



Sustainability in operation and maintenance

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SUSTAINABILITY OF RURAL water supply projects based on community participation is a key focus of the Department of Water Affairs and Forestry in the new South Africa. The George Moshesh Project, as part of the first Presidential Lead Projects under the Reconstruction and Development Programme (RDP), provides a useful case study for investigating the development of a community management system. As the consulting engineers and training agent involved in this completed project, the authors are interested in documenting the experience of one of the first community managed and maintained projects under the RDP in Eastern Cape, South Africa.

The paper will first define the context by looking at the existing water supply situation in the northeastern region of the Eastern Cape, emphasising operation and maintenance realities. The paper will then focus on the various factors affecting the sustainability of management systems set up at the George Moshesh Project.

Background

The costs of operation and maintenance of water supply schemes in South Africa today is the responsibility of local communities. This is in accordance with the White Paper on Water Supply and Sanitation of the new Government of South Africa. When it comes to the responsibility for the physical operation and maintenance, the exact roles of Local Government structures, community structures and the Department of Water Affairs and Forestry are in the process of being defined and have not as yet been finalised. In the marginalised rural areas of the former apartheid 'homelands', the maintenance of water supply projects faces the greatest challenge due to the shortage of human and financial resources, little infrastructure and no culture of payment for services. The area we are looking at, the former Transkei, is no exception.

The Transkei banthustan government policy on operation and maintenance was that infrastructure belonged to the state, which was responsible for its maintenance. It was also illegal for local communities to tamper with the infrastructure. The responsible government department had depots in each district where one could report broken infrastructure requiring repair. It was, however, not an accountable or very accessible government, and very little maintenance was completed by these depots, and where it was, it took months and could involve an unofficial "price". Project implementation was driven by consulting engineers and the communities had no input into what was done or how it was done.

A study conducted in 1991 looked at 98 per cent of the existing Government village water supply schemes in the Northern Zone of the Transkei. These schemes only covered approximately 30 per cent of the villages in the region and consisted mostly of windpump projects supplying a reservoir and one or more taps. The study found only 10 per cent of these schemes to be in working order, with most of those still in operation being either handpumps or spring-fed gravity schemes.

Background: The George Moshesh Water Project

This project was funded as part of the Presidential Lead Transkei Water Project under the Reconstruction and Development Programme during 1995 and 1996. The George Moshesh Water Project is the first phase of a group scheme supplying 14 500 people in 12 villages, with a second phase planned to supply a further 12 500 people in 5 additional villages. The source of the water scheme is a weir on a small stream in the Drakensberg mountains at elevation 1725m. The quality of the water is excellent, samples passing the SABS water quality test. The scheme provides water to the Reconstruction and Development Programme standard of 25 liters per capita per day at communal standpipes within 200m of each house. The water supply has been designed to cater for a population growth of 2.5 per cent per annum for the 20 year design life. There are 8 reticulation systems: 6 serving individual villages and 2 serving the remaining 6 villages. There are no pumps or mechanised parts in the scheme as it is based entirely on a gravity-fed system that brings the water down over more than 22 kilometres of pipeline from the mountains to the 12 villages of Phase 1.

Project management approaches

Community involvement was an integral part of the project from the beginning. In 1993, representatives of the George Moshesh communities approached the consulting engineers, Maluti Water, with a request for a water project and the suggestion that the mountain water resources could be used. Actual implementation of the project then began in June 1995 and was completed in June 1996.

The project was implemented using a project management approach where all the work was completed by workers from the recipient community under supervision of the engineering consultants. A cooperative approach to project management was followed with decision making

taking place in weekly technical project meetings and monthly project implementation meetings with the Project Steering Committee (PSC). The system of joint decision-making through regular meetings developed a sense of community responsibility for the project and also developed the skills and capacity of the PSC members.

The Project Steering Committee is primarily made up of the George Moshesh Committee (GMC), which consists of two representatives from each of the 17 Village Water Committees that represent the entire project area for both Phase 1 and the planned Phase 2 extension. Also represented on the PSC are the Maluti Development Forum, the Tribal Authority and the Matatiele Advice Centre (a community-based paralegal organisation with a long and credible working history with the communities). Approximately 50 per cent of the PSC members are women. Local Government representatives became active on the PSC after the Transitional Rural Council for the area was constituted.

In one of the first meetings with the Project Steering Committee, the government White Paper on water supply and sanitation was thoroughly workshopped with the committee. The rights, roles, and responsibilities of all the involved parties were then written up in a signed agreement between the PSC, as the community representatives, and the project management consultants.

The Project Steering Committee was responsible for recruiting all labour as well as identifying people for training, potential sub-contractors and local material suppliers. The PSC also defined the level of job rotation among the community. There was a high level of worker rotation on the more manual work to allow the most people to benefit from jobs, and less rotation within the skilled work where the workers received more training and developed their skills and work experience. All work was paid on a piece rate basis and the rates were set and agreed upon at the technical project meetings. The community labour was organised into work teams, each supervised by a work team supervisor from the consultant. Each work team had a team leader who was responsible for recording the work completed by each worker, resolving conflicts within the work team and representing worker grievances at the first level. The team leader was often, but not necessarily, a committee member. Worker grievances procedure was firstly the team leader, secondly the technical project meeting, and thirdly the PSC. In accordance with Department of Water Affairs policy at that time, the PSC members were not paid for attending meetings and only received payment if they worked on the project.

Training

Training at the George Moshesh Project was carried out in 3 different areas: technical training; committee training; and operation and maintenance training. We realised early on that generalised skills training and capacity-building training offered only limited benefits to rural trainees. Thus all the training provided, whether technical or man-

agement, was project specific and allowed the trainees to apply their newly acquired skills to their work on the project.

Technical training

Training courses in ferrocement tank construction and all aspects of working with pipes and fittings were followed up by on-the-job training where trainees could practice and perfect what they had learned under skilled supervision.

Committee training

Committee training for the George Moshesh Water Committee covered committee skills and financial management as well as the physical and management structure of the project. All training took place at venues within the project area and instruction was in the local vernacular, Sotho. Trainees each received a bilingual workbook covering all the topics and exercises of the training. Training methods were based on participative approaches and involved group work exercises and report backs, role-plays, and participative video exercises where activities were videotaped and then played back to the participants to critique.

Training for operation and maintenance

The operation and maintenance training at the George Moshesh Water Project was divided into management training for the Water Committee and technical training for the technical operators identified by the Committee.

Technical operation and maintenance training

Seven Technical Operators were identified by the PSC from the skilled labour on the project, each of whom had received technical training under construction and had shown initiative and technical ability. These seven trainees as well as two George Moshesh Committee members were trained in all aspects of operation and repair of the system, as well as water use education, project policy and reporting systems. These topics were covered in classroom sessions and practical exercises. A bilingual manual was produced that included the following: pictures and descriptions of all the pipes and fittings used on the project; contact names and addresses of suppliers, consultants and government officials; project drawings; and graphically illustrated repair procedures. Monthly task report sheets and bi-annual task report sheets were also developed and supplied as part of the manual.

Operation and maintenance management training

The objective of the management training was for the Water Committee to define a system by which they could operate and maintain the project. As a starting point, the government policy on water supply was discussed with a focus toward developing a thorough understanding of the concept of payment for water services. Once this basic issue was thoroughly debated, the Water Committee was

assisted to design their own management and administrative systems around the following topic areas: the tariff collection system; the operating budget; job descriptions; and drafting the operation and maintenance constitution. Task assignments and responsibilities to get the system up and running were then collectively assigned. Another training need that was then identified was to enable the committee as a whole to deliver reports at general community meetings on all aspects of the project. Again, the training methods consisted primarily of group exercises and report-backs, role-play exercises and participatory video. This work was also included as part of the committee training manual.

The management system

Out of the operation and maintenance training, a model system based on the specific needs and circumstances of the George Moshesh Water Project and its recipient communities was developed. This model system, as developed in the classroom, was embodied in the project's constitution, and included the following points:

- Responsibility for collection of tariffs in each of the 12 villages gaining potable water was to rest with the 12 Village Water Committees.
- Village Water Committees were to be responsible for first registering each household in their area through a house-to-house registration process.
- Village Water Committees were then to consult their community to arrange collection venues and times.
- Each household of Phase 1 was to immediately start paying a monthly tariff of R2 (US\$ equivalent approximately \$0.40/month).
- Once each Village Water Committee had carried out collections, they were to hand all the money directly over to the central George Moshesh Water Committee who were to bank it monthly in a central bank account.
- The planned operating budget for the Phase 1 project was based on a monthly income of R4000/month or R48 000/year from the 2000 households of the entire George Moshesh Project area (US\$ equivalent approximately \$1400/per month and \$18 800/year).
- This operating budget was designed to cover operational expenditure as carried out by the community management structure of the village water committees and central George Moshesh Water Committee. It was also to include a small amount to be set aside each month towards future partial replacement costs.
- Operational costs included monthly salaries for 2 full-time local technical operators (R700/month each) and one full-time book-keeper/administrator (R700/month) to work for the entire project. Collectors at village level would receive a 10 per cent commission on the amount they collected each month as a means of payment. No salaries were included for committee members.
- Operational costs also included all expected administrative costs such as transport costs to town for banking, bank charges, receipt books and other stationery, as well as nominal subsistence allowances for committee members on project business for a day.

- Reporting systems were to be based on meetings on a number of levels: Village Water Committee meetings and village community meetings; George Moshesh Committee meetings (including project staff) and regular community meetings for the entire project. Open Annual General Meetings for the communities were to be held by each village water committee and by the George Moshesh Water Committee.

After the Operation and Maintenance training sessions were completed, the Water Committee did not immediately implement their management system. The reasons for their reluctance were mainly due to the communities' lack of information and mistrust of the central George Moshesh Committee, further exacerbated by the logistical challenges of managing a project spread over many kilometres in an area without communication facilities. Finally, after follow-up support workshops and a further community information workshop at the Tribal Authority in the Chief's presence, a deadline was set and the system went into operation on 1 October 1996.

One year after completion

One year after construction was completed, and 6 months into putting in place the management structure, the following points provide a summary of the present situation:

- The physical infrastructure is being maintained and all reticulation systems are providing water.
- Of the 12 villages, 11 are collecting tariffs. Ten villages are collecting the R2 per house and one has only collected a once-off tariff of R5 per house.
- Ten out of the 12 villages have proper household registers, including records of who has paid for which months. Some of the registers are incomplete.
- The two villages where the system is not functioning properly have political problems. In both cases there are powerful individuals within the community who do not respect the authority of the local or central Water Committees and have used their influence to persuade others not to pay tariffs.
- No central bank account has been opened. The tariffs collected are being kept in the individual village bank accounts or kept as cash by a committee member. The reason each Village Water Committee and the central George Moshesh Committee gave for this is that they were not willing to keep the funds centrally until all the villages are cooperating fully in the system. The GMC is trying to resolve these political problems and has had some assistance from the new local government structure, the local paralegal organisation, and the Chief in these matters.
- The success of tariff collections varies from village to village — generally smaller villages have a higher rate of payment.

- The Village Water Committee's (VWCs) are playing a central role in the system, more so than was planned by the George Moshesh Committee in the training workshops.
- The VWC treasurers are generally the people responsible for the time consuming job of collecting tariffs and feel that they should be paid for that job. They believe however that the Government should pay them for this job and not the community.
- All VWC members were happy that the technical operators could perform the required jobs on the project and were happy with the work they had completed.
- Very little of the monies collected had been spent. The committees were reluctant to spend money and for example preferred to pay operators to repair things that were broken rather than pay them on a regular basis to do preventative operation and maintenance.
- When asked about the role of local government, the committees were suspicious of the ability of local government to provide operation and maintenance services for their water project and were resistant to the idea of paying their tariffs to local government.
- VWC's should receive training directly (not just through their representatives to the central Water Committee) as they will have operation and maintenance duties and will need a skilled base of more than one to two representatives. The current DWAF policy now allows for this.
- Training rural communities and workshoping a system for operation and maintenance is not sufficient. For the system to become fully operational and accepted habitual practice, the committee needs some external support. An operation and maintenance mentorship for a year would greatly improve the ability of the community to manage the system. It is important that the mentorship include both technical and management support and that it focus on supporting the system that the community has and not take the responsibility for doing the actual maintenance.
- Involvement of local government with this existing scheme needs to be handled carefully. Already the TRC is playing a positive role in assisting with conflict resolution, but if the communities are to pay a future tariff to local government, there needs to be careful negotiation and the various responsibilities will have to be clearly defined, and stuck to, if such an arrangement is to be sustained.

Conclusions and recommendations

It must be noted that at the time of implementing this project there were no Government policies on rural water supply besides the fairly general White Paper. Since that time the Department of Water Affairs and Forestry (DWAF) has developed guidelines for project implementation and training and has adopted a policy of a one year maintenance mentorship whereby recipient communities are assisted for one year after project completion with operation and maintenance.

Lessons learned from the experiences of the George Moshesh Water Project include the following:

References

STEFFEN, ROBERTSON and KIRSTEN. *Northern Zone Village Water Supply Study: Inventory of Formal Schemes* 1990/91. Department of Agriculture and Forestry: June 1991.

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