AFCAP

BITE-SIZED NEWS / AFRICAN COMMUNITY ACCESS PROGRAM

AFCAP consultants and local partners collect data using Dynamic Cone Penetrometers and augers on the Kalemie-Uvira road in Katanga Province.

Zambia: Improving emergency transport with motorcycle ambulance trailers

Low-cost motorcycle ambulance-trailers (MATs) provide important and effective access to emergency services in remote regions, according to a recent AFCAP study in Zambia. The MAT can be locally manufactured for around $1,200 and towed by any 125cc or larger motorcycle. The trial of two MATs showed improved access to emergency care in Lundazi District in the Eastern Province, both for patients coming from villages and those referred from health posts.

The trial tested MATs in two scenarios. MAT 1, based at Mwase-Lundazi clinic staring July 2012, was used to bring emergency patients, mainly maternity, from their villages to the clinic. After more than 180 trips, this trial proved the MAT to be an effective and appropriate means for providing emergency transport services (ETS). MAT 2, based at Kanyanga clinic, was used both to transport emergency patients from villages to the clinic and also referred non-maternity emergency patients from health posts to Kanyanga clinic, making more than 30 trips. The trials of the MAT to date indicate that access to health facilities has been improved.

The study also collected data on attendance and referrals at health posts and clinics, together with data on alternative ETS in the district, such as bicycle ambulance-trailers. The information helps to predict ETS demand and provide guidelines for implementation. AFCAP has approved a six-month extension for further monitoring of the MAT, to study long-term sustainability and impact.

DRC: Ground-breaking work begins at demonstration sites

The latest site for AFCAP research will tackle challenges of road development and access in post-conflict environments. After months of planning and preparation, AFCAP engineers have begun work on two road sites in the Democratic Republic of Congo (DRC), which is still dealing with the effects of civil war and continued violence.

The project will focus on the demonstration of best practice in the design and construction of low volume sealed roads as developed elsewhere in the region under AFCAP. The project will facilitate the collection of new data on the performance of sealed roads in wet environments. Design work is underway on the Kalemie-Uvira research site in Katanga Province, where engineers are using the DCP Design Methodology revised under AFCAP to design the road pavement for the test site. We will soon begin similar work on the Burhale-Shabunda road project in South Kivu Province, where we have been waiting for the security situation to improve.

This significant project would not be possible without support from the DFID DRC Country Office and the United Nations Office for Project Services (UNOPS), which has provided security cover.

AFCAP / Increasing access

The Africa Community Access Programme promotes safe and sustainable access to markets, healthcare, education, employment and social and political networks for rural communities in Africa. Launched in June 2008 and managed by Crown Agents, the five year, UKaid funded project supports research and knowledge sharing between participating countries to enhance the uptake of low-cost, proven solutions for rural access that maximise the use of local resources. AFCAP seeks to feed project outcomes directly into regional and national transport policies and strategies for poverty reduction.

The programme is currently active in Ethiopia, Kenya, Ghana, Malawi, Mozambique, Tanzania, Zambia, South Africa, Democratic Republic of Congo and South Sudan and is developing relationships with a number of other countries and regional organisations across Africa.

In March 2013, AFCAP was awarded the 'Outstanding International Collaboration' award at the 2013 British Expertise International Awards, securing the top prize in recognition of achievements increasing safe, reliable and sustainable access to vital services for communities in rural Africa.

BEIA 13 WINNER

British Expertise International Awards 2013:
Outstanding International Collaboration

Regional: Bringing professional transport services to African universities

A course to improve the skills and awareness of transport professionals will soon be held at universities in West and Southern Africa, following a successful week-long pilot in Arusha, Tanzania in April. The course aims to sensitise the transport sector to current issues and methods in transport services research, with a strong focus on participatory work with users.

The course, amended to fit relevant regional contexts, will next run at University of Cape Coast, Ghana in October and at University of Malawi in November as a 'train the trainers' 5-day event. It will be run by TRL and university staff, with the goal of later embedding the course into Masters and other programmes at universities in the region. Bringing the course to local universities will provide an outlet for wider distribution of useful AFCAP research. It will also provide transport practitioners with skills to conduct more effective research and provide more accurate data for decision-makers.

Participants from seven countries included engineers, sociologists and transport services professionals who took part in taught sessions, a field trip to a local village and practical exercises.

Tanzania: Studying how transport affects the elderly

A recently published AFCAP study offers a rare examination of the mobility issues faced by older people in a developing country, including challenges posed by transporting domestic water and fuel and access to health care. The paper, "Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania", demonstrates the diverse ways older people's health, livelihoods and access to transport are interconnected – and notes how the relationships between older and younger generations contribute to the shaping of older people's mobility patterns. The study also emphasises the growing importance of motorcycle-taxi services and mobile phones for rural connectivity. The paper was published in the Journal of Transport Geography and is available on the R4D site.

South Africa Development Community: Cost savings through use of sand construction

Using unstabilised sands in the construction of upper pavement layers in LVSRs could have considerable cost savings for some countries, according to AFCAP research. The method, as described in the recently published "South African Development Community Guidelines for the Use of Sand in Road Construction", could save money for countries such as Mozambique, which traditionally stabilise sands with cement at very high cost. Sand is found abundantly over much of southern Africa, including in areas where materials meeting conventional specifications for road construction are scarce.

Tests are now being done into the self-cementing properties of grey and orange coloured sands, which are used successfully in sub-base layers in Mozambique and Botswana and in unpaved roads in Malawi. The results will be included in a second draft of the Guidelines, and a consultation and dissemination workshop will be held for representatives of all SADC states. The project is implemented in partnership with the Association of Southern African National Road Authorities (ASANRA).

Mozambique: Back analysis of older LVRs

The Back Analysis Project was initiated in 2012 in order to fill data gaps in research being conducted by the National Administration of Roads (ANE) for the Rural Roads for the Rural Road Investment Programme (RRIP). The research aims to inform ANE on the design and construction of low volume paved roads using locally occurring materials, some of which do not comply with conventional standards and specifications. The back analysis approach enables performance data to be collected from roads that have been in service for ten years or more.

The Back Analysis research is part of a process towards developing new design guidelines and specifications for the construction of paved roads in rural areas. Initial findings support the view that some naturally occurring materials perform far better than is predicted by conventional road design approaches After studying 21 sections on eight roads in six provinces, the research produced several significant findings, including the need for quality assurance of material use and better policing of axle load limits to prevent overloading.

A child completes an assignment as part of road safety classes given in 17 schools.

Tanzania : Addressing traffic injuries on rural roads

This AFCAP-funded project studied the rates and characteristics of road traffic injury (RTI) in rural Tanzania and introduced community-based safety interventions to people living along and using the roads. The study roads included two roads where AFCAP engineering research has also been in progress, providing valuable synergies with the engineering studies.

The interventions intended to curb RTIs included: training and licencing local 'boda-boda' (motorcycle taxi) drivers, distributing safety equipment to these drivers and to school children, training teachers and advocates and teaching road safety to every child in 17 schools.

The rural RTI rate in Tanzania is 40 per 1,000 persons/year, 12 times greater than the overall rate for the UK. The boda-boda driver RTI rate was 37 times more than the rate for motorcycle drivers in the UK .

The study showed high levels of RTI among the general public, and exceptionally high rates among boda-boda drivers. While RTIs were not reduced with the safety measures, this may be attributed to the ever-increasing number of motorcycles using the roads. The work provided valuable experience with implementing safety interventions in the rural context, which will help shape future safety measures.

Nigeria and Ghana: Linking rural communities to health services to improve health outcomes

Efforts by West African governments to create widespread ambulance services could help improve health and reduce maternal mortality, according to a recent AFCAP study of emergency transport services in rural Ghana and Nigeria. The AFCAP-funded study found that how a woman gets to a health facility and the time it takes has an impact on the severity of her condition and the level of care she will need once there.

The research, shows that poor physical access contributes to a greater deterioration in the health condition of women when they arrive at the referral facilities to be treated in case of a maternal medical emergency. Their worsened conditions then require greater skill, better emergency obstetric care facilities, and more equipment and drugs than would otherwise be needed if access to the facility were good. Investment in ambulances, communications systems and community-based emergency response will therefore impact health outcomes for mothers, new-borns and the health systems.

Surveys were conducted with 704 women in 40 communities across northern Nigeria. The evaluation combined transport measures and standard health condition assessment methods, including the Vital Signs approach and the Glasgow Coma Score, to assess differences in patient condition when being referred from local health centres to higher-level referral facilities. The final project report was recently approved following a workshop to review ambulance guidelines and study results in Accra, with participants from Ghana, Nigeria and Uganda.

Above, women in Nigeria care for their babies while waiting for health care.

Kenya: Aiding small-hold farmers with rural transport

An illustrated booklet could help improve the livelihoods of small holder Kenyan farmers by teaching them better planning and logistic methods for selling their crops. The recently completed AFCAP project contributes to the goal of improving farmers' incomes through increased marketing of their high-value products.

The research aimed to better understand how rural transport services affect farmers' ability to make money from high-value crops, thereby affecting their household livelihoods. Researchers examined logistics chains transporting beans, bananas, onions and potatoes and encompassing production on small, medium and large-scale farms. They then focused on improving the farm's business through teaching about planning methodology, information and communication technologies, and route schedule management.

The study is complete and the project will be extended in order to disseminate the small illustrated booklet meant to aid farmers in improve their systems.

South Africa: Study determines better road conditions lead to improved informal transport options

The condition of rural roads is a key factor determining the quantity and quality of transport providers, according to a recent AFCAP-funded study at University of Pretoria. Research on the supply and pricing of informal rural transport providers (minibus, taxis, pickup trucks "bakkies" and smaller sedan taxi 4+1s) gave significant insights that can help shape more effective responses to the rural mobility challenge and help strengthen government decision making around the planning, regulation, and promotion of rural public transport services, with a view to promoting rural mobility. The study suggests judicious infrastructure investment can be used to leverage better and more affordable private sector responses.

Mozambique: Road ponds for increased water supply

AFCAP is supporting research in Mozambique on how road works can be used to mitigate some impacts of climate change on rural communities. As roads are built or improved, the pits formed by extracting sand and stones tend to store rain water and create 'road ponds'. Ponds are also formed by building road crossings over water courses that retain storm water. Particularly in the dry season, these supplies are useful to nearby communities for domestic purposes, watering animals and irrigation.

The National Roads Administration (ANE) plan includes four road pond designs, with two road dams and two pit improvements, approved for both the Manica and Inhambane Provinces. Plans were recently approved during a two-day workshop in Vilanculos, and (ANE) has committed to provide funding for the construction. A final report on the potential use of road ponds in Mozambique is available on the AFCAP web site. AFCAP has also supported the dissemination of research carried out in Kenya on "sand dams," which are road ponds filled with sand to reduce evaporation and facilitate filtering of the water. A technical paper was recently published in the Proceedings of the Institution of Civil Engineers. Construction will begin soon.

South Sudan: Restructuring the Roads Ministry

The government of South Sudan, with advice from AFCAP and others, has decided to restructure the Ministry of Roads and Bridges (MRB). The Ministry will now include a full-fledged Directorate of Materials and Research (DMR), responsible for research and development in the roads and buildings sector. AFCAP will assist the government with this crucial step, helping the DMR to set up and develop a strategic plan for implementation of its research mandate. The new directorate will first conduct a needs assessment of South Sudan's current research capacity, before identifying and implementing priority research activities for the short, medium and long term.

Impacts and updates

- A number of guidelines and manuals have been completed recently, including: Ethiopian Roads Authority (ERA) Site Investigations Manual, Drainage Design Manual and Route Selection Manual, the South Sudan Low Volume Road (SSLVR) Manual and the Dynamic Cone Penetrometer (DCP) Pavement Design Guide for Malawi.
- Feedback from meeting held in Addis Ababa confirmed that the Low Volume Roads design manuals are being used extensively on the Universal Rural Roads Access Programme, and that about 20,000km of road has now been built.
- AFCAP was invited by ARRB Group to present research and contribute to joint sessions at the Low Volume Roads symposium in November 2013. The symposium programme will include eight presentations by researchers based in Africa who have worked on AFCAP projects. This will enable the researchers to share their experiences and the lessons they have learned, as well as to expose their research findings to international peer review.
- This identification and mapping of Calcrete deposits in Mozambique was completed with a final workshop covering the findings and methodology, and put forth recommendations for future work.
- AFCAP publications during the past quarter include:
  - '*The early performance of full scale otta seal trials on a rural road in Ghana*' Samuel I.K. Ampadu and Felix J.F. Ayeh (p 69) IJP 2012 Vol 11 No 1-2-3 (Jan-May-Sept 2012) ISSN 1676-2797-
  - '*Sub-National Public-Private Partnerships in Sub-Saharan Africa: A Case of Road Management in Uganda*' – Third Global Accounting, Finance and Economics Conference to be held in Melbourne, Australia from 5 – 7 May, 2013
  - '*Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania*' – Journal of Transport Geography – Vol 30: 161-169 (2013).
- DFID has extended Crown Agents' AFCAP management contract through 30 June 2014.

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