

INNOVATIVE PROCUREMENT IN A MUNICIPAL ENVIRONMENT TO ACHIEVE ELIMINATION OF SANITATION BACKLOGS

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1. INTRODUCTION

Application of the Strategic Framework for Water Services (Department of Water Affairs and Forestry, 2003) is not legislated, but it has certainly been adopted as a rigorous handbook by the Department of Water Affairs. The Strategic Framework sets the following goals for the water services sector:

1.1. All people living in South Africa [must] have access to an appropriate, acceptable, safe and affordable basic water supply and sanitation service.

The Strategic Framework goes on to note that the bucket system is an unsuitable and inappropriate level of service, and that all water services authorities must identify and implement programmes for the eradication of all bucket systems by 2006 (later extended to the end of 2007).

The Strategic Framework recognises that there is no single sanitation solution, and suggests that Ventilated Improved Pit toilets (“VIPs”) in rural areas would be appropriate. (It is noted that properly built VIPs are a first class design and that the full flush system that everyone wants will not work where not enough water is available or the community cannot afford the expanded water supplies and wastewater treatment which national government cannot yet fund.)

Chris Hani District Municipality (“CHDM”) achieved the bucket-eradication target, and prioritised the supply of potable water to rural communities. This paper describes the CHDM approach to sanitation, particularly rural sanitation.

In the Overview to their Integrated Development Plan (“IDP”), Chris Hani DM unequivocally lists the first four priority needs as

- Local Economic Development
- Poverty alleviation and food security
- Water and sanitation, and
- Municipal Health and environmental management.

To put the above priorities into context, CHDM has a population of about 800 000 in approximately 200 000 households, of which 71% are rural households, and 53 000 households are indigent to the extent that they are considered to suffer chronic hunger.

In order to address the sanitation priority, CHDM began by drawing up a sanitation masterplan to clarify the considerations and processes to be followed.

2. INSTITUTIONAL STATUS QUO

The IDP notes that CHDM is a District Municipality. Within its area of jurisdiction there are eight local municipalities. CHDM is the designated Water Services Authority (“WSA”) for the region, unlike in other parts of South Africa where each local municipality is a Water Services Authority. The consequence of this is that CHDM, not the local municipalities, is responsible for ensuring the provision of water and sanitation throughout the region. Actual service provision will be through a formalised Water Services Provider (“WSP”) arrangement initiated by the WSA. In compliance with Section 78 of the Municipal Systems Act (the determination of the optimal service delivery mechanism), a formal assessment recommended that the WSP function should be the local, rather than district, municipality. The reasons for this recommendation included accountability of local municipalities to their residents, and the linking of water services with other basic service provision. However many of the local municipalities in Chris Hani District currently lack sufficient capacity to fulfil the WSP role adequately.

The Section 78 assessment report proposed that the four western local municipalities of Inkwanza, Inxuba Yethemba, Lukhanji and Tsolwana should, in principle, be appointed as Water Service Providers for their areas of jurisdiction. The four eastern municipalities of Emalahleni, Intsika Yethu, Engcobo and Sakhisizwe were considered to have insufficient capacity for this role, and therefore the District Municipality would have to retain the Water Service Provider function in these areas in the short to medium term.

Coincidentally, the biggest sanitation backlogs were generally in the local municipalities lacking institutional capacity.

3. SANITATION STATUS QUO

According to the Draft 2008/9 IDP, Chris Hani DM has total population of about 799 000 people in 203 000 households. According to the 2007 Water Services Delivery Plan, the population is 823 588 people. STATS SA considers the population to be somewhere between these two figures. The differing population figures illustrate the challenge of establishing accurate numbers in a rural context. The difference might only be a small proportion of the total population, but could have a large effect on the budget required to eliminate any backlog of services. Sanitation backlog estimates range from 45% to 56% of the CHDM population.

The CHDM sanitation masterplan proposed that, for planning and budgetary purposes, the number of households without sanitation would be assumed to be the highest number generated by the various assessments to date (102 757 households). In the execution of the programme to eliminate the backlog, the first task to be addressed would be to verify or correct the number of households without sanitation.

4. SANITATION SERVICE LEVELS

CHDM accepted that the minimum acceptable standard of sanitation is a ventilated, improved pit latrine (VIP), but recognised that most people would aspire to full waterborne sanitation. Given that nothing is “free”, and that installation, operation and maintenance of all sanitation systems must be paid for in some way, the masterplan noted that CHDM would take the principles below into consideration when determining the appropriate sanitation system. If circumstances warranted, and after due consideration, Chris Hani DM would waive or vary any of the principles.

CHDM SANITATION MASTERPLAN PROVISIONS:

In general, those who can afford to pay for their choice of sanitation system will do so, and indigent households will be provided with a VIP at no cost to the household

- a. Bucket latrines have been eliminated, and will not be re-installed.
- b. Waterborne sanitation

In circumstances where sufficient water is available in pipes laid to the household, AND where street sewers are already available or planned in the normal course of events, AND where the respective household is considered able to afford the service, Chris Hani DM will consider the installation of full waterborne sanitation, at the cost of the householder.

- c. Dry systems

Rural households requiring free basic sanitation will be provided with a VIP, at no cost to the household, unless special circumstances dictate otherwise.

The specification for the VIP will be a durable, weatherproof top-structure on a properly-constructed pit sized to last at least five years before the pit becomes full. Preference will be given to systems where the top structure can be relocated to a new pit (once the pit is full), but systems that allow the pit to be easily emptied will be accommodated.

The structure will allow easy access and privacy, and will not be susceptible to damage by wind.

Other subsystems, such as the composting, and urine-diversion,

systems, will be accommodated, provided that the community in general, and the householder in particular, is amenable to the particular system, and provided the cost is comparable with a conventional VIP.

5. OPERATION AND MAINTENANCE

In considering the overall sustainability of any project, it is important to consider operating and maintenance costs. For VIP latrines, the masterplan notes that CHDM accepts that long-term maintenance of the sanitation facilities of a household qualifying for "Free Basic Services" remains a free basic service. Accordingly, when the pit of such an installation reaches the end of its service life, CHDM would either relocate the structure to a new pit and secure the old pit, or empty the pit, as appropriate. The cost of this would be recovered from the CHDM budget. This policy requires the size of the pit to be given careful consideration, and the implications will be illustrated later in this paper.

6. BUDGET, FUNDING, AND FUNDING STRATEGY

At the time of drafting (2009), the masterplan assumed the cost of a VIP to be R4 500 per unit, and calculated that the cost to eliminate the sanitation backlog in 102 757 households would be R462 406 500. The appropriate source of funding for this infrastructure is the Municipal Infrastructure Grant ("MIG"), but according to the Division of Revenue Act, the water services funding available to CHDM from MIG, even if applied to sanitation only, would leave a shortfall of R237 million. The IDP noted the need to identify alternate sources of funding, but, more importantly, noted that such alternate sources had not been found.

While CHDM fully supported the aim of the Strategic Framework to eliminate the sanitation backlog by 2010, and believed that it had the necessary technical and strategic capacity to achieve this goal, the significant funding shortfall would have to be addressed if this goal was to be attained.

The strategy that Chris Hani DM adopted to achieve the necessary funding was:

- This sanitation master plan would be submitted to the Department of Water Affairs for approval.
- When approved, and after any necessary adjustments, the master plan would be submitted to MIG for approval, and allocation of funds.
- If full funding was not approved, CHDM would proceed with full utilisation of the available funds, while pointing out to politicians that it would not be possible to achieve the target, through no fault of Chris Hani DM.

In practice, CHDM has not yet been able to guarantee the full funding required, and the tenders that were published, and the subsequent contracts, have made provision for variation (upwards or downwards) of the awarded value.

7. IMPLEMENTATION PLAN

The masterplan noted that the elimination of the sanitation backlog by 2010 could only be achieved through large-scale contracts by suitably-qualified service providers with sufficient capacity to undertake the necessary work. The scale of the necessary work and the short implementation time-frame are such that it would not be efficient practice for Chris Hani DM to employ sufficient staff to carry out the work in-house.

In order to ensure even distribution of sanitation delivery across the region, the backlog was distributed into eleven geographical clusters, and an appropriate number of suitable service-providers would be appointed, through the published CHDM Procurement Policy, to undertake the work.

Bidding for the work would be in two phases. In the first (technical pre-qualification) phase, bidders should demonstrate their expertise in, and familiarity with, all aspects of rural sanitation, with emphasis on the challenges to be faced. Specifications of requirements would be included in the bid document, but bidders would be free to expand

on these and make their own proposals. While it was assumed from the extent of the backlog that the work would have to be carried out by large service providers or consortia, there would be limited need for bidders to prove their physical capacity to carry out the work in the first phase of the bidding.

In the second phase, only those service providers whose technical bids were found acceptable, and who had given an indication of sufficient capacity, would be invited to tender on execution of the work. The second phase would be a full, priced tender, incorporating all the elements necessary to ensure successful elimination of the sanitation backlog.

Departures from the usual sanitation contract custom would be:

- Institutional and social development ("ISD") issues would not have to be addressed by the VIP installation contractor, as this initiative is often misunderstood and poorly executed by conventional contractors. (Briefly, ISD includes alerting the communities to the sanitation-installation initiative, educating communities in health and hygiene related to sanitation, and negotiating community involvement and employment in the projects.) The ISD essentials would be carried out by specialist service-providers under the direct supervision of CHDM ISD staff. The ISD initiative would be launched in advance of any installation contracts.
- The Groundwater Protocol would not be applied by the installation contractor. This is another initiative poorly understood, and misapplied. The Groundwater Protocol is a protocol published by the Department of Water Affairs, in which the hydrogeological conditions in areas to be served with VIPs must be assessed to determine potential risk of pollution of ground- or surface-water. The groundwater Protocol would be applied area-wide by specialist hydrogeological service-providers who would determine areas of risk, advise CHDM, and instruct the installation contractors on any required amelioration measures. The hydrogeological investigation would be carried out in advance of any installation contracts.

An element required to be addressed early in the implementation of the project would be the final quantification of the actual backlog number.

Local Economic Development objectives would be served by requiring all materials (as far as possible) and transport to be sourced within CHDM, and preferably within local communities. "Factories" for manufacture of VIP superstructure components would be required to be established in the CHDM district, and these would preferably be multi-purpose, so that they would also provide components for other initiatives, such as housing. Ultimately, these factory sites might serve as service- and community-centres. All non-specialist labour for these factories would be sourced within the respective region, and formal training in the relevant factory skills would have to be provided to this labour.

Employment-generation would be enforced by the requirement that no mechanical digging be allowed, and that all VIP-installation labour be sourced from the respective local communities.

Early in the programme, the political level of CHDM was engaged to ensure full understanding of the project. In particular, ward councillors were briefed to understand that it would not be possible to provide employment to all their constituents, nor would it be possible to work in all the unserved areas simultaneously – some prioritisation would have to take place. The Water Affairs policy on sanitation stated that communities should be given options of various superstructures, but this would not be possible in this programme. The superstructure to be provided would be that offered by the successful bidder in each region.

8. IMPLEMENTATION PRACTICE

As with many well-intentioned grand plans, national elimination of the water services backlogs within the short time-frame was found to be

impossible, and the deadline was relaxed to 2014. This had the benefit of allowing CHDM more time to achieve the required funding for the programme, which ultimately turned out to have a (tendered) value of R556 million.

CHDM gave further thought to the number of geographical clusters, and realised that administration of eleven contractors working in the different clusters would overstretch CHDM resources. The eleven clusters were reduced to four regions, and provision was made to appoint service-providers to augment the CHDM supervisory staff.

Ironically, a major constraint was found to be requirements set by the Construction Industry Development Board ("CIDB"), a regulatory body set up to benefit the construction industry. CIDB prescripts dictate the grading that a contractor must achieve before being permitted to undertake contracts of specified value – the higher the value, the higher the required grading. Given that the four CHDM contracts were likely to be higher than R100 million each (grading required = 8 or 9, the top two categories), and given that, at the time, most large contractors were likely to be committed to completion of the Soccer World Cup stadiums, it appeared unlikely that the CHDM tenders would attract realistic bids.

All the CIDB and Public Works Department (sponsors of CIDB) officials consulted were adamant that the required contractor grading was determined by the contract value. The argument that "the contract only requires the digging of one simple pit with the installation of a simple toilet structure over that pit, and this simply needs to be repeated 100 000 times" did not allow any relaxation of the value-related grading requirement.

However, the CIDB grading requirement does not (yet) apply to "suppliers", and a supplier is permitted to install their own product without infringing the CIDB rules. Accordingly, the tenders in preparation were modified to "supply, deliver to site, and install" tenders. This required more focus on the capability of the tenderers to supply the superstructures.

Tenders were called in two phases, as proposed by the masterplan. 42 tenders were recorded for the first phase, which was required to be a technical submission detailing the tenderers' experience in appropriate projects, methodology (including how adverse ground conditions would be addressed), how the proposed VIP would comply with the minimum specifications in the tender document, and the ability of the tenderer to meet the required supply and delivery rate (nominally 25 completed VIPs per day, per region). Tenderers were not required to be the suppliers; they could partner with appropriate suppliers, but the partnership had to be committed in the tender document, and it was made clear that the tenderer would be considered to be the supplier in the awarded contracts.

The 42 recorded tenders were evaluated against a 100-point scoresheet, of which 60 points were required to proceed to the next round. 8 tenders met the 60-point requirement, and a ninth tender was added later after registering an objection (This author personally feels that the challenge should have been defended.)

It had been intended that the first-phase tenders would seed a review of the specifications for the second phase, so that the best ideas could be incorporated in the final specifications. However, the CHDM Supply Chain Management division ruled that the specification could not be changed, and that the second phase must consist of a priced submission only (in addition to the claim for preference points). The first-phase document had specified that successful first-phase bidders would be required to construct demonstration VIPs, and this condition was allowed to stand in the second-phase bid.

Of the nine successful first-phase bidders, one opted not to participate in the second round. Eight tenders were received, but one invalidated his bid by declining to construct demonstration toilets.

Seven bidders were allocated sites at random in a rural settlement, and required to construct two VIP latrines. The first was to be a

conventional VIP, and the second was to be a VIP-superstructure that would cater for wheelchair users. One of the superstructures was to be erected on a pit of 3 cubic metres volume, plus 500mm of clear freeboard above this volume, and the other built as if there was a solid rock outcrop at the surface. (Bidders were told to imagine that solid rock was at ground level on their allocated site, and that the intention was to evaluate how they proposed to build a pit latrine in such conditions.)

After construction, the pits and superstructures were inspected by a CHDM representative in the presence of each bidder. Dimensions and details were noted, and the inspection forms signed by CHDM and the bidder. Five of the bidders eliminated themselves from further consideration by digging pits that were smaller than the required 3 cubic metres. This might seem trivial, but CHDM had given careful thought to pit size on the grounds that the cost of moving or replacing VIPs in the future, once the pits were full, would be considerable, and therefore pit volume was a significant consideration. Tenderers who could not meet a specification on a single demonstration pit without the pressures of a full contract, would be unlikely to pay sufficient attention to pit size later.

Interestingly, one bidder, after having been told to imagine rock on his site, actually did have rock at ground level, which was then excavated with a "rockpecker". Apart from not meeting the required pit volume, this bid would have been rejected on the basis that a pit in solid rock constitutes a conservancy tank, which is not an acceptable solution. (In explanation: a pit latrine operates by allowing liquid to dissipate into the surrounding soil, whereas a conservancy tank retains everything placed in it, requiring periodic emptying by specialised means. CHDM does not have the means to empty rural conservancy tanks.)

The second-phase bid document noted that it was the intention to distribute the work among as many bidders as possible. Bidders would be awarded one, or possibly two, of the four regions, and only under exceptional circumstances would more than two regions be awarded to any one bidder. As it happens, the two remaining tenders after the evaluation of the demonstration units were so widely spaced in price that no justification could be found for awarding a region to the higher tender.

The four regions have been awarded to a single tenderer, an established precast concrete supplier, after negotiations to establish that the tenderer had the capacity to attend to the requirements.

One challenge was received (from the same tenderer who had challenged his original exclusion from the second phase). This challenge was successfully defended by pointing out that the bidder had inspected the demonstration units with the CHDM representative, and had acknowledged by his signature that the units did not meet the specification. Undertaking to rectify defects once the contract had been awarded could not be accommodated in the tender evaluation.

One unsuccessful tenderer queried the non-award of a contract to him, met with CHDM, and was satisfied that the consideration was solely based on tender value.

During evaluation of the first-phase tenders it was confirmed that CHDM would not have the staff to monitor the construction projects effectively. Concurrently with the second-phase tender, a tender for project management was published, with the requirement that tenderers should be registered project management professionals, or registered professional engineers. Four professional firms have been appointed to monitor the four regional contracts on behalf of CHDM, to coordinate the ISD initiatives in those regions, and to ensure that the contractor applies the recommendations arising from hydrogeological investigations. These firms have been required to take on, utilise and supervise local inexperienced graduates at reimbursable cost.

When it became apparent that it would be appropriate to appoint one tenderer for the VIP installations for all four regions, the tenderer

proposed a savings if he would be allowed to construct and utilise only one pre-cast factory, in an urban centre. This proposal was given careful consideration, including at local political level, and found acceptable, provided that labour for the factory was drawn from each of the four regions, as originally required.

9. CONCLUSIONS

In previous sanitation tenders, tenderers have generally been consulting firms who have included full professional fees in their tenders, including mark-ups for the specialist work (if any) carried out by hydrogeologists and ISD practitioners. These tenders have been for a limited number of communities at a time, and thus unable to benefit from economies of scale.

By removing the specialist elements from the VIP contracts, the VIP contracts became relatively simple supply-and-install contracts, with the supplier able to concentrate on core business. Correspondingly, the specialists have been able to apply their skills on a regional, rather than micro, scale.

Conventional professional fees have been avoided, because there is no engineering design involved in the VIPs. The professionals that have been appointed to monitor the installations effectively augment CHDM technical staff, but will “walk away” at the end of the project, thus avoiding the need for CHDM to carry a large technical staff complement. Professional service providers were engaged to develop the required documentation for the hydrogeologists, VIP supply tenders, and the project managers (CHDM managed ISD procurement in-house), and the cost of this assistance was less than the gazetted percentage fee value for documentation alone on a contract of this size.

CIDB initiatives are fully supported by CHDM, and CHDM attempts to meet all CIDB recommendations and requirements. By defining the backlog-elimination project as a supply-and-install contract, CHDM has avoided what is considered to be an unrealistic contractor grading requirement. The grading requirement could have been reduced by breaking the contracts down to a low-value level (acceptable in municipal procurement regulations), but this would have resulted in impossible supervisory requirements.

In the context of South African municipalities struggling to come to terms with the services challenges, the CHDM approach to the sanitation backlog has shown enterprise and innovation. Contracts were only awarded in the second quarter of this year (2011), and while start-up has been a little slower than expected, there is no reason to suspect that the contracts will not run through to successful completion. Comments have been returned to the authors that lessons are being learnt that might have modified the approach to this project, but it is yet too early to define and document those lessons.

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