

Country case study: Zambia

WHY READ THIS CASE STUDY?

- A** Most sub-Saharan African countries are struggling to introduce sustainable systems for the maintenance of their road networks. The issue is not just funding. Following the creation of Road Funds, financial resources for maintenance are much more plentiful than they used to be. The main issue is building capacity to actually execute the work and achieve quality results for the money spent. The experience from traditional contracting has been patchy, leading to frustration in Road Agencies and dissatisfaction amongst road users.
- B** Many countries are now experimenting with performance-contracts in an attempt to move responsibility closer to those who are able to make a difference on the ground, i.e contractors and consultants themselves. The motivation is not to save money, but to make sure that money spent has a real and meaningful impact on road conditions.
- C** Experience in Zambia is of interest because of the commitment key players in the road sector have shown in the approach. Over the past 10 years performance-contracts have become the norm for a range of maintenance works.

The context

The situation in Zambia is typical of many other countries in sub-Saharan Africa who are struggling to maintain extensive road networks from a very limited resource base. The country is large (752 000 km²) with a population of around 12 million. Zambia is classed as a Low Income Country with a GNI per capita of USD 630. Total road network is around 90 000 km of which 20 000 km are Trunk, Main and District roads carrying the vast majority of traffic outside urban areas. Only 7 250 km are paved, constructed mostly in the 1960's and 1970's. Many roads are gradually being improved/rehabilitated often with financial assistance from donors and external funding agencies.

Zambia was the first country in the region to adopt a second generation Road Fund in 1993, and since 2002 has an agency structure with separate agencies responsible for funding, road management and road safety each reporting to different ministries. The Road Fund now receives about US 160 million per year from road user charges and a levy on fuel for road maintenance. One of the main challenges facing the agency is disbursing maintenance funds efficiently and effectively over the network.

Motivation for performance contracts

The Roads Board, who managed the Road Fund from 1998 up to the creation of the agencies in 2002, had a mandate for road maintenance that overlapped with the then Roads Department. The Board had a specific interest in getting best value for money from the then very limited Fund resources and was influential in setting maintenance policy.

The Board believed that traditional ways of contracting out maintenance using measured contracts, especially for simple routine maintenance works, was not giving required results, and that it was time to introduce a new system. Traditionally, routine maintenance contracts were let for small road sections (about 20 km each) under contracts procured in the provinces but paid for centrally from the Road Fund. Each year many hundreds of contracts were awarded after a lengthy and administratively burdensome procurement process.

As in most tropical countries road maintenance in Zambia needs to be scheduled around the rainy season. Using traditional contracts and procurement procedures it was almost impossible to ensure works on the ground took place at the right time of year. Grass was not cut until well into the dry season when it could be up to 2 metres high, drains were not cleared until after the rains, potholes patched during the rains, grading done in the dry season when there was little or no moisture for compaction etc.

In addition, because estimating maintenance work is so difficult, the suspicion was that contractors were being paid for work that was either not needed (because the time for intervention had passed) or for quantities that bore little relation to the work actually done. Although the costs per km were low there was dissatisfaction with the quality of the work and impact on the condition of the network. By 1999, the Board wanted to move forward and introduce a better system. After a study tour to some developed countries (notably Australia and New Zealand) the potential benefits of performance-based contracting were appreciated and the decision was taken to organize a trial in Zambia under Road Fund financing.

Contracting capacity

The contracting sector in Zambia is typical of that found in many other countries in the region; a small number of medium to large sized firms equipped to do the larger road construction/rehabilitation and periodic maintenance contracts, plus numerous small-scale labor-based contractors with limited equipment.

Even the larger local firms lack the financial resources to pre-finance works to any extent. It is difficult and expensive to borrow money locally since loans to road contractors are perceived to be high risk. Most companies operate with small overdraft facilities in relation to turnover.

In recent years larger regional and foreign contractors have been able to displace local firms in their home market for the bigger road construction and maintenance contracts, mainly because they have access to more financial resources and equipment.

Pilot projects

It was decided to start at the 'bottom end of the spectrum with a simple performance-contract for routine maintenance. A contract format was developed using the FIDIC short-form and some simple specifications; mostly for off-carriageway works such as verge and drainage maintenance. Other works for repairs to culverts and road-signs is instructed and paid through dayworks schedules.

To begin with pilot contracts were launched on about 1 000 km of the paved Trunk and Main road network but the system was later extended to urban roads in Lusaka and some of the larger provincial towns. Roads were divided into 50 km sections and bidders were asked to satisfy some simple technical criteria to qualify. Contracts were initially for 12 months but are now typically for 3 years provided contractors perform satisfactorily. The first contracts on the Trunk and Main Roads were relatively small in value (up to around USD 50 000/yr) each. Later, similar contracts were awarded for maintenance of streets in the capital Lusaka.

Today, these simple contracts are used on 18 000 km of the core road network covering all the paved roads and some of the more important unpaved roads.

The introduction of the performance-based system was not without its troubles. It was difficult for road managers to accept that Contractors were entitled to be paid irrespective of the amount of work needed, even when there was virtually nothing to do. Supervisory staff in the then Roads Department had difficulty applying the performance criteria or adopted a 'hands off' approach assuming the contractors were responsible for supervising themselves. To help out, the Roads Training School took an active role in managing a number of contracts directly and organizing training for the contractors and supervisors alike.

Results

The benefits of the approach soon became apparent mainly because of the longer term nature of the contracts and the stronger linkage developed between the contractor, road users and the road section(s) under maintenance. An increased sense of responsibility resulted in more professional working practices (signing and worker safety) and better organization which in turn has led to improved quality of work with interventions better timed to coincide with the seasons.

There was a lot of criticism of the approach in the early stages. Some managers pressed hard for performance contracts to be abandoned. But the Roads Board had sufficient belief to argue the case for continuing with the system for the following main reasons:

- ① Continuity in maintenance programming, avoiding the need for repeated procurement from one year to the next, resulting in smoothing of disbursements and easier budgeting;
- ② Increased accountability for the quality of work being done, facilitating monitoring and auditing;
- ③ The change in focus from quantities of work done to road quality.

With time the benefits were accepted by most critics. The system has now been in use for almost 10 years and is firmly established in routine maintenance policy.

The move to OPRC

Soon after its introduction on paved roads attempts were made to extend the PBC approach to maintenance of unpaved roads using small contractors. To limit the implications of risk transfer only simple tasks such as drainage maintenance were paid through a lump sum and assessed on performance criteria. All other works were instructed by a monitoring Consultant who applied quality standards to trigger interventions such as grading and gravelling which were paid on a schedule of rates basis.

In 2006 performance contracts were introduced on over 3 000 km of unpaved District Roads with funding assistance from the European Union. The District Roads had been neglected for many years as the main thrust of road investments in Zambia had gone into bringing the paved roads into maintainable condition. As a result connections between district centres had become increasingly problematic, with many roads becoming impassable during the rains.

A total of 10 contracts were awarded using the World Bank sample bidding document; 'the Output and Performance-based Road Contract, OPRC'. This splits the works into four elements: Initial Rehabilitation, Improvement Works, Maintenance Works and Emergency Works of which only Maintenance is paid on a performance basis. Under this contract, bidders are required to make their own estimate of the initial work needed to bring roads up to maintainable condition (the design) which is paid on a measured basis under the 'Output' part of the contract, normally during the first year or so. Maintenance services are priced as a lump sum which is paid in monthly instalments according to the length of network under maintenance and the Contractor's ability to respect performance criteria. The total value of contracts currently underway is about USD 70 million. Costs average USD 12 500 per km for initial works and USD 2 500 per km/yr for maintenance.

OPRC procurement

Only larger contractors were able to qualify during the tender process for these contracts which were for networks of up to 700 km of roads. None had previously worked with this type of contract before. Only one firm joined up with a consultant to bring in road management expertise. The contracts were tendered with a minimum of preparation by the Road Agency so Contractors were asked to take all responsibility for design of the initial works. Due to the very poor state of the roads, in many cases the initial work needed was substantial.

As a result the Road Agency had great trouble comparing the bids, complicating the evaluation, and because no studies had been done there was no baseline for judging prices. During implementation it proved difficult to establish exactly what the Contractors had, or had not, priced for in their bids. The lesson learned was that these types of contracts require just as much, if not more, preparation than a traditional contract. There are no short cuts or quick fixes.

Despite the problems with agreeing on the scope of the initial works, the impact on the ground has been quite remarkable with some roads becoming all-weather routes for the first time in years. Traffic levels, and vehicle speeds, have increased quite dramatically especially in some of the more remote areas. Some Contractors have complained that maintenance demands are higher than originally expected, but most roads are still only carrying less than 200 vehicles per day.

Supervision

The smaller performance contracts for routine maintenance are supervised by Road Agency staff, normally simply through monthly drive-through inspections and spot checks.

Local consultants have been engaged to supervise the larger OPRC contracts. None had previous experience in performance-based works and all experienced difficulty in managing the contracts in the early stages, linked mainly to poor contract preparation by the Road Agency. Difficulties were also experienced because supervision began several months after the works. Inputs from consultants were part-time even during the initial stages when the important rehabilitation works were being done.

The Agency had assumed that this type of contract only required light supervision due to transfer of responsibility to contractors. However, it soon became apparent that closer management of the contracts was needed to compensate for lack of experience and poor preparation.

Future OPRCs

Lessons learned from the District Road contracts are being incorporated in a new batch of contracts for other unpaved roads financed jointly by the EU and the Road Fund. Initial Improvement and Rehabilitation Works have been separated in a traditional measured contract procured separately to the maintenance services. However, it is expected that the same contractors will be involved at each stage so responsibilities will not be separated.

In 2007 more performance-contracts were prepared for maintenance of over 1 000 km of feeder roads under a World Bank financed project for Agricultural Development. These contracts are due to be awarded in 2008.

Much care has been taken to define the initial works in these contracts. Design responsibility is only passed to Contractors for clearance of simple backlog maintenance which has been combined with maintenance services in the performance-based part of the contracts. Everything else, including earthworks and additional structures needed to bring roads up to required standards, is specified in a traditional way in bills of quantity and on drawings.

In addition, detailed cash-flow analysis has been undertaken to estimate the financial demands placed on contractors for pre-financing performance-based services. Factors have been introduced to the monthly payments in relation to performance compliance

schedules so contractors are compensated for the peaks in expenditure incurred at the beginning of the contracts.

Technical Support

Despite efforts made to brief contractors and consultants during the procurement of the OPRCs it has become clear that support needs to be carried through into implementation, and that both contractors and consultants require assistance especially during the early stages of the contracts. The difficulty in Zambia, as in most countries in the region, is finding the staff with the experience to perform this role. The agency and the private sector are both stretched keeping up with the workload. However, without such support, demands on contract management are increased, thus distracting agency staff away from other work. Clearly, appropriate monitoring and evaluation frameworks need to be developed so the industry can gradually adapt to new working practices.

Lessons learned

The lessons learned from the years of experience in Zambia for maintenance of both paved and unpaved roads are applicable to many other countries in the region experimenting with introduction of the performance-based approach:

- Introduction of new ways of working requires high level commitment and belief to get through the early parts of the learning curve;
- The approach works best when it is homegrown and funded from local resources. The role of Road Funds and Road Boards is critical;
- It can take several years for Road Agencies to adapt to new working practices and accept performance-criteria as a robust payment mechanism;
- Performance contracts require closer supervision than might be expected and Road Agencies should not underestimate supervision requirements;
- Monitoring and evaluation frameworks need to be developed to assist contractors and consultants in contract supervision and management;
- Design responsibility should only be passed to Contractors for more straightforward backlog maintenance works. Other more substantial interventions should be specified in the tender documents to simplify bid evaluation and contract supervision;
- Local contractors have very limited pre-financing capacity so transfer of risk and financing needs for the performance-based part of the services needs to be carefully assessed to minimise the possibility of default by Contractors;
- Performance contracts offer interesting opportunities for local consulting firms, joining with Contractors to help plan and manage the maintenance services;
- If possible build-in technical support to assist contractors and consultants during the early stages of implementation.