

vision delivery future



VRESAP

More than pipes and water



water & forestry

Department:
Water Affairs And Forestry
REPUBLIC OF SOUTH AFRICA



SASOL
reaching new frontiers





Background information

Who is TCTA?

The Trans-Caledon Tunnel Authority (TCTA) is a state-owned organisation the mission of which is to fund and develop bulk raw water infrastructure in a sustainable manner that is cost-effective and benefits the consumer. TCTA also provides an advisory service within the water sector.

TCTA's role in the implementation of projects is to raise the required capital and manage all the risks associated with funding, governance, engineering, construction, environmental and communication components of the project.

TCTA implements both infrastructure and advisory projects on behalf of the Department of Water Affairs and Forestry (DWAF).

Mandate

On 6 October 2004, Cabinet approved the Vaal River Eastern Sub-system Augmentation Project (VRESAP) as an emergency infrastructure project.

On 26 November 2004, the Minister of Water Affairs and Forestry, in terms of the National Water Act, directed TCTA to fund and implement VRESAP as an emergency project.

Why the need to implement VRESAP?

The growing water demands of Eskom and Sasol in the Mpumalanga Highveld, with Eskom opening more power stations and Sasol's increasing fuel production, necessitated a solution to augment water supply to the region in the form of VRESAP, also known as the Vaal Pipeline Project.

The project will increase the yield of the region's Vaal River Eastern Sub-system by 160 million m³ per year. It will transfer water via large pumps through 115 km long, 1,9 m diameter buried steel pipeline from the Vaal Dam reservoir near the Vaal Marina Boating Resort to Knoppiesfontein near Secunda.

From here the water will be diverted via existing pipelines either to the Bosjesspruit Dam for supply to Sasol's petrochemical facilities or to Trichardsfontein Dam to supply the Eskom power generation facilities. An additional 5,5km pipeline will be installed from Knoppiesfontein to Bosjesspruit.



From VRESAP Project Manager

A prerequisite for the implementation of a major construction project, and in particular an emergency project, is an experienced and motivated project team.

Appointing a single person as Project Manager, who takes full responsibility for the implementation of a project, has long gone past. The specialised fields to be adhered to nowadays during all the phases of project implementation (funding, communications, health and safety, land acquisition, environmental compliance and all the domains of project management, etc.) require skilled managers in each field of the multidisciplinary project environment.

I would like to salute every team member, including all service providers appointed by TCTA, who worked on the Vaal River Pipeline Project for his/her contribution towards making a success of this project. This project faced several challenges and trammels, which the team had to deal with during the past years. Given these constraints, it is a major achievement for the team that the project will be

completed exceeding the original approved project budget by about 8%.

The biggest challenge facing the engineering industry at this stage is to create and retain a diverse, well trained and multicultural workforce. South Africa, like the rest of the world is experiencing a lack of engineering capacity and that is hampering development. We experienced this on the Vaal Pipeline Project.

To satisfy the future water demands of South Africa which is required to support the growth in our nation's economy and the quality of life of our citizens depends heavily on the supply and efficient operation of bulk water infrastructure. To achieve this, we will require a collective effort from all of us including all tiers of government, the private sector, academic institutions and the engineering workforce. The Vaal River Pipeline Project has proved that it can be done.

Wynand Maartens

Employment and training

The project has contributed largely towards training and employment growth in the local area. Training is a requirement to the contractors in order to prepare the residents for the work on site. At the nearby Mamello village, over 30 local residents were trained in steel fixing, concrete batching, land surveying and plant operating. On completion of the training, certificates were awarded to the trainees.

It was made obligatory for each contractor to source 40% to 45% of their workforce from the VRESAP area. These set targets are stipulated in the contract documents and are monitored on a monthly basis. The contractors have been able to exceed their target.

About 1 685 jobs were created around the project, out of that, 1 315 of staff was sourced from the local community.



Socio-economic development

As a means of trying to meet some of the socio-economic development targets, the contractors working on the project were required to establish joint ventures with black enterprises.

The level of black enterprise ownership on the venture was set to at least 25%. This target was to be maintained for the duration of the project; both the main contractors retained the 25% BEE stake throughout the contract period.

Procurement targets were defined from the project area, black enterprises, SMMEs and BEE companies. These targets were contractual and monitored on a monthly basis.



Environmental management

During the Environmental Impact Assessment process, six endangered plants species were identified along the pipeline route for rescue as they are protected in Gauteng and Mpumalanga provinces. These plants species were rescued and temporary stored in a nursery for later replanting as part of the rehabilitation of the construction area. Most of these species are bulbous plants used traditionally for medicinal purposes. All the rescued plants were monitored regularly and to date, no plant died or was unaccounted for during the rehabilitation of the pipeline servitude.

Although the project area covered an area of over 120 km, the project's compliance to the Environment Management Plan and the Record of Decision as audited quarterly by an independent Environmental Control Officer was satisfactorily. An average score of 88% was achieved throughout the construction period. This demonstrates TCTA's commitment to sound environmental management on our projects.

Rehabilitation of burrow areas especially those which were previously used for other purposes, was a challenge as to what state does one rehabilitate them to. TCTA took a conscious decision to rehabilitate all borrow pits to the same standard that seeks to maintain and improve the ecological beauty of the area. Those burrow pits which looked like scars in the area were filled with surplus material from the pipe trenches and a layer of topsoil spread on top to support plant growth. Contour berms were reinstated to prevent soil erosion before it was hydroseeded.

The implementation of VRESAP as an emergency project was accompanied by several other challenges that required proper planning and management of these

activities to ensure the minimum interruption off construction activities. Assessment for the presence of aspects of archeological, cultural and heritage significance were undertaken upfront for the impacted areas at a high level. Despite a few additional new graves that were discovered during construction when the servitude area was cleaned, a further grave was discovered by the contractor during the excavation of the pipeline trench. With the assistance of an archeologist on call, the human remains were rescued and reinterred in accordance with all statutes. Graves discovered during EIA process were also removed and reburied in local cemeteries and other cemeteries of families' choice. Memorial stones for each grave site were also installed where the graves were relocated and this will assist the affected families with guidance on where the remains of their loved ones are now buried.

As the pipeline crosses through several stream crossings and the abstraction works situated very close to the water body, TCTA has to adopt a very strict environmental management regime. It was specified in the contractors' contracts and enforced on them to conduct regular water quality monitoring using accredited laboratories. Monitoring covered the chemical and biological composition of effluent discharged to the water body. Where non-compliance was identified, the contractor was instructed to rectify the problem within a short space of time. The South African Scoring System (SASS 5) was also used to determine the effects of the project on the diversity of living organisms in the streams. Results were presented monthly to TCTA and quarterly to the Environmental Monitoring Committee.



Women in construction



As part of contributing towards the country's struggle for women empowerment, TCTA, in cooperation with the South African Federation of Civil Engineering Contractors (SAFCEC), has been supporting this initiative through VRESAP. The plan was to develop the skills of women in the construction industry.

The Pipe Supply and Installation contract was identified as the one to be awarded to companies owned by women. During the contract negotiation process, TCTA and the contractor (MPC) agreed that the Women in Construction Development programme will be implemented through this contract. Substantial portions of work such as the construction of valve chambers along the pipeline route was allocated to these emerging women led businesses.

Apart from the construction of identified items, MPC appointed Capital Outsourcing Group to provide business administration, mentorship and support while The Learning Organisation was appointed to provide basic computer literacy to the South African Women in Construction (SAWiC) contractors. DBSA agreed to send the owners on a mini MBA. The selection of contractors and the design of the content for the programme was facilitated by SAFCEC. The following companies were selected:

- Arise and Shine Projects
- Boikanye Building Construction
- Phomolal General Services
- Stephina Projects
- Tlhokomelang Project Services
- DIKS Construction

Four of the six companies named above come from the project area (Mpumalanga) while the other two companies originate and operate in Gauteng. The programme has been a resounding success, with significant development taking place in these SAWiC enterprises.

TCTA will consider using the same model for the implementation of other projects as part of its Socio-Economic Development Strategy and the focus will mainly be on rural women.



As a caring organization, TCTA donated this park house to the community of Charl Cilliers in commemoration of 2008 World Aids Day. This house is stationed at the police station and will be used as a trauma centre for counseling.

VRESAP CSI

Social responsibility is the centre point of how TCTA projects operate and VRESAP is no exception to this rule. In 2008, TCTA through VRESAP, became involved in a number of Corporate Social Initiatives. It was a joy for TCTA to see these initiatives being welcomed with warm hearts by beneficiaries.

The Topsy Foundation:

Through its vegetable gardens in Grootvlei, Balfour, Siyathemba and Greylingstad Nthorwane, the foundation distributes fresh vegetables to destitute families in the surrounding areas as part of the healthy nutrition programme. Topsy also has an HIV and Aids orphans sanctuary based in Grootvlei; some of the vegetables also go towards this initiative. In 2007, as part of VRESAP social responsibility, TCTA donated R40 000 merchandise to this foundation. This money was used for purchasing seedlings and protective clothing.



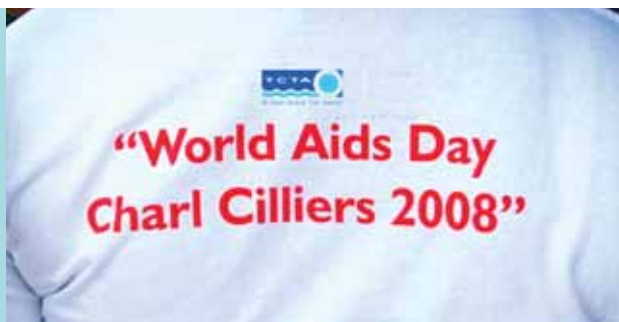
Sakhisizwe Daycare Centre

Located just outside project site, the Mamello Village is a small township of informal settlements. The residents have been living in the area for more than 60 years. As with the Topsy Foundation, TCTA also donated R40 000 to Sakhisizwe Daycare Centre, the only creche in the area. The money was used to purchase and install playground equipment, which included jungle gyms, swings, soccer goal posts and netball poles. The official handover of the equipment took place in June 2008 in the presence of the children from the centre with some TCTA officials.



Aids Day at Charl Cilliers

On 1 December, 2008, Charl Cilliers, a small village in Mpumalanga, commemorated Aids Day for the first time. Charl Cilliers is affected by VRESAP as the project pipeline passes through the town. This successful event was organised by TCTA and attracted about 200 people from the village and surrounding areas. Activities that took place during the day were sports, singing and cultural dances.



Isifisoethu Educational Programme

VRESAP engineers became educators when students of Isifisoethu School in Balfour visited VRESAP. This was an initiative of the SABC for its educational programme, Nature Excursion. The learners that were part of the site visit were maths and science students from grade nine and ten. The aim of the programme was to educate the learners about the importance of water and the processes involved in securing water. This also gave these youngsters an opportunity to ask career-related questions. The programme was later aired on SABC 2.



Partners



Dr Cornelius Ruiters (DWAF)

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There has been a substantial participation by BEE components on this project and targets were set to ensure that significant job opportunities are provided by the implementation of this project.

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Andries Meyer (SASOL)

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The VRESAP project is of significance to SASOL in that it enables the future growth of the facility, enables us to manufacture more fuel in future and it also mitigates against the risk of water shortage during drought conditions.

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Nandha Govender (ESKOM)

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We are also pleased with the fact that from a government perspective the stakeholders have been represented in the decision-making process, so it has actually enhanced the project management as well as contract strategy of the project by enabling stakeholders to have input into decision making and also ensuring sound governance.

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James Ndlovu (TCTA)

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TCTA will continue to deliver on its mandates. We have been entrusted to manage other projects and we are mobilizing for more skills. With a positive spirit, we will work hard to deliver on time.

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