Dear Colleagues:

The International Forum for Rural Transport and Development (IFRTD) together with the Africa/Asia Community Access Partnership (AFCAP/ASCAP) are pleased to present to you the July Edition of the RuTraNs newsletter. You will notice that this edition is much longer than usual. We have provided more in-depth content in some of the subjects that are currently important in rural transport services and road technology research. A cross-cutting theme in this edition is learning from trial sections and the user responses to these. We hope that you will find the newsletter valuable and informative. Feel free to share the newsletter within your networks and communities of practice.

Sincerely,

Grace N. Muhia, Editor

Why demonstration sites and trial sections are important for road research

This article is an outline of the nature and principal advantages in the use of full scale demonstration sites in furthering the appropriate design, construction and maintenance of low volume rural roads.

The use of full-scale road or surfacing demonstrations has been a feature of the Africa Community Access Partnership (AFCAP) programme so far, as it was with the previous South East Asian Community Access Programme (SEACAP) initiative. The use of such demonstrations is an integral part of the knowledge chain leading from initial research through to practical up-take and final embedment in national or regional policy.

Full-scale demonstrations may be used for a variety of reasons with short-term through to long-term objectives. In the short-term, they may be used to show-case the feasibility of a particular construction process or the innovative use of construction plant, whilst in the longer term, full-scale experimental trials can be developed to test a specific material, a range of materials, a specific pavement design or a range of pavement designs or design approaches. In both cases, there are important spin-offs in terms of training, capacity building as well as the important issue of knowledge sharing with local stakeholders and relevant local groups.

It is in the latter role that demonstration sites or trials have been most commonly used in AFCAP and SEACAP. The construction and monitoring of full-scale demonstration trials is seen as the best method to prove the limits of use of pavement materials or to compare variations in pavement design as a basis for a design method or catalogue. The most outstanding and best known of this type of trial being the ASSHTO Road Trials, conducted in the United States between 1958 and 1960. These are to date the largest and most successful road trials ever undertaken. They involved the construction of 836 pavement sections within one controlled area, which were then continuously trafficked by variable axle loads and closely monitored over the two years. This trial formed the basis of much of the fundamental work done on the development of the rational scientific basis for pavement design approaches which are currently still in use.
The AASHTO trials showed that it was important to have high-quality complete data if meaningful answers were to be produced from costly pavement research. The test showed the need for well-thought-out experimental designs and the necessity of collecting complete data that fulfilled the factorial of those designs for valid analysis. The study also showed the necessity to develop complete data sets for valid analysis.

The AFCAP and SEACAP demonstration trials are far smaller in scope and have generally been set within the context of seeking to establish locally appropriate designs within a matrix of local impacting factors known collectively as the Road Environment:

- Climate
- Traffic
- Construction materials
- Surface and sub-surface hydrology
- Terrain
- Sub-grade conditions
- Construction regime

The number of related variables to be assessed must be kept within reasonable bounds. Otherwise, the test matrix will become unmanageable. It is essential, therefore, that the first priority in trial design is to establish clear and specific objectives. Designing a demonstration requires initially selecting the potential variables to be trialled together with those that are to be kept constant. For example, material type and layer thicknesses may be varied and sub-grade strength kept constant or vice versa.

Under AFCAP, demonstration/trial sections were built in a number of countries with various objectives and results as follows:

- Application of DCP Design Method for design of pavements on low volume roads (Kenya, Malawi)
- Use of locally-available materials (sand, calcrete, clay) as pavement and surfacing materials. On their own, the materials would not perform satisfactorily. However, blended, mixed and combined in innovative ways the sections have performed better than expected (Mozambique)
- Demonstration of various surfacing options for application in Environmentally-Optimized Designs (EOD). This demonstrated the feasibility of the EOD approach, where different sections along the same road can have different but appropriate surfacing solutions depending on the Road Environment as described above (Tanzania)

The extensive rural road surfacing trials in Vietnam covering more than 110 test sections have been monitored now for 6-7 years and a substantial and probably unique database of performance data on various surfacing types and pavement designs is now being fed into new manuals and standards.

The demonstration trial approach has also been used to advantage in the context of innovative earthwork protection design to showcase examples of innovative best practice in the use of bio-engineering. The principal objective was to implement a series of slope stabilisation trials maximising the use of local materials and technologies along two roads in Laos. The selection was based on the preference to include a range of hazard types and risk scenarios, as well as the need to keep within the likely available budgets. The performance of the works was reviewed over two wet seasons and manuals covering slope management and maintenance were prepared as part of the dissemination strategy.

In summary, demonstration trials have shown to be a vital tool in the show-casing of new or innovative techniques and as the basis for developing new more economic and sustainable rural roads. The principal benefits to be derived from full-scale demonstration trials can be summarised as follows:

- Improved information over traditional laboratory evaluation of materials
- Selection, extraction and handling requirements identified and controlled
- Optimum construction procedures and working practices identified
- Appropriate specifications can be developed based on unequivocal field performance data
- Discovery of new or unexpected results, knowledge and innovation
- Hands-on demonstration of techniques and outcomes to technical and non-technical stakeholder groups.

An example of learning from trial sections in Tanzania is highlighted on page 7 of this newsletter.

(Some information for writing this article was drawn from written materials by the Transport Research Board, Cook et al, World Bank and Scott Wilson.)

By Nkululeko Leta, contact at nkululeko.leta@cardno.uk.com and Jasper Cook, contact at jasper.cook@cardno.uk.com
Promoting a “joined up” approach for rural transport infrastructure and transport services interventions

Transport can be considered as having both a primary role and a strategic role in society. The primary role is in the form of supporting the development of communities by enabling access to basic social and economic services and livelihood enhancing opportunities. This primary function is a building block to the secondary or strategic role of transport –that of promoting wider economic growth, expansion of markets, enhancing territorial integration, widening the spheres of social and political interaction and promoting democracy and security.

The conventional public policy approach to improvement of transport systems is to focus on the infrastructure (hardware), whilst the transport services (software) are assumed to respond automatically to the existence of the infrastructure. In the case of many rural areas in developing countries, this is a flawed model. Rural areas are where the majority of the national population lives and where transport urgently needs to demonstrate its primary function of supporting communities and their livelihoods enhancement efforts.

Rural areas are confronted with the double transport deficit of poor infrastructure and unsatisfactory levels of transport service. Low population densities and dispersed economic activities do not always lend themselves to conventional economic models that are the basis for investments in infrastructure. Related to this, rural economies are often unable to support the operations of conventional, market driven and competitive transport services. Thus, the services are largely underdeveloped, unavailable, unreliable and/or expensive.

The challenges facing both provision of rural transport infrastructure and rural transport services require innovations in policy and planning. Conventional instruments have not quite done the job. Recognizing that it is a public policy responsibility to develop transport infrastructure to support poverty reduction and to enable communities access more opportunities, recent years has seen some advances in application of a wider range of non-economic criteria in rural road programmes. This has led to expansion of rural road networks, rural tracks, trails and bridges in places where they would not have been considered if it were left to conventional criteria.

Paradoxically, when it comes to rural transport services, the current paradigm remains that transport services are purely the responsibility of the private sector. Little consideration is paid to the non-existence of the assumed market conditions to support affordable and reliable rural transport services. In many rural areas, the communities and the informal transport service providers are doing the best they can to provide transport services through various mechanisms including headloading, animal based transport, bicycles, old motorized vehicles and more recently, motorcycles. However, the prevailing condition remains that rural transport services are inadequate, unreliable and expensive compared to services on higher volume roads or in urban areas.

We make the case that the same logic that has led to incorporation of social appraisal tools into rural road appraisal procedures, should be extended to enable better understanding and improvements in rural transport services. The same market imperfections that lead to government interventions in a variety of other sectors are the ones that also exist in rural transport services sector.

It should also be recognized that the benefits of rural roads will not be optimized without suitable and affordable transport services operating on them. The role of the government in supporting rural transport services should go beyond traditional regulatory tools such as licensing to stimulating and incentivisation. As a first step, it needs to be acknowledged and accepted that improvements in rural transport services are a legitimate part of the governments’ transport planning mandate. A second step is to have a mechanism that can help planners and policy makers better understand the performance of rural transport services in different places, and the appropriate levels and standards of services that are needed to enable people in those areas meet basic needs. Such an instrument can be in the form of a Rural Transport Service Indicator.

By Peter Njenga, contact at peter.njenga@ifrtd.org

Rural roads and rural transport services aim to confer the same benefits to users, and thus they are mutually joined up by the same objectives. Their current separation in terms of research, policy and practice is artificial. The importance of joined up collaboration is highlighted on page 7 of this newsletter.
Rural transport services research: working in clusters

As part of the strategy of AFCAP/ASCAP, much of the research relating to rural transport services will be carried out in ‘clusters’ of projects at national and/or international levels. Within selected countries, several projects will be commissioned to research locally-identified priority issues. Each project may be a stand-alone study, but the projects will be expected to cooperate and collaborate in their planning, implementation and reporting. Similarly, on issues considered as priorities in several countries, ‘networked research’ will be facilitated. National researchers will work in collaboration with their colleagues in other countries to study in their various contexts key topics, such as planning and facilitating safe and reliable rural passenger and freight transport services, the safety of motorcycles (and motorcycle taxis) and ‘mainstreaming’ gender in the sector. There are several important reasons for this ‘networked’ approach.

Firstly, there is an important need to combine evidence-gathering research with more information exchange and broad-based discussion within the transport sector. There has been relatively little research on rural transport services in recent years. That which has been undertaken has seldom been well-integrated within the transport sector and many transport professionals are unaware of the implications. Studies on the problems of rural mobility have tended to be undertaken by social-scientists without close linkages to those people and departments responsible for building rural roads or regulating rural transport services. Some studies have gathered data on the problems of accessing health facilities, agricultural markets and education, but few have published outputs orientated to the policy makers responsible for rural transport. ReCAP wishes to commission high quality research that will provide the evidence-base for improved policy and practices relating to rural transport services.

Secondly, with ‘networked research’, people can work together creating synergy. With several researchers or teams, the sum will be greater than the parts. There is faster overall progress as different people share experience and help each other to understand complex issues. This is crucially important for the emerging and under-researched subject of ‘rural transport services’. It will also facilitate the promotion and mentoring of young female and male researchers.

Thirdly, with project clusters, it is easier to develop multidisciplinary approaches linked to key policy issues. The collaborating projects can include people involved with road construction and maintenance, agriculture, health and education. It should help to understand rural transport services from the points of view of the many different types of transport users as well as the operators and regulators/planners.

Fourthly, networked project clusters can help build the critical mass needed to reach the policy-makers and therefore result in the useful, practical outcome of improved rural transport policies and practices. With several studies and many organisations associated with the research, it is easier to get decision-makers to attend workshops and to learn the significance of the research.

Between December 2014 and April 2015, AFCAP supported six projects to undertake transport services research in Tanzania. They collaborated as they looked at issues relating to motorcycle taxis, agricultural transport, older people and indicators of effective rural transport services. A reporting workshop was well attended by policy makers in the rural transport sector and associated departments (agriculture, health, police, local government). They learned from rural people during field visits and worked enthusiastically together to prioritise key rural transport services issues. Invited participants from six other African countries also gained from the workshop experience and may help to initiate further national or regional research clusters. There was strong support for the inter-disciplinary collaboration and networking approach, and rural roads engineers were particularly enthusiastic about their better understanding of the actual users of the rural roads. A practical example of this is given on page 7 of this newsletter.


By Paul Starkey, contact at p.h.starkey@reading.ac.uk
Integrating rural transport in the SDG framework: lessons learnt

The Millennium Development Goals (MDGs) will be expiring this September and the finalisation of their successor Sustainable Development Goals (SDGs) is almost concluded. Recognising the vital role that transport sector plays across many development sectors, and acknowledging that this contribution was not properly recognised in the MDGs, the International Forum for Rural Transport (IFRTD) and the Partnership on Sustainable, Low Carbon Transport (SLoCaT) were involved in various processes aimed at strengthening the position of transport among the SDG Goals Target and Indicators Matrices.

Whilst IFRTD has worked by mainly lobbying various key stakeholders in African governments, the SLoCaT approach has focussed on working through United Nations channels, including formal submissions through SDSN –Sustainable Development Solutions Network– and UNDESA –United Nations Department of Economic and Social Affairs, as well as a letter to representatives of all permanent missions to the UN. Despite using different processes, the common motivation was to have transport (and specifically, rural transport) more strongly embedded in the Sustainable Development Goals –SDG– framework to reflect its impacts on development as recognised by Rio+20 outcome document on sustainable development. Considerable work was put into formulating sustainable transport goals, targets and indicators that could be negotiated into the SDG framework.

The final draft of the SDG document makes several direct and indirect references to the role of transport in contributing to goals addressing areas such as food security, urban development, health and air quality, infrastructure development, energy efficiency and other areas, but unfortunately, the need for improved rural transport and enhanced rural access are not sufficiently incorporated into the proposed SDGs. The need for improvement of rural infrastructure is stated but no specific reference to rural transport is made.

Overall progress has been made in raising the profile of transport within the SDGs relative to the MDGs, where it was not mentioned at all. However, there is a need for continued advocacy, especially of rural transport issues, and within the existing goals and targets, the implicit role of transport should be made more explicit.

Some of the lessons learnt in this process include the following:

1. There is a need for a long period of engagement with multiple levels of policymakers, as well as a need to ensure consistent messages on the importance of raising the profile of rural transport using national, regional and international channels. A lead period of 3-4 years is needed to ensure there is enough time for follow-ups, while allowing stakeholders time to consult and build consensus.
2. There is a need for well-resourced mechanisms for transport sector engagement. From the IFRTD perspective, the experience is that the role of transport in supporting the achievement of a wide range of development objectives is not fully understood and more dialogue and collaboration is required between transport sector stakeholders and those from other sectors to which transport contributes.

By Peter Njenga, contact at peter.njenga@ifrtd.org and Cornie Huizenga, contact at cornie.huizenga@slocatpartnership.org

NEWS AND RESOURCES

AFCAP Steering Committee decides on the way forward

A meeting of the AFCAP Steering Committee was held on the 15th May 2015 in Bulawayo, Zimbabwe. This was the first meeting under the new governance arrangements for AFCAP2. The Project Management Unit presented the final Research, Capacity Building and Knowledge Management strategies for the Programme and Kenny Kistan of CSIR gave a presentation on the newly formed African Road and Transport Research Forum (ARTReF). One of the significant outcomes of the meeting included a decision that “ReCAP”, Research for Community Access Partnership, be adopted as the overall name for AFCAP/ASCAP/SEACAP with “safe and sustainable transport for rural communities” as a strap line.

By Gary Taylor, contact at gary.taylor@cardno.uk.com
Mobilising resources for transport infrastructure

The 7th Africa Transportation Technology Transfer (T2) Conference was held in Bulawayo, Zimbabwe in May 2015. The conference theme was “Mobilising resources for transport infrastructure development and maintenance for poverty alleviation in Africa.” AFCAP supported seven two-hour workshops and one field visit as part of the conference programme. The workshops focused on key issues relevant to the development of the rural transport sector in Africa including:

- Knowledge management
- Innovation in the design and construction of low volume roads
- Maintenance of rural roads – A continuing, unresolved enigma
- Monitoring and evaluation systems of rural infrastructure development programmes
- Biomimicry in road design and construction
- Rural transport services
- Evaluation of road agency performance in road asset management
- The field visit was a “Practical demonstration on provision of affordable access through road maintenance, spot improvement and upgrading interventions” and included demonstration of a tractor-towed grading operation.

The workshops were well attended and the levels of participation were high. Important views and insights were obtained, and greater awareness was achieved of key issues. For more details please see the workshop report on AFCAP website.

By Rob Geddes, contact at rgeddes@cdsafrica.com

Tractor technology at the 7th African Technology Transfer conference

Many rural road networks in Low Income Countries (LICs) are still substantially only constructed to earth or gravel standard. Traditional techniques for these roads have normally been based on the use of motor graders for routine maintenance. Due to a range of factors these approaches are usually expensive and suffer from serious funding and operational constraints in the scarce/expensive credit environments typical of LICs. Consequently, rural road networks often remain in generally poor condition. The consequence for the agricultural sector is poor accessibility and high transport costs. Crop losses are often high and producer prices poor. This all contributes to a constraining cycle of impediments to rural development. All these issues can be addressed by utilizing proven tractor technology for road rehabilitation, spot improvement and maintenance techniques at a lower cost than traditional heavy equipment approaches. Rural tractor utilization benef its both, agricultural and transport sectors, with lower unit costs. Consequently, road maintenance becomes cheaper and more sustainable, and agricultural production and transport costs are reduced. The tractor attachments such as towed graders, trailers and water bowser are an intermediate technology and have been manufactured locally in many LICs, contributing to the support of the local commercial economy. The capital investment requirements for tractor equipment are also a fraction of those required for heavy civil engineering plant and are, thus, more affordable for small and medium enterprises (SMEs) in an environment where credit/capital is scarce and expensive.

Participants at the 7th African Technology Transfer Conference held in Bulawayo, Zimbabwe (11th – 14th May 2015) had the opportunity to listen to the presentation of the paper entitled Agricultural Tractor Based Solutions for Rural Access and Development, by Kingstone Gongera and Robert Petts. The tractor technology approaches have been successfully established in Zimbabwe for decades. Trials and/or local manufacture have also been successful in Ethiopia, Kenya, Mozambique and South Africa. Lessons learnt, challenges and outstanding issues of tractor technology were also part of the presentation.

As well as discussing the tractor experiences, the participants were also provided with the opportunity to see the technology in action at a conference demonstration of tractor towed grading (locally manufactured) on a gravel road close to Bulawayo. A complete unpaved road maintenance equipment package can be purchased for an ex-works cost of less than US $50,000 to include a 75 hp tractor, towed grader, transport trailer and water bowser, making the approach ideal for local road authorities, and SMEs providing services to the rural roads, agriculture, water or transport services sectors.

For further information contact: Kingstone Gongera at ksgongera@gmail.com, Rob Petts at rob@intech-consult.demon.co.uk or Antony Clarke at antc@jmann.co.zw
Workshop on Understanding and improving rural transport services

The Tanzania Forum Group on Transport (TFG) together with the International Forum for Rural Transport and Development (IFRTD) and supported by the Africa Community Access Partnership (AFCAP), carried out a workshop on rural transport services and access during April 21st to 23rd April, 2015, in Bagamoyo, Tanzania. The workshop was attended by a total of 52 people, 37 from Tanzania and 15 drawn from Ethiopia, Ghana, Kenya, Mozambique, Malawi, Uganda, Zambia and the United Kingdom. It was opened by the Deputy Permanent Secretary, Prime Minister's Office Regional Administration and Local Government who underscored that rural access is more than constructing and maintaining rural roads but should be coupled with improvements to rural transport services. Results of a recent Tanzania research cluster supported by AFCAP were reported. Through presentations, a learning field visit, discussions in working groups and plenary sessions, participants identified key rural transport issues that can be taken forward through various types of partnerships to promote rural transport services.

During the workshop, important lessons were learned relating to trial sections, inter-disciplinary collaboration and participative engagement with stakeholders (see article on page 2 of this newsletter for more information on trial sections). The field visit to the Bago-Talawanda Road on the second day of the workshop gave participants an opportunity to interview local stakeholders including motorcycle taxi operators and various users (male, female, young, old, famers, traders, etc).

The Bago-Talawanda Road (20 km) has trial demonstration sections of various surfaces constructed in an initiative supported by AFCAP in 2010-11. Trial sections included concrete Geocells, hand-packed stone, double surface dressing, twin concrete strips, Ottaseal, double sand seal, slurry seal and gravel wearing course.

During the workshop field visit, transport operators and users were asked about the various trial sections. The hand-packed stone surface was very unpopular with all types of users. In the hand-packed stone section, motorcyclists, bicycles and pedestrians avoided the stones by travelling on the shoulder while a side diversion has been developed by larger vehicles to avoid this section. The Ottaseal and concrete Geocells were considered comfortable and safe for most vehicles, but they did encourage speeding (one village had constructed its own speed bumps). The gravel section was said to be uncomfortable for pedestrians and especially bare-foot school children. Bicycles and motorcycles tended to follow each other’s path near the edge and repeated vehicle movements had created a more-or-less stone-free track.

Motorcyclists who provide the only public transport services in the area said that the concrete parallel strips were generally unsafe for them. There is a vertical drop on each side of the strip which can be dangerous when mounting or leaving the strips. There are also raised concrete links between the strips that are unpleasant and dangerous to drive across (and they would be very difficult for three-wheelers). Motorcyclists have to manoeuvre to leave and return to the strips whenever they have to pass a motorcycle or a bicycle or when they meet a larger motor vehicle.

These various finding were subsequently discussed at the workshop. This led the rural road authority to ensure its road manual reflected the road safety issues for motorcyclists inherent in parallel concrete strips. Many of the problems of the trial road surfaces could have been prevented through better construction and maintenance systems. Road engineers and transport services specialists jointly stressed the importance of working together to ensure that road designs and transport services were safe and appropriate to all users.

Full workshop report can be accessed on AFCAP online library. Proceedings are also available on IFRTD website.

By Abdul Awadh, chairman, Tanzania Forum Group and Paul Starkey, contact at paul@paulstarkey.net
is a global network of individuals and organisations working together towards improved access, mobility and economic opportunity for poor communities in developing countries.

CALL FOR PAPERS AND OTHER OPPORTUNITIES

SLoCaT: Looking for partners for a rural transport stakeholder database

The Partnership on Sustainable, Low Carbon Transport (SLoCaT) together with the Africa/Asia Community Access Partnership (AFCAP-ASCAP) launched the project "Promotion of sustainable rural access in the post 2015 Sustainable Development Agenda" to systematically pursue opportunities to ensure a better integration of rural transport in the post-2015 development framework. For the project, the SLoCaT Partnership will develop a database of stakeholders comprising people and organizations working on policy related rural transport issues, at regional and global levels.

The database of stakeholders will be in the public domain and will serve as a network to build support for a more coordinated approach to advocacy in rural transport.

SLoCaT Partnership invites all interested organizations working on global policy related rural transport to contact Cornie Huizenga at cornie.huizenga@slocatpartnership.org

Rural Roads for Development course

This 5-day course (14-18 September 2015) by the University of Birmingham provides an introduction to building and maintaining rural roads for development and includes:

- Analytical framework for understanding rural transport
- Pro-poor transport appraisal including methods for capturing non-monetary benefits
- Rural Road design and construction
- Labour-based & intermediate technologies
- Implications of climate change

The course will include laboratory sessions to better understand simple tests which can be used in the field to determine soil properties required for appropriate design and maintenance.

More information: http://www.birmingham.ac.uk/postgraduate/courses/cpd/civil-engineering/rural-roads.aspx

EVENTS

TRANSED 2015: 14th International Conference on Mobility and Transport for Elderly and Disabled Persons
Lisbon, Portugal, July 28-31, 2015

CAPSA 2015: 11th Conference on Asphalt Pavements for Southern Africa
Sun City, South Africa, August 16-19, 2015

Rural Roads for Development Course, University of Birmingham
Birmingham, United Kingdom, September 14-18, 2015

ICTA 2015: 2nd Annual International Conference on Transportation in Africa
Botswana, November 25-27, 2015

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