SOCIAL FRANCHISING PRINCIPLES <u>DO</u> WORK: THE BUSINESS APPROACH TO REMOVAL AND DISPOSAL OF FAECAL SLUDGE -- FROM PILOT TO SCALE

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This paper is a companion to "Demonstrating the effectiveness of social franchising principles: the emptying of household VIPs".

ABSTRACT

Studies undertaken by the CSIR and WRC have found that social franchising partnerships for the routine maintenance of infrastructure could alleviate and address many challenges in the management of water services

A pilot project, under way in the Eastern Cape since 2009, has drawn to a successful conclusion. This provided selected infrastructure maintenance services to approximately 400 schools in the Butterworth education district. Half a dozen franchisee microbusinesses were created, and of the order of three dozen previously unemployed people were taught workplace skills. Irish Aid funded the concept development, but the franchisees were paid from the normal Department of Education (DoE) schools operation and maintenance budgets.

Despite difficulties arising directly from DoE inefficiencies, the pilot project has proven the value of social franchising partnerships for this kind of work -- the DoE now has a model it can roll out to the rest of the more than 4000 schools across the Eastern Cape which have similar types of infrastructure.

Many opportunities lie in applying the same approach to other operation and/or maintenance activities within the water and sanitation services delivery chain. The time is ripe to further develop the concept so that it can move up the technology ladder, expanding its range of competencies beyond its current tried and tested boundaries.

Key words: SANITATION, SCHOOLS, SOCIAL FRANCHISING, MICROENTERPRISES, SOUTH AFRICA

INTRODUCTION

Year after year, the operation and maintenance of water services infrastructure in South Africa has in far too many cases been found to not comply with the required standards (Duncker et al 2008; SAICE 2011; DWA 2012a, 2012b). This research has also shown that the main problem is most likely to be shortfalls in the skills and management of the institution responsible for the services.

The Council for Scientific and Industrial Research (CSIR), the Water Research Commission (WRC) and the private sector water services provider Amanz' abantu¹ Services (Pty) Ltd, acting in concert, have for a number of years funded and undertaken studies of selected institutional options that could assist in the improvement of operation and maintenance. This research postulated that franchising partnership models, developed in the private sector for providing a wide range of services, could be adapted, and the resultant social franchising partnership model could be a valuable and viable addition to the current range of institutional models for the operation and maintenance of public sector sanitation and water services infrastructure. (Wall 2005; Wall and Ive 2010)

Since the 1950s, franchising has utilised the drive of entrepreneurship while reducing many of the risks to small business (Parker and Illetschko 2007:9). The research by the WRC, CSIR and interest from Irish Aid and others prompted Amanz' abantu in 2008 to establish a subsidiary, Impilo Yabantu² Services, to play the role of franchisor where needed. The concept of utilising this innovative business approach was supported by key officials of the Eastern Cape provincial Department of Education (DoE), who saw its potential to assist them with one of their most intractable problems, namely the poor levels of maintenance of water and sanitation infrastructure at schools. Particularly, they saw its potential for rural schools, where harvested rainwater is generally the only water supply to the school, and the toilets are VIPs or similar. Agreement was reached that the model would be piloted on the routine servicing of the water and sanitation facilities at selected schools.

In 2009 Irish Aid, the CSIR, the WRC, the DoE and Amanz' abantu signed a memorandum of understanding ("MoU") to implement a three-year pilot for routine servicing of water and sanitation facilities at the approximately 400 schools in the Butterworth education district of the Eastern Cape.

Impilo Yabantu and its trainee franchisees have in less than three years greatly improved the condition of the school toilets in this education district. This paper reflects some of the key benefits and lessons learnt, and sets out thoughts as to how this franchise approach might be replicated.

THE PARTNERSHIPS

In the words of the Franchise Association of Southern Africa (FASA) a franchise is "a grant by the franchisor to the franchisee, entitling the latter to the use of a complete business package containing all the elements necessary to establish a previously untrained person in the franchised business and enable them to operate it on an on-going basis, according to guidelines supplied, efficiently and profitably." (Parker and Illetschko 2007:15).

Water services franchising partnerships can broadly be described as business-to-business partnerships, whereby small locally based enterprises enter a business partnership with a larger established enterprise for the purpose of utilising a "tried and tested" approach for undertaking selected activities required to ensure sanitation and water facilities and systems are operating in a reliable manner and in accordance with suitable availability, hygiene and environmental standards.

The concept of "social franchising" is defined as "the application of commercial franchising concepts to achieve socially beneficial ends" (Montagu 2002) and has been identified in the health sector as a model which can, among other things, assist in the provision of health services and distribution of pharmaceuticals. It can also be appropriate for other sectors, particularly where the quality of the service needs to be driven up and the cost of the service needs to be driven down through using tried and tested delivery mechanisms.

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¹ A Xhosa phase which means "Water for People".

² "Hygiene for People".

These social partnerships are especially suitable for communities with a large poor population needing infrastructure services, but who are also looking for employment and an opportunity to develop their entrepreneurial and technical skills. The water services social franchising partnership model provides opportunity for linking "local economic development" and job creation with the provision of basic municipal services.

In the Eastern Cape pilot, trainee franchisees, all local people, with few exceptions first-time entrepreneurs, have been helped to set up microbusinesses which mostly employ women from the rural villages. Under the guidance of the franchisor, these teams are undertaking the initial cleaning and thereafter routine maintenance of the water and sanitation facilities at the schools.

This model provides appropriate training, a quality management system and procedures, and the backup of the off-site skills held by the franchisor. The franchisor identifies people with the skills appropriate to franchisee microenterprises, who are resident in the target area and who, once they have been exposed to training, are willing to enter into a franchise agreement. Key to the success of this model is the willingness of the public sector authority owning the infrastructure to outsource its responsibility for routine servicing, and the ability of this authority to procure, appoint and direct microbusinesses to undertake the work under the guidance of the franchisor.

The primary objective of the Butterworth schools sanitation and water servicing pilot project has been to develop and test an outsourcing model which can be used for rolling out similar services to the rest of the more than 4000 rural schools across 23 educational districts in the province.

Research findings from the Eastern Cape pilot indicate that many opportunities lie in applying the principles of franchising to a range of suitable operation and/or maintenance activities within the water and sanitation services delivery chain -- that is, of readily systematised repetitive operation and maintenance activities.

EASTERN CAPE CONTEXT

The Eastern Cape for the most part presents a tragic example of public sector services failure at the municipal, district and provincial spheres. Particularly:

- Whilst there is a good strategic framework in place with high-level goals, planning at the local level is insufficient and often unrealistic.
- Whilst the public authorities may apparently have full staff complements, many of the incumbents lack the necessary level of skills required for their positions.
- Grant funding for infrastructure capital works is available; however the stringent processes required for planning and procurement are a barrier to implementation.
- Where the public authority has entered into supply contracts with small businesses, the inability of the
 authority to effect proper contract administration and regular and timeous payment frequently causes
 these businesses to fail -- or to abandon the contract because they are unable to operate in this difficult
 environment.
- There is not sufficient incentive for officials to proactively drive the processes forward, and many appear to prefer to accept the bureaucratic log-jams rather than to work pro-actively to find ways to solve these administrative delays and problems. This negative situation is reinforced by the fear of the officials that they may be held liable for wrongdoing if they make decisions that may be judged as unprocedural.
- The Eastern Cape has a long history of education crises. The DoE was during 2011 (not for the first time during the last decade) placed under the administratorship of the national government Department of Basic Education.

Within the South African context the provision of infrastructure in the rural areas has, for ideological and financial reasons, often favoured functionality and quantity over quality and sustainability. The imperative to produce demonstrable short-term results has generally outweighed long term considerations. The focus of education authorities has invariably been on classroom-based activities. Insufficient attention has been paid to the essential supporting infrastructure. Services like sanitation, when available (not always the case), have been provided for at the barest minimum level with insufficient consideration of quality, durability and sustainability. Repair and maintenance issues have often been sidelined or ignored due to funding constraints. Consequently, much rural school water and sanitation infrastructure is either:

- dysfunctional, requiring radical interventions (extensive refurbishment or total rebuilding), or
- serviceable, but deteriorating, and threatened by further deterioration if not supported by good operation and maintenance.

Over and above this, at local level the negative impact of poor sanitation and non-availability of clean water in schools deprives learners of the basic infrastructure support they need to allow them to focus on their studies. The health and social problems arising from the lack of these basic services spill over into the community -- for example, the learners should be experiencing good water and sanitation practice at school, and should be taking this understanding home, in order to improve the practice at home, but, sadly, this is not happening.

THE BUTTERWORTH PILOT PROJECT

During 2009, the scope of work was agreed with the DoE, and training and operation plans were developed.

Advertisements called for parties interested in becoming "water services franchisees" to come forward. A condition was that they had to be resident in the Butterworth area for two reasons:

- to ensure that the work would be done by 'local' people drawn from the communities that would be served, and
- in order to minimise travelling time and cost to Butterworth and to the schools that would be serviced.

Prospective franchisees were screened, and the shortlisted were interviewed in more depth. Those selected received initial training in East London. Thereafter the trainee franchisees and franchisor met with the DoE Butterworth District staff and school principals in order to plan their programme schedules, and for works orders to be agreed. Distinct operational areas, based on accessibility and scope, were determined within the District, and these were allocated on the basis of one for each trainee franchisee microenterprise. These franchisees were required to operate under the same brand as the franchisor, i.e. "Impilo Yabantu".

Impilo Yabantu also established and trained an in-house team. One purpose of this team was (and still is) to be available as a back-up should a franchisee drop out. The other purpose of the team has been to provide the franchisor with benchmark costs and an opportunity to develop and test methodology and procedures.

It was estimated that four franchisees would be sufficient for the regular servicing of the schools sanitation facilities in the Butterworth District. However, eight underwent training on the assumption that there would be drop out over the course of time.

Impilo Yabantu set up an office and stores in the town of Butterworth. Apart from the basics (protective clothing with the Impilo Yabantu logo, and cleaning equipment and materials), each franchisee was supplied with a digital camera. The purpose of the camera is to take photographs of 'before' and 'after' the maintenance service, and it is on the basis of the completion reports, which includes photographs, together

with a signing off of the works order by the school principal, that the franchisees are paid. Franchisees have to provide their own light delivery vehicle, with acquisition facilitated by the franchisor if need be.

Impilo Yabantu developed and adopted a Quality Management System (QMS), which is applicable to all work conducted by both Impilo Yabantu as the franchisor and the Impilo Yabantu franchisees-in-training. The QMS provides a framework to ensure regular audits are undertaken, as well as providing a controlled management system which enables the franchisor to manage the documented works procedures. Spot checks are conducted by the franchisor on randomly selected schools to ensure standards of work are being maintained.

A key component of the service provided by the franchisees has been that of inspection and reporting on the serviceability and suitability of the facilities. The photographs taken assisted in the process of inspection and assessing schools future repair (in some cases, replacement, the toilets having been found in such a poor structural condition) and maintenance needs. Reports compiled from these inspections have been submitted to the district managers of the DoE at monthly meetings, and repair and maintenance lists then agreed for implementation over the next month. In this manner, ongoing service relationships have been developed between the franchisees, the school principals and the DoE's district managers.

In terms of the MoU, the franchisees billed the schools (or the DoE on certain schools' behalf) each time they do cleaning and maintenance. But all of the development costs – i.e. developing the concept, developing the training schemes, doing the training, preparing the operations manuals, and so on -- were funded by Irish Aid, WRC and also the in-kind contributions of Amanz' abantu and the CSIR.

The franchisees themselves took out loans to fund the capital outlay for equipment and so on. Raising capital in these recessionary times is difficult if not impossible for small businesses. However, because the banks much prefer lending to businesses which follow proven models, it was found that franchisees have a far better chance of securing bank loans over stand-alone small businesses. Where loans have been taken out, it was estimated that these loans will be paid off over about three years from the revenues received from providing the maintenance service.

Due to the burden of the start-up costs, as well as their uncertain workload, franchisees were not expected to make net profits until their third year. Nor did they. Only continuity of work would resolve this. With hindsight, it was fortunate that, whereas it was originally planned that the franchisees would have to provide their own LDV (bakkie), with acquisition facilitated by the franchisor if need be, this was not implemented. Instead, vehicles were hired when necessary (including, in more than one instance, from local people in the immediate area where servicing work would take place, thus further endearing the franchisees to the locals)

During the pilot, Impilo Yabantu, as franchisor, found it necessary to take direct responsibility for defining and securing the work orders, and it then instructed the franchisees to perform the work. In effect, each maintenance order was a small contract -- for the first round of maintenance, each order was between R 2000 and R 5000. Effectively the potential franchisees were managed as subcontractors during this start-up phase, although they have been treated as franchisees for all other aspects of the operations. Impilo Yabantu assisted the franchisees through the setting-up phase, including the basic business and administrative training, and the development and training of the operational methodology.

Post-pilot it is planned that the franchisees will no longer need the comfort and safety net of a subcontract arrangement, and the switch will take place to a full franchising-like arrangement, with the franchisees being appointed directly by DoE. The franchisees should by then be capable of seeking new clients and generating new and repeat business, and will be expected to manage their own interactions with the DoE (and any other clients or potential clients). In particular, this means that they will have to manage their interactions with the

DoE district officials and they will need to ensure the school principals and the school governing bodies are satisfied with the result and approve the work done.

The franchisees will also be able to offer their services to clinics, other public authorities, and to private business and households.

As the franchisor, Impilo Yabantu has played a very intensive role, not only managing the administrative part of the process (checking and compiling invoices and ensuring payment from the DoE), but also being responsible for ensuring random checks on franchisees for quality control, and processing the vast array of 'before' and 'after' photos from each school. Another key role of the franchisor is that of "fire fighting" - addressing problems and issues as they arise, which during the development of the process, was a common occurrence with problems such as payment delays, failure of equipment and the logistics of schools "not existing" or "not having any latrines".

The value of the franchise arrangement has been proven over and over again on this pilot. Not only has this been in respect of the anticipated advantages such as the training and mentoring, but it has been demonstrated in the form of the protection that the franchisor has provided against the inefficiencies of the DoE. For a particular example: when payments by the DoE are late, it is the franchisor that follows up on behalf of all franchisees -- it is not necessary for each individual franchisee to come in from the field, costing time and travel expenses, and losing production. Given the difficulties with the DoE payment regime, it is highly unlikely that stand-alone microbusinesses would have survived for long.

BENEFITS

Franchising incentivises a professional approach to business on the part of micro entrepreneurs. Many subsidised programmes have enjoyed limited success that does not last beyond the periods of financial support and are not scalable models (Bramley and Breslin 2010). "Professionalizing" these services not only creates job opportunities and encourages small business ventures to move into this sector, but it gives individuals a reason to take pride in having a career in sanitation that may otherwise carry the stigma of being undignified and unrewarded. Instead of entering into a partnership with people who simply leave if alternative employment is offered, the contract between franchisee and franchisor provides a more stable relationship to ensure that the work commissioned by the client is completed in a set time frame to an expected level of quality.

This redevelopment of the relationship between the user, client and service provider encourages an ongoing association and provision of service. It transforms a social service into an established business that is guaranteed through the support of the franchise arrangement. The driving force behind success is the franchisees' ambition to succeed, as they have a clear incentive to achieve set standards, be paid when they achieve these standards, and run and grow their own business. Reinforcing this, management systems ensure quality control over the operations, sustainability through economically viable pricing systems, and responsible health and safety and environmental management systems.

The franchising partnership model addresses one of the more neglected areas of service provision, viz the ongoing operation and maintenance of facilities. Continuity of service can be ensured through investment in and development of the franchisees.

PITFALLS

Key to the survival of any business is that the service providers are paid for their services otherwise they will have no interest in continuing the work, and rightly so. Due to poor governance and weak public administration

systems in much of South Africa, timely payment for work completed can be uncertain. Payments to the franchisees had thus to be initially covered through partner funding and by Amanz' abantu, these costs being recovered much later from the DoE.

It would not be untrue to say that 90% of the worst problems on the pilot have related to DoE payment delays and slow decision-making. In contrast, the franchise partnership's performance of training, safety, efficiency and of course infrastructure operation and maintenance service delivery has been successful.

From this it has been learnt that government bureaucracy needs to greatly improve its efficiency, and also to be fairer in its treatment of the private sector, small businesses in particular. Whereas the technical and practical problems (i.e. doing the work) have, in this pilot at least, been resolved fairly easily, the majority of frustrations and pitfalls have come from structural issues of this nature.

Establishing Impilo Yabantu as designated project manager, an independent structure, ensured a focus was kept throughout the project on overcoming issues and challenges. It was accepted from the outset that Impilo Yabantu would not make a profit during the pilot as it was intended to pioneer the franchise approach in such a project, and to overcome hurdles, ensuring that the project stayed afloat.

The DoE has stated that it is keen to roll this programme out to other areas in the Eastern Cape. However there is a need for greatly improved willingness on the part of departmental officials to make commitments and stick to them, and in particular to pay suppliers (not by any means only franchisees or even only all water services providers) on time and in full. Most importantly, changes will be needed to support the development and partnership with small businesses so that contracts and payment can be facilitated in an effective manner without some of the pitfalls that have been encountered (and overcome) during the pilot.

FACTORS AFFECTING VIABILITY AND COSTS

The pilot has underlined that rolling out of the programme must sink or swim on financial viability -- and costs of undertaking the servicing, while not the main contributor, have a significant bearing on that.

Four of the MoU partners have carried all research and development costs (it was never intended that DoE could carry any part of these costs). While DoE, in terms of the agreement, undertook to pay in full and on time, according to pre-agreed standard tariffs, for the services rendered, it has in practice been extremely slow to pay, and Amanz'abantu has in essence bridge-financed the work of the franchisees. This is not the way it should be -- franchisees, being small businesses, must be paid within 30 days of tendering invoices. If they are not paid timeously, cash flow problems will drive them under.

The franchisor and franchisees are mutually dependent in many ways, particularly in respect of financial viability. Thus, for example, if the franchisees cannot cover their costs, the franchisor will find it difficult to remain in business and provide them with a service.

All of this is crucial to any post-pilot phase. Rolling out the programme to further education districts in the Eastern Cape cannot be contemplated unless the DoE becomes a more reliable payer of its bills. This finding can be readily transposed outside the education sector -- owners of infrastructure must pay on time and in full for services rendered.

Franchisees are not unique in needing to be paid in order to stay alive. All types of outsourcing by public sector bodies is jeopardised if those bodies are unable to pay according to contractual requirements -- everything else being equal, stand-alone microenterprises will go under first, followed by franchisee microenterprises,

thereafter by larger businesses. Alternatively, the public sector bodies will find no takers when they try to outsource, or bidders will load their prices in order to cover themselves against the unknown.

Not unexpectedly, the amount of effort involved in this work -- including time, training required, equipment required, and ingenuity -- varied enormously. The main variables included the type of top structure, the nature of the pit contents, whether there was or was not broad consistency of type and contents in an area, distances (between pits, from home base to work site, from pits to disposal site, from location of specialised equipment to work site), logistical delays (e.g. non arrival of equipment), and bureaucratic hold-ups (especially payment delays).

The biggest single influence on cost was continuity of work -- or lack thereof. To illustrate -- once the franchisees were able to get into a routine, they could each empty up to five household toilets each day, and dispose of the contents. Obviously, ability to work at this pace brought the cost per toilet down substantially.

While none of the above list is unique to franchising partnerships, this serves to underline the point that service providers, when pricing the service, have to be keenly aware of all of the above, because the cost of an effective service can vary between wide limits.

NEXT STEPS

From this piloting of water services social franchising partnerships in poor communities, it has become clear that government has a major role to play in facilitating the micro-economic environment which will lead to the stimulation of growth of business at the "bottom of the pyramid". Prahalad identified this need to develop what he calls "an ecosystem for wealth creation" (Prahalad 2006). Whilst government should not be the active participant in this entrepreneurial activity, it can stimulate the activities by placing certain public service responsibilities into the hands of small businesses. By stimulating economic activity for small business in these poor and rural areas, the environment will become more conducive to value creation even beyond the provision of public services.

The pilot has developed a usable and replicable business plan with tried and tested operating procedures. This will be documented, and the information placed in the public domain. It is hoped that other reputable, competent and ethical service providers will thereafter enter the market and create competition for Impilo Yabantu. The management systems are important to ensure quality control over the operations, sustainability through economically viable pricing systems, and responsible health and safety and environmental management systems. These systems attract additional cost but they ensure responsible governance and enhance efficiencies throughout the franchise operation.

Technical methodology also needs further development. Impilo Yabantu and the pilot study research team have been monitoring developments relating to the management of biological processes of the pit contents as well as developments relating to mechanical equipment and techniques for pit emptying and sludge handling and disposal.

Impilo Yabantu is currently in the process of expanding its operations to provide a wider range of services. By broadening this range of services, Impilo Yabantu is seeking to increase its ability to generate turnover base, thereby enabling the franchisees to become more cost-effective and therefore more competitive.

This "service broadening" process initially entails expanding the school sanitation programme by introducing additional services such as solid waste disposal. Expanding further outside of the schools environment, the services to local government, for example, could include servicing of household level sanitation, solid waste

management and water loss management. An appointment to empty 400 pit toilets for Amathole District Municipality has already been completed, and further work for the same municipality is at the time of writing about to commence. Buffalo City Metropolitan Municipality, amongst others, has opened discussion about a series of projects that could be outsourced to franchised service providers, and these include undertaking water and sanitation servicing in dense settlement and areas and communities living on the rural fringe, as well as solid waste collection, recycling and disposal. The solid waste service is a natural extension to the on-site sanitation programmes -- without a solid waste service, toilets rapidly fill up with inorganic waste.

The earlier studies by the CSIR/WRC/Amanz'abantu team analysed the water services delivery value chain, and identified 40-something types of opportunities for microbusinesses (Wall and Ive, 2010). The social franchising partnerships concept is set to expand beyond its current tried and tested comfort zone of routine servicing of low-technology water and sanitation infrastructure.

CONCLUSION

In spite of administrative and political hurdles which have delayed progress, the pilot has been very successful in operation and maintenance of both institutional and household sanitation, and building small business. Furthermore, other public authorities in the Eastern Cape have begun to consider similar programmes. There is clear potential that, the delays, costs and frustrations of the pilot notwithstanding, there are benefits to social franchising partnerships' operation and maintenance of sanitation infrastructure, and potentially other utility type services as well.

Being a successful franchisor operating at the bottom of the pyramid requires patience and benevolence, whilst at the same time adherence to high standards. Unlike working with contractors, where there are clear-cut conditions and contracts, working with franchisees requires nurturing, guidance and most of all (again) patience, to ensure that an environment conducive to stimulating learning and the growth of the franchisees is maintained.

Apart from providing essential operation and maintenance services to skills-short public sector authorities, the partnerships create jobs, provide training, and nurture micro-entrepreneurs. The projects are structured so that when the pilots end the franchisees will be sustainable micro-business entities, with the necessary skills and sufficient workload and income streams to continue as viable businesses.

REFERENCES

Bramley, S. and Breslin, E. 2010. *Sanitation as a Business: A new spin on the challenge of sanitation Operation and Maintenance*. Published in "Sustainable Sanitation Practice".

Department of Water Affairs (DWA). 2012a. Blue Drop Report 2012: South African Drinking Water Quality Management Performance. Pretoria.

Department of Water Affairs (DWA). 2012b. Green Drop Report 2012: South African Waste Water Quality Management Performance. Pretoria.

Duncker L., Wilkinson M., Du Toit A., Koen R., Kimmie Z. and Dudeni N. 2008. *Spot check assessment of rural water and sanitation services for the water sector, 2007/08.* Report to Dept Water Affairs and Forestry (DWAF). Pretoria.

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Montagu, D. 2002. Franchising of Health Services in Developing Countries, Health Policy and Planning 17 (2): 121–130. http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1004&context=big.

Parker, E. and Illetschko, K. 2007. Franchising in South Africa; the real story. Frontrunner Publishing (Pty) Ltd., Johannesburg.

Prahalad, CK. 2006. The Fortune at the Bottom of the Pyramid, Wharton School Publishing, Upper Saddle River, NI

South African Institution of Civil Engineering (SAICE). 2011. SAICE infrastructure report card for South Africa 2011. Midrand.

Wall, K. 2005. Development of a framework for franchising in the water services sector in South Africa, WRC Report No KV 161/05, Water Research Commission, Pretoria.

Wall, K. and Ive, O. 2010. *Going with the Franchising Flow; an exploration of partnerships for the operation and maintenance of water services infrastructure*, WRC report No K5 1610, Water Research Commission, Pretoria.