6	Achievement of workshop objective	5	10.4	16	33.3	26	54.2	1	2.1	0
8a	Pre-workshop information	5	10.4	25	52.1	18	37.5	0	0	0
8b	Workshop Venue	13	27.1	26	54.2	8	16.6	1	2.1	0
8d	Workshop Logistics, including transport, meals, accommodation, etc	3	6.2	27	56.3	15	31.3	3	6.2	0
	Totals	68		221		137		6		0
	Percentage of all responses		15.7		51.1		31.8		1.4	0

Question No.		Response			
		Yes	No	Not sure	No Response
7	Do you plan to execute LVSR project	30	1	14	3
	Percentage of respondents	62.5	2.1	29.1	6.3

Question No.		Response			
		Too long	Too short	OK	No Response
8c	Length of workshop programme	0	6	42	0
	Percentage of respondents	0	12.5	87.5	0

Additional comments

1. One respondent commented that neither the site visit nor the Bank presentation was sufficiently relevant to the workshop theme.
2. Another respondent suggested that the RFB should arrange forums to get more feedback on relevant issues from a wider range of stakeholders.