

# **Overview of an experiment to manually clean a dam in Raymond Mhlaba Local Municipality, Eastern Cape**

**Raymond Mhlaba Farmers Association and ARDRI, UFH**

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## **Introduction**

Within the former Ciskei parts of Raymond Mhlaba Local Municipal there are approximately 300 to 400 small dams. Communities rely on these dams to water their livestock. However, over the years, most of these dams have silted up to a point where their capacity to hold water has been greatly reduced. Many run dry at one point or another during the year.

While provincial and local government do what they can to address the situation, at present their efforts are not able to go very far. One reason is that they rely on TLBs (tractor-loader-backhoes), of which these government entities have very few, or which are very costly to hire. For instance, the Eastern Cape Department of Rural Development and Agrarian Reform (DRDAR) budgets approximately R600 000 per year for Raymond Mhlaba LM for the hire of a TLB for dam cleaning, but this is sufficient to allow for only four dam to be cleaned annually.

Because of this situation, the Raymond Mhlaba Farmers Association, together with the eDikeni Water Users Association, and the Agricultural and Rural Development Research Institute (ARDRI) of the University of Fort Hare, decided to test the feasibility of cleaning a dam manually, that is, without the use of a TLB or other machinery. On 13 and 14 July 2015, they organised the cleaning of a dam in the village of Nkobo-Nkobo, in AmaBhele AseLenge Traditional Council. This brief document summarises what was learned in the course of this experiment.

*The chosen dam before the work began; gaps in the dike can be seen, with Gaga village in the background*



## Overall approach

A number of dams in the area were visited to see which might be needing cleaning and suitable for the experiment. The main consideration was that we did not want to attempt a dam that still had water, nor one that was large. Many dams were dry and not large, thus ultimately the decision was arbitrary. The dam ultimately chosen used to be the source of a natural spring and was known locally as kwaMhlomi. It was previously used by households in Nkobo-Nkobo for drinking water.

It was decided from the beginning that residents of the nearest village would be recruited for the work. Consideration was given as to whether we wished to request people to volunteer, or whether we rather wanted to treat this as a typical public works project such as those funded by the Expanded Public Works Programme. The concern with the latter is that it would make the exercise more expensive, and a second concern was that it would not build a sense of 'community ownership'. The concern with the former was that if no money were on offer, it might be difficult to recruit people, especially given the fact that the cleaning involves hard, physical work. Ultimately it was decided to offer a 'token' payment of R70 per day, and to keep the number of people involved very small so that people did not get in one another's way, but also so that there was little need to actually supervise. The leadership of the Farmers Association recruited 12 villagers a few days prior to the planned date. This included two villagers who would be responsible for cooking lunch. It was estimated that the exercise would require two days, however it was closer to a day and a half. (It should be mentioned that a number of interns from the Raymond Mhlaba Economic Development Agency kindly contributed free labour and allowed the work to progress more quickly than it would have otherwise. In the absence of these interns, the exercise would likely have taken two full days.)

### *Work in progress, first day*



## *Cooking and resting*



Tools were borrowed from various participants, and included three picks, five shovels, and four wheelbarrows, as well as some pangas and saws for cutting the small trees growing on and near the dikes. Two large poitjies were also brought; fires were made using firewood cut at the site. Water was brought in two 25-litre plastic containers. All the tools, cooking necessities, food and water were transported in one bakkie. Most of the workers walked from Nkobo-Nkobo. Workers were paid in cash at the end of each day.

### **What work was done**

Local residents regard kwaMhlomi as a mid-size dam by local standards. It measures approximately 10 metres in diameter and, once cleaned, 75 centimetres deep to the bottom of the dike. This makes for a volume of about 19 cubic metres, which is just under two 10 000 jojo tanks' worth of water. The method of work was to dig a saucer-like basin down to where the digging got difficult, which is the point at which the team reckoned it had reached the bottom of the original dam. Some of the soil was used to fill the gaps in the dike, while the rest was moved by wheelbarrow out of the way downhill from the dam. Thorn trees that had been cut at the beginning were then placed on top of the dike to discourage cattle from walking there where they might weaken the dike.

### **Cost**

The table below summarises the costs incurred in the course of the two-day exercise. The total cost was R2600. This is about 3% of the costs of hiring a service provider to clear a dam with a TLB. However, it must be acknowledged that the table does not reflect the value of the organisation and management provided for free by the Raymond Mhlaba Farmers Association and ARDRI.



The reason this is worth mentioning is that, if an attempt were made to scale up an approach such as this, the need for management would have to be considered, as would its possible costs. More is said about this in the concluding section.

#### *Cost summary*

Item	Rand
Labour	1680
Food, beverages, and disposable plates and spoons	850
Petrol	70
Total	2600

#### **Lessons learned**

There were no major challenges encountered in the exercise. However, there were minor issues, mainly owing to the fact that there is a fair amount of detail that has to be attended to for things to run perfectly smoothly. For example, on the first day not enough water was brought along to allow for cooking, drinking and washing, so more had to be fetched. Similarly, the first day we neglected to bring scouring pads to help wash the pots. These are not major issues, but suggest that if such an approach were to be made routine, one would presumably be able to perfect the process through having a standard checklist. As for whether the size of the work party was right, and whether R70 was the ‘right amount’ to pay volunteers, on both counts the answer would seem to be ‘yes’. The group was indeed small enough that no supervision was necessary, and yet large enough so that the work could continue even though at any given moment, about a third of the work party was resting for a few minutes in order to gather their strength.

#### **Conclusions and looking forward**

The experiment was a success: a non-functioning dam was rehabilitated at a fraction of the cost of the normal approach using a TLB; a modest amount of income was received by members of the community; and the approach would appear to be easily replicated.

But the question is not just whether the approach is replicable, but whether it could and will be scaled up. This particular experiment was funded by ARDRI, but ARDRI does not have the resources to scale it up significantly, inexpensive though it may be. Another issue, as mentioned above, is whether a scaled up version of the experiment would imply management costs, and if so, whether these would nullify the cost advantages of the approach.

*Nearing completion, second day*



One possibility for example would be to put ‘labour-intensive dam cleaning’ out as a tender. This might be preferable to the current TLB-based approach, but it would probably not keep close to the nature and the spirit of the experiment described above. Very likely a large share of the expenditure would go to the entrepreneur who won the tender and absorbed as the cost of ‘management’, meaning in effect that the cost of cleaning a dam would likely be quite a bit higher than the R2600 indicated above. Moreover, the initiative would likely lose the sense of a community-based intervention.

Still, some kind of management is necessary, the question is how could one imagine scaling up the approach without management costs absorbing a disproportionate share? One possible option would be for government to fund partners such as NGOs, co-ops, or farmers’ associations, who could provide the necessary management, but at a modest cost in line with their commitment to serve their communities. This would have the added benefit of giving these grassroots organisations an opportunity to earn a modest amount of money.

Another consideration regarding scaling up is transport and tools. The number of dams needing rehabilitation is so many that they are often close together, meaning that it is quite feasible for one bakkie to facilitate two or three dam cleanings at the same time. However, getting enough tools together to work on multiple dams at the same time may become limiting. It might make more sense if enough tools were bought that would be dedicated to the purpose of dam cleaning. This would actually add trivially to the cost per dam; for example, a full package of tools used to rehabilitate 20 dams, would only add a cost of R160 per dam.

In two weeks following the dam cleaning, Raymond Mhlaba LM received an unusual amount of Winter rain. The dam filled up, and because the outlet path was raised using the dirt that was removed from the basin, the level of water achieved was well above the 75 centimetres originally estimated. How well the dam will hold water over the next few months remains to

be seen, however the present holding capacity appears to be closer to 30 cubic metres than 19.

*Two weeks later*

